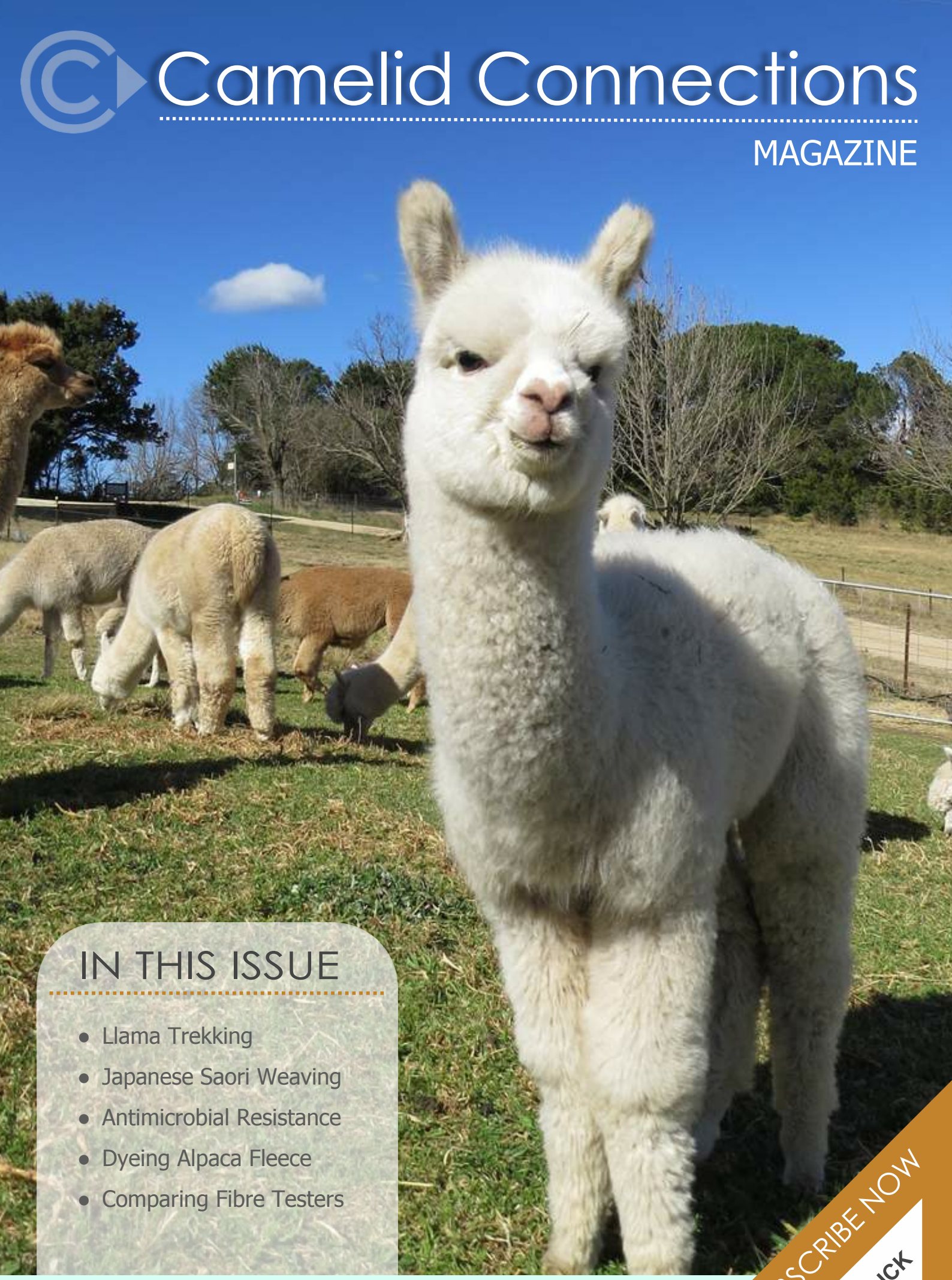
Camelid Connections

MAGAZINE



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- Comparing Fibre Testers

Issue 1 - September 2017

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Cover: Young cria
Photograph courtesy Oak Grove Alpacas

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KUNA

Welcome to Camelid Connections

Julie McClen and Esme Graham, the team producing Camelid Connections, welcome readers to the first edition of Camelid Connections online magazine.

After six years producing Alpacas Australia magazine the demise of that magazine as a quarterly stand alone magazine has left a hole in the market we hope to fill and extend it's reach to both alpaca and llama breeders who are not necessarily members of any official association but still require information.

This online style of magazine aims to keep owners, breeders and those just interested in camelids, especially alpaca and llama breeders, informed and gives advertisers the opportunity to reach camelid owners/breeders who may not normally see advertising in members only publications.

We are always looking for interesting stories so don't hesitate to contact us if you have a story to tell or a fun/interesting photo to share for our cute or crazy camelid photo spread - the best photo each issue as judged by us will win a free business card advert in the following issue of Camelid Connections.

Do you have a product you would like breeders to know about? Think about advertising with us, readers will be able to link directly to your website, Facebook page or blog from the magazine. All magazines will be archived in the library on our website so articles and adverts have an extended shelf life.

View our affordable advertising rates on page 44 of this issue.

Click on the button on our front cover to subscribe so you don't miss a single edition. It's FREE!

See an advert that interests you? CLICK on it to visit the advertisers Web site.

Meet The Team

Esme Graham - Editor

My husband and I have been breeding suri alpacas for the past 20 years, I have been heavily involved with both regional committees and the national board of the Australian Alpaca Association for a number of years.

My major interest has been in marketing and education and to this end I have been editor of Alpacas Australia magazine for the last six years.

I hope that the experience I have gained editing Alpacas Australia can be extended to educate and inform a wider range of alpaca and llama breeders who are not necessarily association members.

Julie McClen - Designer/Editor

A breeder of ultrafine Huacaya alpacas for over 16 years, I have a passion for fine fibre and the genetic connection to the most diminutive and finest of the camelids the wild Vicuna.

I strongly believe that education in any industry is the key to success, so with Camelid Connections we hope to provide interesting and informative articles to assist all camelid owners in getting the most out of their animals and businesses.

I also own Oak Grove Graphics a web and graphic design agency which is producing this magazine, and also allows me to connect with many different people in the camelid related world through my design and web work.

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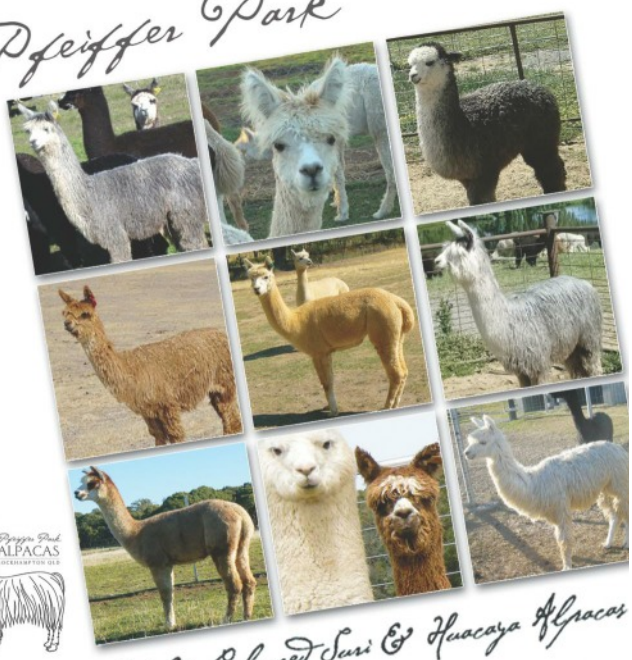

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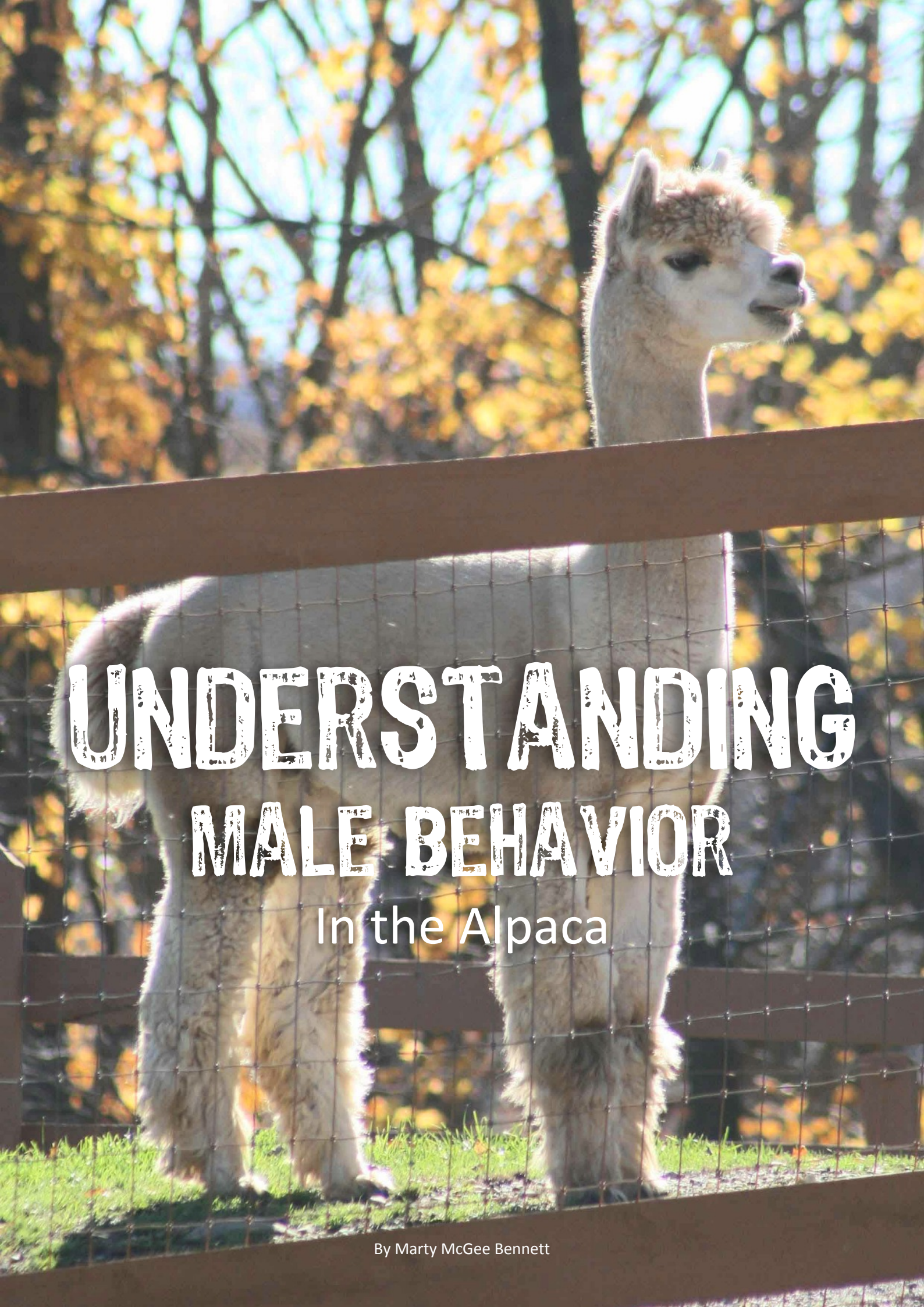


UNDERSTANDING
MALE BEHAVIOR
In the Alpaca

By Marty McGee Bennett

While I AM married to one, I make no claims to understand the behaviour of the two-legged male. I do however feel pretty safe offering some tips about the 4-legged camelid variety.

Boys and girls of any species are different-- that is for sure. The person who says that alpacas are always quiet and peaceful only has girls. For the most part alpacas ARE quiet, but boys in the midst of a disagreement are hardly shrinking violets. Breeding males of any species present challenges and require more thoughtful and deliberate management. Breeding males are territorial and highly sexual.

To successfully shape the behaviour of males it helps to understand them. There are two elements involved in living successfully and easily with male alpacas

1) understanding their behaviour in relation to other alpacas.
2) understanding their behaviour in relation to humans

Convincing alpacas NOT to engage in natural behaviours is a losing proposition. I think an easier approach to males is to make fighting or any other problematic behaviour unnecessary. Pay close attention and anticipate behaviour and you have a good chance to prevent what you don't want. This is much more effective and safer than attempting to correct what you consider to be misbehaviour once it has occurred.

It is only possible to affect what you can control. Trying to make males that live together play nicely all day and all night is impossible even if you were willing to move out to the pasture with them! What you can control is their environment. On the other hand, many owners do not expect much from their breeding males in terms of manners. A good set up will allow for handling breeding males easily and safely. An intact male alpaca on a lead rope can certainly learn to be respectful and cooperative even when females are around.

This article is based on many years of observing camelids, my professional experience as an animal handler and trainer, my studies leading to a degree in animal behaviour and two very good articles on behaviour. I intend to borrow heavily from an excellent article about dominance written by Lore I. Haug, DVM, MS, DaCVB, CPDT and CABC… lots of letters after her name… suffice it to say she is well qualified to write about dogs and behaviour. The other article is one of the few available about camel behaviour in large herds entitled "Herd structure, Leadership, Dominance and Site Attachment of the Camel (dromedary) by Norbert Schulte and Hans Klingel. Both articles are referenced at the end of the article.

It is not always about Dominance!

To begin with I would like to encourage alpaca owners to avoid the common practice of explaining every behaviour they see in their alpacas from a dominance point of view. The dominance model is over used to explain both behaviour between alpacas as well as behaviour between alpacas and their human caretakers.

What is wrong with the dominance model? In the first place we borrow the word dominance from the world of wolves. In fact, according to new research, dominance is not a particularly useful model for understanding wolf and dog behaviour much less domestic alpaca behaviour. Additionally, applying an across the board dominance hierarchy to all alpacas in all situations oversimplifies very fluid, context specific behaviours that may or may not have to do with a peck order. It also assumes that aggression is the result of natural alpaca behaviour when it fact it may be caused by human mismanagement.

Lets begin with the animal that we all know and almost all of us love and that is the dog. This is likely where all this dominance stuff in the alpaca world comes from. Leader of the pack, being the boss, the alpha dog we use these terms to describe our relationship with dogs and because many people tend to see alpacas as nothing more than big dogs we just take these same ideas right out to the barn. To begin with Dr. Haug points out that dominance means different things to different people. Various professionals and academicians don't even agree on the meaning of the word although most agree that the lay public has it very wrong. Dominance, according to most of the experts should NOT be used to indicate a temperamental attribute, motivation, territoriality or aggressive acts even offensive ones. This is exactly how we use the word in the alpaca world. Dominance is rightly used to describe the RELATIONSHIP between two individuals based on the outcome of some number of encounters involving conflict. Animals that prevail most of the time are considered dominant. Dominant-subordinate relationships developed to facilitate group living. According to Haug, "Hierarchies allow animals to live in close contact in competitive situations WITHOUT constant conflict and injurious, and potentially fatal fighting. Perhaps one of the most important aspects of dominance is to realize that it is not absolute. "Every individual assumes the subordinate role at some point with some individual in some context unless the individual is **pathological**." For example in dogs and wolves, most studies indicated that social and feeding rank are completely different. In terms of camels natural feeding behaviour seems to be completely devoid of dominance. Schulte and Klingel found that there are not hard and fast rules about who goes first or who initiates a grazing shift. With readily available forage leadership would appear to be very laissez-faire. "During daily movements from the boma (overnight corral) to the feeding

Grounds, several camels would be in the leading position for various periods of time, but a leader in the usual sense could not be recognized. Changes in front position were always completely friendly and the relieved animal was never observed attempting to regain its former position." In the camel dominance is almost exclusively reserved for copulation. Males can drive and chase the females in a sexual context but have absolutely no privileges when it comes to other things like food and salt. "The lack of dominance related behaviour outside the context of reproduction is remarkable. It is interpreted as a reflection of the lack of competitive situations in the original environment of the camel in their wild state where there were no defendable resources and, therefore, behaviour allowing for monopolisation did not evolve. This is demonstrated in the artificial situation of an extremely valuable and highly localized resource like salt at the salt lick where even the bull has no privileges."

Carry a few flakes of alfalfa out to the field or a single bowl of grain and there will be fireworks but it is about the food NOT about social rank. We humans are in fact starting this fight and we can prevent it by managing feeding time differently. Based on the environment that shaped their behaviour it would seem that alpacas, particularly males, should not have to compete for food. There are a number of ideas below but once you see fighting as competition for food and not an unavoidable issue of dominance you can figure out what will solve the problem in your specific situation.

Feeding males well away from each other defuses battles before they begin. Three feet per animal is often quoted as a rule of thumb. I think a better number would be 100 feet! Weather permitting we feed hay on the ground under trees keeping the piles and the natural resting areas well apart. I know that many people do not like to feed hay on the ground but that is where alpacas eat. They walk on what they eat when they graze and they are used to eating from the ground. If you are really opposed to feeding on the ground rolling carts can make good feeders. You can roll them around and move them to suit your set up. A bit of wasted hay is cheaper than building more paddocks or veterinary bills!

The same rule of thumb—distance = happy alpacas-- applies to all resources. Don't make your males fight over anything! Make sure that there is shade, water, mineral, and salt available to all members of a male group. It is a good idea to think of managing males as reverse musical chairs… there is always one more chair than players so there is no need to defend or compete for limited resources.

Pen Size and Composition

Another factor that you can manipulate is pen size and shape. It is natural to use the number of animals as a gauge for pen size - smaller numbers of animals need less space,

larger groups need more space. This works pretty well until you apply the rule to groups of males. It seems that distance from the coveted resource is key. The camel literature would suggest that there is a distance that young bachelor males must maintain from females. According to Schulte and Klingel, "The bull was able to chase bachelors of age up to 5 years which were kept in the vicinity. Whenever they came too close to the herd, they were attacked and chased up to 50 meters or further away. In no case was there any resistance." There does seem to be a minimum size pen that will work for boys regardless of the numbers. Three males may need as much room as 10 if they are going to get along. The reason is simple… subordinate animals must be able to get far enough away to signal that they are giving up any claim to the coveted resource - in most cases females. In a very small pen no matter what they do subordinates cannot provide the proper degree of deference and are always in trouble. I wish I could give you an exact number for the minimum pen size but many factors come into play. Not only the size of the pen but the shape, the contour of the land, presence or absence of buildings, and the location of the females in relation to the shape of the pen.

If you have males that are not getting along you might think of offering more space or tinkering with feeding locations in relation to the females. Change what you can for example move temporary shelters or add temporary fencing to create a baffle that creates an impediment to chasing. If the male pasture offers less flexibility it may help to move the females. It is great when the girls can be completely out of sight. If the females can be seen but only from a specific part of the male pasture it can lead to fights—this spot will be the prime piece of real estate in the pasture. If you are in the process of setting up your farm choose a pasture for your males that has hills or areas that provide visual cover for junior males and one that is either completely hidden or completely in view of the females.

Why can't we all just get along?

Is it natural for males to fight all the time? Is it the dominant male beating up on the subordinate ones? In fact more fighting is observed between subordinate members of a group than between leaders and underlings. Truly dominant individuals rarely engage in aggressive encounters.

According to Dr. Haug, "Dominance is NOT synonymous with aggression. Although aggression at times is used to establish dominance, agonistic encounters, particularly between familiar individuals are normally resolved with non-injurious ritualistic behaviour. Injurious or escalating aggression is atypical and counterproductive to group cohesion. In fact in many social species, the level of aggression shown by a particular individual is inversely correlated with the animals ability to attain high social ranking. Studies in humans show that escalating levels of aggression are correlated with impulse control disorders not dominance and in fact other humans interpret high levels of aggression in other humans as bullies not leaders." Temperament is probably both genetic and environmental. My own experience would indicate that the genetic component is more important.

Hyper aggressive males that cannot live in a group without risk to all members of the group are a fact of life and I think they are born that way. Ironically these males are often not very good breeders, they are easily distracted during copulation and are often more interested in what other males are doing than in breeding. Individuals that are aggressive in every situation are pathological. Alpacas that rely on aggression for every situation are almost always the same ones that have difficulty interacting with people. These males are not confusing humans with alpacas they simply meet every encounter with aggression regardless of who is on the receiving end. I have written many articles about how to work with these kinds of males as youngsters to interrupt their tendency to use aggression inappropriately. (reference Type A and B Babies and how to raise them, Novice Handler Syndrome, Raising Respectful Alpacas) It is extremely important to re-shape the behaviour as early as possible.

Undoubtedly these overly aggressive males are management problems and given the fact that they may be passing their temperament along to future generations I seriously question if they should be used for breeding. Castration certainly helps but the tendency towards aggression makes these males difficult to manage and not suitable for new alpaca owners.

If I could talk like the animals…

Observing and understanding behaviour can be a real help when it comes to management, on the other hand, trying to talk to alpacas in their language is not so smart. Returning fire by spitting back, wrestling, or other dominance approaches to misbehaviour are easily misinterpreted by an alpaca and may be dangerous to the human particularly when it comes to breeding animals. Communication between animals is incredibly nuanced and relies at least in part on having the proper anatomy. The practice of using dominance exercises with dogs provides a cautionary tale (or tail). Dr. Haug, "Presuming that all dominant aggressive dogs are just normal obnoxious animals that need a dose of "leadership" is unfair to the animals and dangerous to the humans around them. Although we are learning more and more about canine behaviour, there is still a paucity of research on social behaviour in dogs. The more we analyse canine behaviour, the more realize how complex it can be. What business do we have trying to translate and mimic a language that we do not even understand?

To manage males successfully you must manage their environment and work in a way that doesn't frighten them into behaving aggressively. Good animal management-laneways, catch pens, good fences and handling skill are the same things that make managing males easy too. With intact males these things are not just nice to have, they are essential. Cornering an adult male alpaca and trying to wrestle him to a stand still will scare him he may respond in kind and it will have nothing to do with dominance and everything to do with self-defence.

Dominance: The "Dirty" Word by Lore I. Haug, DVM, MS, DACVB, CPDT, CABC. From the Association of Pet Dog Trainers Chronicle of the Dog (2005)Herd Structure, Leadership, Dominance and Site Attachment of the Camel. Authors Norbert Schulte and Hans Klingel From Behaviour. Vol. 118. No. 1/2 (Aug 1991)

By Marco Mircic

OTTABA LLAMA WALKS

September 2010, we lost some sheep to a dog attack, this started us on our journey to becoming Ottaba Llamas.

As we investigated the use of guard animals for our sheep we found out about alpacas and llamas. Looking at alpacas my first thought was, why get an animal nearly the same size as the sheep?

So our llama adventure began.

The hardest part of our adventure was finding llamas for sale, eventually we met up with some llama breeders on the Sunshine Coast Qld. We made a trip to their farm and fell in love with llamas straight away. I chose an older gelding for our guard animal and my daughter chose a young male as a pet.

Pedro was 6 months old, he very quickly became part of the family and still is now. With the two boys, we became obsessed with llamas, their look, the way they interacted with us and their easy-going nature. We decided to grow our llama herd and bought six females, some with cria at foot or in cria, some young geldings and our first stud male Buckingham.

Seven years has gone by, our passion for llamas has not diminished and our herd size meanders between 20 - 30 animals.

Bec & Pedro as an adolescent

Over the last couple of years, we have looked at ways of being able to use our llamas to help pay the feed bills, vet bills etc. and Ottaba Llama Walks started up. The walks are a great way to discover the beautiful Brisbane Valley region, you can walk through the countryside with a friendly llama as your companion. We have had many visitors since we started, both Australian and International all with a love of llamas although many have not met one until their walk. We love what we do and being able to share our animals this way is a real joy.

Pedro is still one of the favourites and has led a very creative life, he has starred in some TV Ad's and played a role in nearly all our early promotional events and walks. The versatility of the llamas has blown us away and the trust they have with us as we go on so many different adventures together is amazing. Our newest editions are some Suri Llamas; I have fallen for these boys I love their look and their style, have now purchased some female suri llamas and intend to breed them and see where we go from here.
www.ottaballamawalks.com

LLAMAS & TREKKING

Using llamas as pack animals is part of South American culture, but over the last few decades has also become popular in other countries.

Llamas generally have a docile but curious nature so are well suited to accompany humans on day walks or multiple days treks and are especially popular with those interested in eco-tourism.

Llamas have padded feet similar to a dog, which lets them easily traverse steep and rocky paths while being more environmentally friendly to the ground than horse hooves. They also can use narrower paths reducing disturbances to vegetation. A llama can carry about 25% of its body weight without difficulty, with an average llama weighing 136kg it could carry a pack weighing up to 34 kg.

Antimicrobial Resistance

The Emerging Disease of the Next Generation

By Dr Judy Law - BSc.BVSc

SAMFORD VALLEY VETERINARY HOSPITAL

Australia is, so far, the lucky country with low levels of antimicrobial resistance in people and food animals.

However, the post-antibiotic era is already here in many developing countries. One study in India conducted on 2600 isolates from community acquired E. Coli infections found 73% resistant to Ciprofloxacin; 60% resistant to 3rd generation Cephalosporins and 60% resistant to Gentamicin. In Australia the comparable resistance rates are approx..5%. These antibiotics are our last line of defence against bacterial diseases. Almost untreatable infections originating in Pakistan and India are now appearing in hospitals in the UK and now also in Australia. There are no new antibiotics being developed. Therefore, it falls to this generation to protect the effectiveness of the antibiotics currently available.

A popular belief is that much of the antibiotic resistance within the human population is caused by their inappropriate use in animals – especially in intensive livestock industries. However, a number of studies have shown that antibiotic resistance from animal sources is a factor in only 4% of emerging diseases in humans. Nevertheless, emerging resistance is acknowledged as an increasing problem in both human and veterinary medicine.

There is very little data available on antibiotic resistance patterns despite a number of initiatives to acquire such data. One such initiative is a survey being conducted by the Australian Veterinary Association (AVA) on antibiotic usage in dogs and cats within Australia and the development of guidelines on the proper use of antibiotics used by veterinarians. Otherwise there is little regulation on the use of antibiotics but there is little doubt that increasing regulation will occur in the future.

The most likely place for this regulation to start is in the veterinary and food producing industry, despite the fact that these industries do not significantly account for emerging resistance. The reason is because these two industries are already highly regulated and therefore an easy place to start! Restriction on what type of antibiotics will be available for use in animals will probably come first. Knowing that government intervention is inevitable we, as an industry, should start self-regulation now so as to protect the critical antibiotics that have little or no resistance patterns.

Development of Antibiotic Resistance

Development of antibiotic resistance is very complicated. Simply, within any microbial population there are individuals that are susceptible to antibiotics and those that show resistance. The resistant microbes are coded for that resistance within their genetic code. Bacteria replicate rapidly and therefore random mutations also occur more frequently. If one such mutation confers antibiotic resistance then dissemination of that gene within the population occurs rapidly. Therefore, any population of bacteria will have a small number that carry the resistance gene. If that population is exposed to an antibiotic to which the resistant bacteria are immune then the non-resistant bacteria will die leaving the resistant bacteria to reproduce without competition – the emergence of the superbugs!

Obviously this is a very simple description and the emergence of resistant bacteria requires many generations. However, to avoid complacency we should remember that Alexander Fleming discovered penicillin in 1923 so in less than 100 years we have people dying of systemic bacterial disease because of total antibiotic resistance.

How Can You Help?

1. Good Husbandry

A. Go back to basics. What do your animals require to stay healthy.

- Access to good, clean pasture
- Good nutrition – different life stages require different nutrition
- Good management with respect to mating, birthing and weaning
- Institute vaccination protocols relevant to your area
- Effective parasite control programme. This must acknowledge the well documented, wide spread resistance to many parasitacides

B. Develop Quarantine Plans

Maintain your herd disease free by instituting a quarantine procedure to minimise/prevent introduction of infectious diseases. New animals should be quarantined for at least 2 weeks prior to introduction to the general population. This will require you to designate an area on your property that is well separated from the herd. Remember quarantined animals are fed and treated last and good hygiene with respect to waste disposal, cleaning of their area and your boots and clothes needs to be maintained. During this quarantine period these new animals should undertake vaccination if required and worming. Worming is best done based on faecal egg counts and larval differentiation so that an appropriate anthelmintic is used. Remember not to under dose!

You will also need to quarantine any sick animal. This helps both with infection control and with treatment.

2. Correct Use of Antibiotics

A. Only use antibiotics when directed by your vet as not all situations require their use. For example, many wounds require only regular (twice daily) cleaning as long as there is good drainage. You should discuss these situations with your vet

B. Don't just use any antibiotic. If antibiotics are to be used by the rule book the causative agent should be identified by bacterial culture and the appropriate antibiotic chosen based on resistance patterns. In real life this only happens irregularly, usually due to cost and also as obtaining good diagnostic samples can be difficult in many situations. Experienced veterinarians usually know effective antibiotics or combinations for particular conditions but full clinical examination of the animal(s) is more effective than phone or email consultations.

C. Correct use of the prescribed antibiotic is essential. Follow the instructions of your vet and finish the course as directed. If the condition persists past the prescribed course then either a prolonged course is required or the antibiotic is ineffective and a different course of treatment may need to be instituted, based again on re-examination of the animal(s). The use of weighing scales is an important and effective tool. The most common mistake is under dosing the animal based on an incorrect "guesstimate" of its weight. Feeding bacteria ineffective amounts of an antibiotic promotes development of resistance.

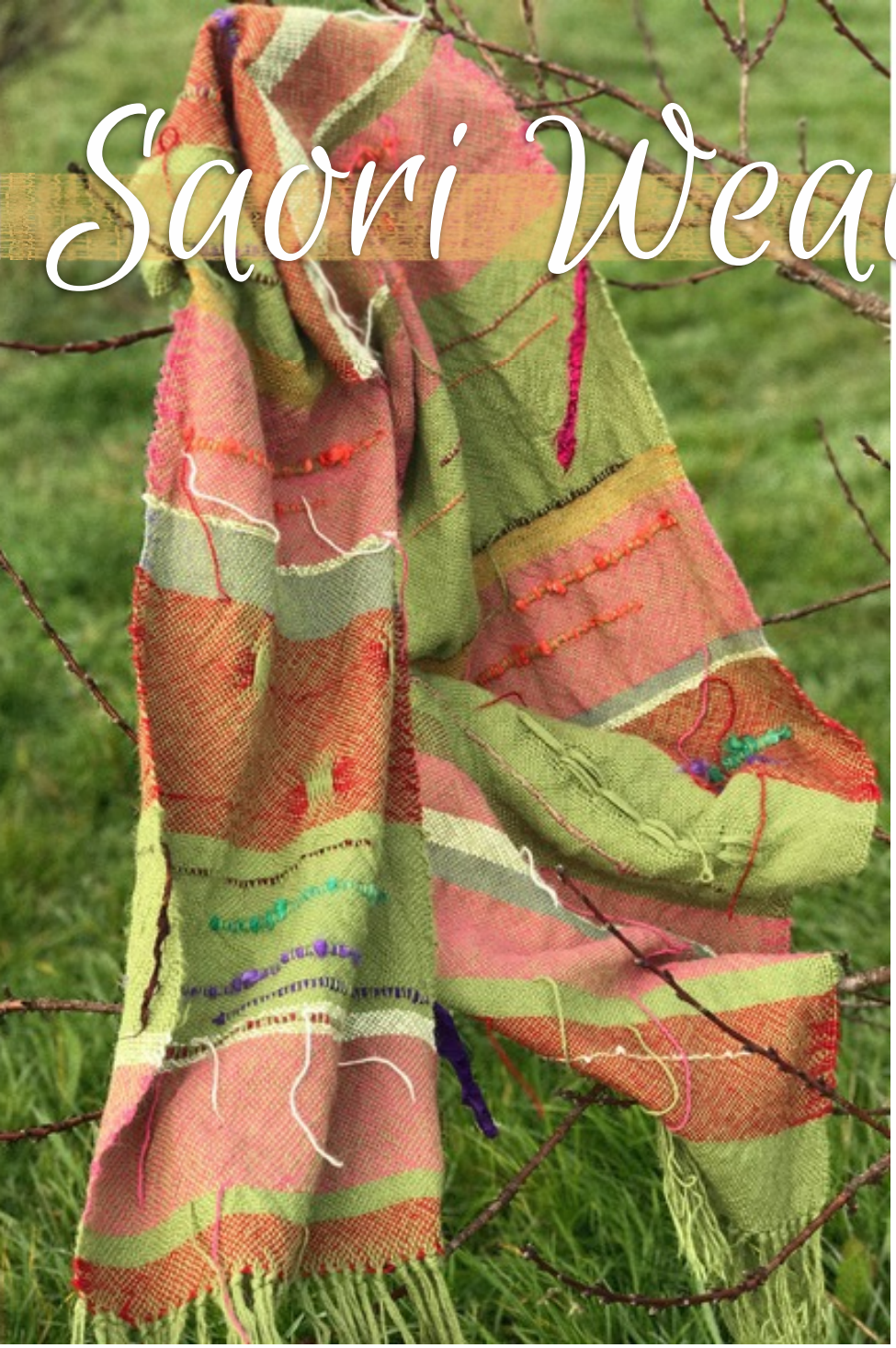
D. Correct Storage. Many drugs have a recommenced storage temperature – some requiring refrigeration within a specific temperature range. Picking a bottle of penicillin off the shelf in the shed that has been there since last summer, blowing the dust and cobwebs off the bottle and expecting it to solve your problem is the stuff of fairy tales. In addition, many antibiotics need to be discarded within a certain period following opening. This can be painful for you, especially if you don't use the whole contents. Always read the label and note on the label the date it was opened. Always use clean syringes and sterile needles and inject as directed – e.g. into muscle or subcutaneously. Remember, you are fighting an infection in a sick animal, you don't need to introduce another one!

e. You need to be aware that vets often will prescribe antibiotics that are technically "off label" use in camelids. This is because research into camelids is not as advanced as in other species.

f. Maintain detailed herd records. This may require you to identify the animals using ear tags or other methods. Detailed records allow significant retrospective analysis of such things as successful mating; time to maturity; fleece grading etc. and provides the basis for changes in husbandry practices that will improve production.

Conclusion

The time for relying on antibiotics as a one stop cure all for infections is past. We must adopt a multi-layered approach to the emerging problem of antimicrobial resistance. We must all take responsibility for the future. The veterinary industry is already significantly regulated and the use of a number of antibiotics (e.g. gentamicin and chloramphenicol) have been banned in food producing animals for many years. In the future it is likely that veterinary and food production industries will come under even closer scrutiny and regulation and we should be prepared, especially as this may include a longer list of banned antibiotics.



Saori Weaving

By Angela Betheras
Nickelby Alpacas, Nickelby At Darnum

SAORI Weaving. What is it? What makes it different?

Can I do it on any loom? Do I have to know all about weaving? What is a Saori loom and do I need one? The questions I receive are endless from customers who come to watch me weave at open studio events, in my shop or who purchase my garments.

Before answering those questions it needs to be said that Saori Weaving is not for everyone. People who like structure, like to be told what they should do next to create something, people who are looking for all the technical answers as to why something works the way it does, I am sorry to tell you, you will most probably struggle with Saori Weaving. I have been a professional photographer for over 20 years and I equate Saori Weaving to the two types of photographers – those who know all about the camera, the lense, the real technical aspects and then those, who like me, go to the camera shop and say I need a lense to do a particular thing and those technical people tell me which one to buy and I buy it! Saori Weavers fit into the latter category.

Rules and regulations are thrown completely out the window with SAORI Weaving.

In fact as soon as you start to follow a pattern or put some structure into your work you are no longer performing Saori weaving.

Saori Weaving embraces many of the traditional weaving techniques, makes up a few of their own, but importantly allows the weaver to put them together in a way in which the artist can express their individuality.

The philosophy is that a machine can weave a pattern and make no mistakes, a human on the other hand is after all human and mistakes are a part of life and operating as a machine is not normal and these deviations from set structure and “mistakes” should be celebrated, encouraged, and developed. Leave the work of perfection to the machines and leave the living, expressing and celebration to the humans. Saori Weaving represents the free spirit in all of us and over 40 years ago Misao Jo, the Japanese lady who founded Saori Weaving started to share her weaving philosophy with the world - Individuality rocks!

Misao Jo, in her book she wrote with her son, Kenzo Jo, says that “Saori Weaving is just like a painter painting a picture or a poet writing a poem. Saori Weavers weave in search of our true selves which are hidden.”

There are only three certified teachers in Australia who are allowed to teach Saori Weaving and sell the equipment. I

could have studied with any of those ladies, but instead because I had decided once finding out about Saori that I wanted this to be my creative life, I decided to travel to Japan. In Japan I waned to meet Misao Jo, Kenzo Jo and the team and immerse myself in everything about Saori.

I spent an amazing eleven days at the studio, staying in their apartment, weaving every day from 9am - 6pm and totally being consumed by Saori and its philosophy. Misao Jo was 103 when I was there and whilst she no longer speaks, she spent each morning with us, watching what we were doing. I was very pleased to be told that at the end of my stay I was given the Saori seal of approval. I knew how much the Saori way of life had become my way of life when I think the biggest buzz I got was when Misao Jo wanted to give me a cuddle and hold my hand. To those of us who are true Saori devotees, Misao Jo is a living legend. At 104 she is still a living legend.

So just like the fact that if you see a great photograph it has far more to do with the person taking the photo than the camera, so to is the case with Saori Weaving. Yes there are Saori looms which are lovely to use, easy to thread, totally transportable and a joy to use but I also use other looms as well. You can do Saori Weaving with a piece of cardboard like you did when you were at school. Saori is not about the loom but about your creativity. The loom, like the camera, is just a tool to help you along your creative journey to achieve your design and share your artistic expression.

One thing I see often is that if people are just really bad at weaving they try and pass it off as Saori Weaving. They have followed a pattern, done it badly with mistakes that are just so obvious that they are mistakes and not design and say it is ok it is Saori. Well no, that is not Saori. Saori can hurt your brain! You are designing all the time, you are thinking about what your end product will look like. Mine are all designed in my head, parts on paper, I know exactly what something will look like as soon as I put the yarn in the dye pot. I have my Saori design ready to go. However in saying that if I start to weave and it is not coming together as I would like, I stop and think of a new direction but one that will fit with what I am designing. At the end the piece has to speak to me, I need to keep my ideal end customer in mind for that piece - after all I do have a mortgage to pay and this is how I pay it!


Saori Nomori Studio

Angela's Saori creation

However if you are embracing Saori Weaving and something doesn't work out I learnt when in Japan from the wonderful Hiromi you just shrug your shoulders and say "it's design" and move on. Embrace the unexpected and celebrate the not so normal and the quirky.

Embracing Saori was right for me but me being me I couldn't just stop at weaving a scarf or a wrap. I had to make clothing. So again taking that design spirit and creative thinking, after I have woven my piece 90% of the time I cut it up! I mould it and shape it on my dummy in my textile studio and hopefully the end result is a dress, a jumper, a top or pants. If it is a little weird I just shrug my shoulders and tell the customers "it's design"!

For me and many others, Saori is not something you just "have a go at" it is totally a way of life.

When Neonatal Crias Get Sick?

By Claire E Whitehead
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Diplomate ACVIM (Large Animal)
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In 1998, there was an article written in the Veterinary Record regarding population statistics and mortality rates in South American Camelids in the UK (Vet Rec 1998;142(7):162-6). This article discussed the findings of a postal questionnaire that had been sent to owners. The highest mortality rates (17-33% of total alpaca deaths) were found in animals aged less than 6 months with the highest proportion of those occurring in the first week of life. When giving presentations on neonatal care to owners I report these statistics: one would hope that this situation had improved due to increasing knowledge and better education. However, I still have many communications with owners who tell me about a cria that died at 3 or 4 days old and they didn't know why. This concerns me. There is always a reason for that cria to have died and in most cases it should be fairly obvious on veterinary clinical examination or post-mortem examination. This summer I recruited a large number of breeders to take part in a study on birthing and neonatal problems that I hope will provide some useful current data.

There are 4 main reasons for a neonatal cria to be struggling (a neonate is a cria that is less than 2 weeks of age):

1. Hypothermia
2. Hypoglycaemia (low blood sugar)
3. Failure of passive transfer of immunity (FPT) leading onto sepsis
4. A defect that the cria has been born with (eg heart defect).

Any combination of these problems is also possible. The good thing is that these problems are pretty easy to diagnose. There are also some less serious ones such as meconium impaction but these will not be discussed here.

Hypothermia

You can easily check whether a cria is hypothermic by checking its rectal body temperature. Normal temperature should be 38-38.9° C, less than this and the cria is hypothermic. You can rectify this situation by warming the cria. Bring the cria indoors and warm it up using blankets, heat lamps, heat mats, hot water bottles etc. Latex gloves filled with warm water work quite well and can be placed under the back legs to help warm the large blood vessels passing through there. If you place any warm items next to

the cria be careful to cover it with a cloth or towel so that it doesn't scald the skin. Never use a warm water bath as this just draws the blood supply to the skin away from the core and this may cause cardiovascular collapse.

Hypoglycaemia

Hypoglycaemia is most common in newborns that have failed to suckle. They are born with a normal blood glucose level but they need to suckle milk from their dams in order to maintain blood sugar. If they don't nurse, blood sugar levels fall off and they'll subsequently collapse. If you find a collapsed cria, first check its body temperature and warm up if necessary. Secondly, smear a little sugary solution inside the mouth of the cria from where it will be readily absorbed and may be lifesaving while awaiting a visit from the vet. You can use anything that is concentrated sugar such as syrup or runny honey. This should not do any harm. Slightly older crias may have normal, high or low blood sugar and there is likely something else going on as well… [If you want to get technical you can buy yourself a glucometer from the chemist and use this to actually check the blood glucose concentration (normally 5.5 – 7.25 mmol/l): clip a little hair from the inside edge at the bottom of the ear where there is a fleshy bit of skin, use a hypodermic needle to prick the skin and squeeze up a droplet of blood to do the test.]

Failure of Passive Transfer and Septicaemia

Ensuring adequate colostrum intake is vital in order to protect newborn crias from infections during the first few months of life (this is called passive immunity). There is only a narrow window of opportunity: after about 8 hours of life, the gut will start to lose its ability to absorb antibodies from the colostrum and after 24 hours, virtually nothing will be absorbed. Failure to ensure colostrum intake may result in failure of passive transfer of immunity (FPT) and, unless this is addressed, may result in potentially fatal infections.

If you are unsure whether a cria has taken in enough colostrum, perhaps because it didn't get going early enough, or because you are concerned about the mother's milk availability or it may be exhibiting signs of prematurity, you can check for FPT in one of several ways. The first couple of methods involve measurement of total protein or globulins in the blood – your vet should easily be able to do this for you. However, total protein measurement is heavily dependent on hydration status (globulin not so much) so may not be as useful in a sick cria where other tests may be more useful such as evaluation of a blood smear and chemistry tests. There are also a couple of camelid-specific immunoglobulin (IgG) tests available that measure adequacy of passive transfer: the more established test takes 12-24 hours to run so is not so useful in an emergency situation if the cria is already showing signs of illness. It is great for screening for FPT though. More recently, a newer IgG test has become available that takes only 15 minutes to run once the reagents are warmed to room temperature. You can buy this as a kit to use on farm which is ideal or send samples off to a commercial service that offers it. Camelid Veterinary Services Ltd offers this test in the UK and a number of breeders also have their own test kits.

If the cria fails to gain weight or actually loses weight, this can be an early sign that something is wrong, most likely that the cria has FPT and is developing septicaemia (where bacteria enter the bloodstream and start to produce toxins that result in organ failure). However, there may be other reasons for this (eg defects) and the cria should be evaluated by your vet.

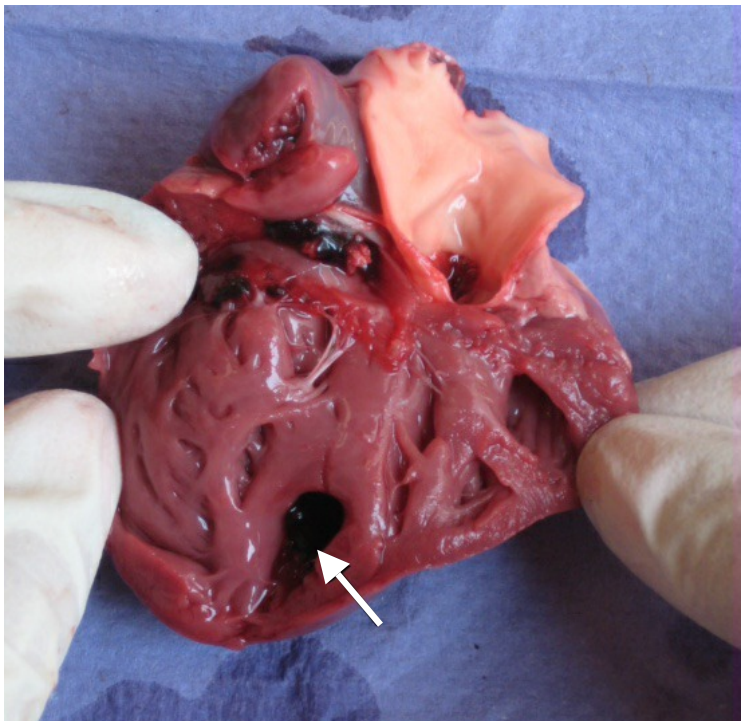
Once FPT has been diagnosed, the only way to remedy the situation is by plasma transfusion since the cria can no longer absorb antibodies out of the intestines, along with antibiotic and supportive therapy where necessary if sepsis is developing. Plasma (usually 150-300ml volume) should be given intravenously through an IV catheter and results in very few complications when proper aseptic preparations are made and the transfusion is given slowly (usually 20-40 minutes). The intravenous catheter may also be used to administer antibiotics and further fluids if necessary if the cria has already become sick.

Intraperitoneal transfusion has been advocated by some but is not recommended by this author – it is an archaic standard of medicine to practice and can have many more complications than transfusions given intravenously: it can not only be painful resulting in loss of appetite and growth, but may cause potentially fatal problems such as peritonitis and adhesions between loops of intestines.

A Defect

There are a number of defects that can cause crias to be failing in the first week or so of life: examples appear below. These problems should be identified as early as possible by veterinary examination: the ones that cause clinical signs of illness are often not correctable and these crias should be euthanased on welfare grounds. Those that are easily correctable should be identified and treated early before secondary complications develop: bear in mind that these animals should never be bred from.

Heart Defects: Crias suffer from a number of heart defects, the most common of which is a Ventricular Septal Defect (or "hole in the heart"). These defects do not always cause clinical signs but when they do, we have a limited ability to deal with these problems medically. If a defect is suspected by your vet on the basis of listening with a stethoscope, this should be evaluated by use of an echocardiogram (cardiac ultrasound) performed by a cardiologist who will be able to diagnose the problem – this is important for making breeding decisions later. Not all heart murmurs (abnormal sounds) are due to defects: generally, the louder ones are. Quieter ones may also be due to illness – dehydration, electrolyte disturbances and sepsis can all result in murmurs and need to be differentiated from those caused by defects…



Choanal Atresia: This causes respiratory difficulty. The defect is caused by a failure of the back of the nostrils to open during embryologic development such that a membranous or sometimes bony defect prevents air from passing through the nostrils - in short, they cannot breathe normally and have to mouth- breathe. Some crias compensate for this relatively well while the majority show respiratory difficulty fairly shortly after birth. Often crias will puff out cheeks while breathing and may struggle to nurse because they get out of breath. Making the diagnosis is fairly simple: a red rubber catheter or other soft-ended tube should be passed up the nostril - there will be a blockage at the level of the eye. Surgery is possible but the prognosis is not great since most affected crias already have FPT and sepsis by the time of diagnosis and hypoxaemia (low blood oxygen concentrations) causes them to be further compromised. In addition, other defects are often present in crias with this defect. Surgery should only be considered in animals that are stable clinically or have a unilateral defect AND it is understood that the animal should NOT be bred from. Otherwise, they should be euthanased.

Imperforate Vulva: The cria strains to urinate. The vulva pouches out below the anus and appears to be fluid-filled: this develops as urine builds up behind the vulva since the cria cannot pee. Therefore it is not obvious at birth unless you look carefully at the vulva. This is an easy problem to correct by the vet by making an incision in the midline to make a normal sized vulva opening (local anaesthetic gel can be used to anaesthetise the area - sedation is not necessary). No suturing is required.

Anal Atresia: These crias have no anus and therefore cannot pass faeces. As long as the defect only affects the anus, your vet can correct this problem surgically.

What can you do to identify problems early and give your cria the best chance at life?

Appropriate management in the first few weeks of a cria's life is essential to ensure that it makes it through the high risk neonatal period, grows well and survives into adulthood. Fortunately there are some really basic and easy things that you can do.

1. Ensure adequate colostrum intake in the first 24hours (see separate box)

2. Weigh newborn crias on the day of birth. Alpaca crias normally weigh an average of 8.0kg. If they weigh less than 7kg, they may be more at risk of not getting sufficient colostrum and warrant closer observation.

3. Weigh crias daily for the first 2 weeks of life. During the first 24 hours, crias may lose weight as they dry off and pass their meconium (first faeces). After the first 24 hours, they should consistently gain weight at the rate of 0.25-0.5kg daily. This reflects adequate intake of milk. If they fail to gain weight, or lose weight, this is the very first indication that something is not right and the cria may have FPT. Action at this point, including diagnostics and possible plasma administration, rather than waiting until the cria collapses, will result in the best outcome for your cria and the least impact on your finances in terms of veterinary care.

4. Screen crias for FPT. You may choose to do this for all crias, or just those of high risk (including low birth weight, known difficulties nursing or getting going) or high potential value. This decision is up to you. Screening allows early identification of FPT: if found, plasma transfusions can prevent further illness from developing and reduce subsequent costs.

5. Do not delay seeking veterinary attention for any sick crias. If your vet doesn't know much about alpacas specifically, suggest that they call for advice and help.

Notes on Plasma

There is currently no commercial source of plasma in the UK. There is a commercial plasma bank in the US but plasma would need to remain frozen in transit and pass by customs quickly! Permissions would also have to be checked before placing any orders! In the UK, your vet can collect blood from donor alpacas in your herd and process into plasma for you to store for an anticipated clinical need. Vets cannot legally sell plasma without a license from the Veterinary Medicines Directorate – this is a license to run a blood bank essentially. There are many quality control steps that have to be taken in order to earn the license (which also carries a hefty annual fee) but this is in order to maintain quality of the product and safety for the intended use.

Over the last few years, I have heard of a number of suboptimal practices from various sources. It is essential that blood and plasma products are collected, stored and administered in a sterile manner. If this is not done correctly, administration of these products could be potentially very detrimental to the recipient. Examples include aspiration of collected blood into small blood tubes for spinning, followed by separation of plasma into other containers such as bags; and storage of plasma in syringes which is completely inappropriate as it cannot remain sterile.

How should plasma be given? The most effective means for administration of plasma to crias is by intravenous infusion. There is a remote chance of a transfusion reaction but this risk is considerably less than the risk to a whole blood transfusion: in 15 years of working with camelids I have never had a transfusion reaction. I do use an anti-inflammatory (flunixin meglumine) IV prior to the transfusion: I have no evidence to suggest that this makes a significant difference but it is what I do. Administration of plasma by intraperitoneal (IP) infusion is about 1/3 less effective and leads to many more potential complications observed by this author following referral for these complications, particularly if either the site of injection or the plasma is not 100% sterile. Additionally, if the cria is already starting to develop sepsis, an adverse reaction to IP plasma is more likely. I have also heard of owners recommending plasma to be given by mouth to crias, regardless of their status, doing clinically well or otherwise. It is important to bear in mind that colostrum is massively more concentrated in antibodies (among other important components) than plasma: since antibodies from either will only be absorbed in the first 24 hours, when colostrum is available in the mother's milk, there seems to be little point wasting space in the cria's stomach with an inferior product that is far more costly to produce when colostrum is on tap nearby… The cria only has 24 hours to take on board that colostrum so it is pointless to make life harder for it. If you are going to go to all the effort of collecting blood and making plasma, use that valuable product wisely and give it directly into the bloodstream where it needs to get to and where it will have the optimum effect.

Australian Plasma Information
By Editor - Camelid Connections

In Australia plasma is available through your local vet practice. Camelplas is Plasvacc's APVMA (Australian Pesticide and Veterinary Medicine Authority) registered camelid plasma product. Rich in gamma globulins, Camelplas is collected from hyperimmunised donor dromedary camels that reside at the Plasvacc plasma production facility, the only facility of its kind in Australia. Camelplas is used to supplement the immune system of camels and is a highly effective treatment for Failure of Passive Transfer (FTP) and Partial Failure of Passive Transfer (PFPT) in alpaca cria. Camelplas can also be used to great effect as a supportive therapy for a range of conditions, such as diarrhoea, colitis, renal conditions and active infections. Camelplas has been proven to be completely safe and effective for all camelid species, including alpacas and llamas.
For more information – www.plasvacc.com or contact your local veterinarian.

What is colostrum?

Colostrum is the first milk produced by the mother: among other goodies, it contains the all-important antibodies from the mother to protect the newborn cria from infections. Unlike humans, crias are born without antibodies and need this protection before they start making their own.

How can you ensure adequate colostrum intake?

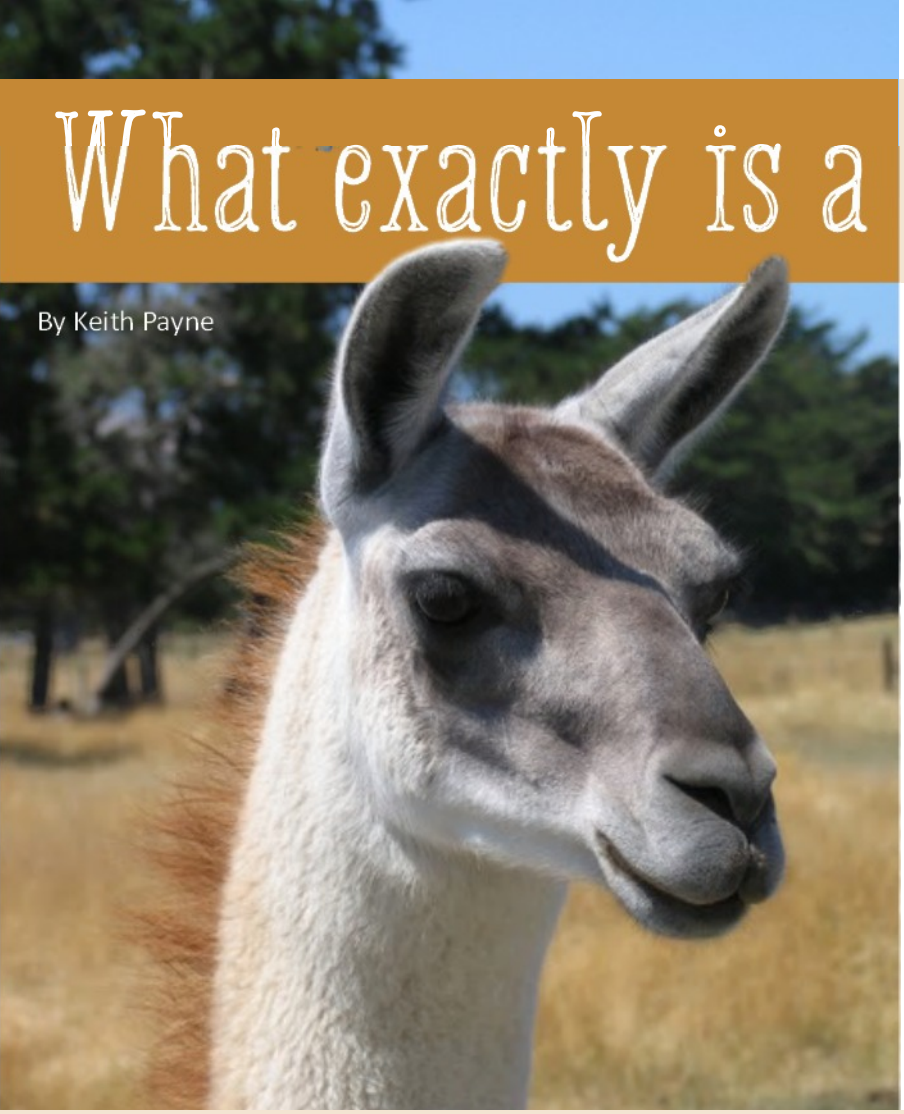
If a cria is not particularly active soon after birth and is not getting up to nurse within the first 4 hours, it is likely that the cria will need assistance. Initially this can just be making sure that the cria gets up to nurse frequently, or help with getting the cria into the right place to nurse and making sure it latches onto a teat. Otherwise, bottle-feeding with the dam's own colostrum or stored colostrum will be necessary.

If a dam has insufficient milk, then frozen camelid colostrum can be used, or goat, cow or sheep colostrum as alternatives – goat is best since it is the closest to camelid milk in composition, but cow is usually easier to acquire. If acquiring colostrum from elsewhere, always make sure that it is from a BVD, Johnes and TB free herd.

Colostrum can be either fresh or frozen. Frozen colostrum keeps for up to 1 year in the freezer and is best stored in 75-100ml portions. [NB Don't microwave-thaw!!] Avoid powdered colostrum supplements as these are not designed to be substitutes for colostrum. These really only provide energy. Aim to feed 10-15% of the cria's bodyweight over 24 hours, divided into feedings every 2-4 hours. Preferably feed by bottle, though tube-feeding may be necessary initially. If you have to tube-feed more than twice, there is probably a reason why the cria is not getting up and nursing for itself and you should seek veterinary attention.

What exactly is a Ccara Llama?

By Keith Payne



When I commenced my research into the history of llamas a number of years ago, I was at first surprised that the word for llama in both Quechua and Aymara is “KARA”.

As the indigenous people did not have a written language, this was expressed in English by the Europeans of the day as ccara, cara, kara or q’ara from Quechua and frequently as qawra from Aymara. But no matter how we spell it in English, the point is that it is the word for a llama. So if we were to ask them what is a ccara, they would respond simply that it is a llama.

And latterly when camelid scientists determined the llama to be a domesticated guanaco bred for traits suitable for that purpose, it became clear that there was only one type of llama at the beginning - the cara. Subsequently we have learned that a single coat llama was bred over hundreds of years from the cara, they called it the cha’cu, which is known to us today as the woolly.

This two year old evidences the clean face, ears and between ears of a ccara. The short neck hairs often highlight a lovely mane

And at some other point in time, as far as I am aware, the exact or even approximate timing of this is unclear, a gene mutation resulted in a suri fleece in the llama.

So, at the start some 6-8,000 years ago there was the original llama the ccara, and from it was developed the woolly and at some point along the way was added the suri.

Now the original ccara llama was identical at the outset to the guanaco. It had a distinct double coat, the coarse outer guard hair representing 10-15% of total hairs and an inner down of very fine fleece. It is further described as having bare legs to above both its knees and hocks, a bare face, bare ears and finally bare between its ears. It had short hair growth on its neck and the balance of the body was consistently covered with the guard hair/inner down combination. The ccara llama was proven to be able to survive in wet areas or total desert and at altitudes up to 4,000 meters and above, this fleece type being able to support the animal in all those conditions.

The ccara llama sheds its fleece. It is constantly in the process of this, accelerating in the hotter months and slowing in winter but it never ceases. The entire fleece will replace itself after shedding every two years.

The ccara llama today may have colouration similar to that of the guanaco, either the lighter brown northern type or the more reddish brown southern guanaco. Or it may evidence any of the other llama colour patterns that we see walking in our paddocks. Spots on a llama are from the guanaco, initially they are evident as smaller “splodges” commonly from back mating llama to guanaco and subsequently manifesting in what are commonly called appaloosa spots (although quite different from the spots on appaloosa horses). So there is no specific colour or pattern which is unique or special to the ccara llama however the guanaco or original breed colouration may and will present itself at regular intervals. It is interesting that although there were three common fleece types, the physical integrity of the llama was the same, only the fleece differed.

Today we have in evidence a number of intermediate fleece types resulting from interbreeding between the three fleece types. This is one of the major results from the chaos in years subsequent to the Spanish conquest of the Inca, the other significant introduced factor is cross breeding between llama and alpaca. These two developments (hybridisation and mingling of fleece types) make it difficult at times to determine exactly what type our llamas are today. Certainly

if you have a llama which has a double coat and sheds fully, you have a fair chance of having a ccara, but you'll find that many llamas in fact only partially shed often leading to an incorrect definition.

One thing to look for is in regard to breed purity. Unfortunately, the only way to conclusively determine if your llama is a purebred is to have DNA analysis undertaken. This is a very expensive and lengthy exercise at present, only a handful of scientists are capable of doing this. Until such time as this becomes more accessible to the average llama farmer, fleece coverage is the next best indicator, although it is not conclusive. The bare legs, face, ears etc. mentioned above are what to look for.

The other feature you may consider is fleece fineness. Contrary to a prevailing sentiment that llamas have coarse fleece, consider that the original llama, the guanaco, had very fine fleece, surpassed only by that of the vicuna which is recognised as having the finest fleece of any animal. Our llamas today which commonly have fleece testing in the 25-35 micron range do so as a result of cross breeding between the fleece types and hybridisation. Such llamas will reflect a deteriorating micron count from the age of two throughout their lives, whereas the original ccara llama will have fine fleece, normally less than 20 micron and that fineness will continue into their late teens.

The ccara type of llama is certainly one which is ideal for smaller llama farmers. The ccara are low maintenance llamas requiring only a monthly brush to remove shedding fleece and never need to be shorn. As they are closer to the original breed they tend to have low maintenance toe nails in addition to a strong immune system as long as they receive a balanced diet. Their fleece will be fine, however the tradeoff will be quantity, with the ccara you will have quality but not quantity. They have a reputation for being difficult to handle in some quarters however my experience is they do respond to proper handling when young and maintain that through their lives. They are a pleasure to work with.

One procedure that devoted original breed enthusiasts have adopted is to only breed their females to males which have finer fleece such that progeny gradually work toward that original fine fleeced llama. Breeding to a male with coarser fleece is viewed as a backwards step in this initiative. Personally I support this practice, it makes sense to me. Progeny not only have finer fleece than the dam but often have improved conformation and structural integrity. Something to consider.

AUTHOR'S NOTE: the ccara llama will not be for everyone, many will simply prefer the look of longer fleeced animals. We do however all need to be aware of the extent of hybridisation in our national herds and the importance of maintaining the integrity of the llama breed.

This mature adult male shows the clean face and ears however his longer neck hair suggests he is an intermediate fleece type or his pedigree has been hybridised

The adult female has fleece coverage which suggests an intermediate fleece type (between ccara and woolly) and/or hybridisation as do the white crias. The guanaco cria is pure ccara

This two year old male shows classic ccara fleece coverage including the bare legs to knees and hocks

est. 1993

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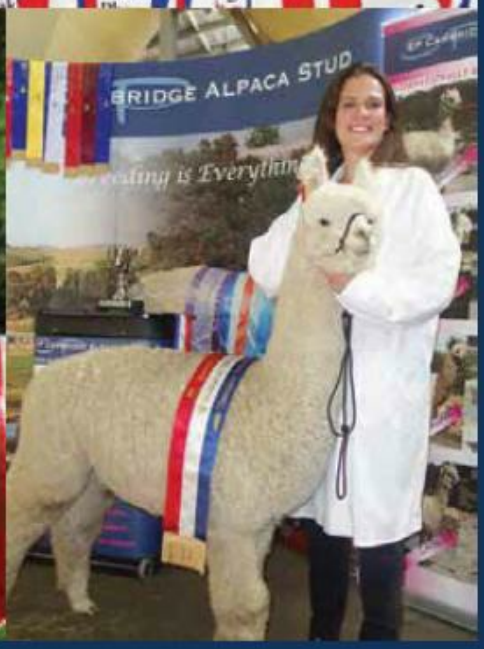

www.epcambridgealpacas.com

Australian Alpaca Spectacular

AAA National Age & Colour Championships

The Australian Alpaca Spectacular is a huge event held for the first time in August 2017.

The goal was to celebrate and promote the achievements of Australian Alpaca Association members, educate and inspire anyone with an interest in alpacas, and encourage further investment into the industry in Australia.

Along with the AAA National Age and Colour Championships, (formerly the AAA National Show & Victorian Alpaca Colourbration), the four day program included an elite alpaca auction, interactive workshops, and of course some great networking functions.

A huge event and the organisers are to be congratulated for a well run show, great educational workshops and plenty of opportunity to network and socialise. A well setup trade display gave suppliers the opportunity to showcase their products and was well received by breeders.

The elite auction was well supported with the top price of $55,000 paid by a New Zealand consortium for Kurrawa Legends Thrill Seeker, a solid light fawn male.

Alpaca Artapalooza replaced the usual art and photography section and all the artwork was displayed on the Alpaca Spectacular website and the public asked to vote for the winners. Over 200 votes were received and the well deserving winners were Tracey Hey with her artwork and Courtney Platfuss who won the photography section.

Prize Winners

Congratulations to Matthew and Cathy Lloyd from EP Cambridge for winning the huacaya National Supreme Grand Champion for 2017 with EP Cambridge Sin City and to Chris and Tara Ravenhill from Bedrock Alpacas for winning the National Supreme Grand Champion Suri for 2017 with Bedrock Cryptic

The Most Commercial Fleece was won by Kurrawa Legends Destiny's Child and the Bill Plunkett Trophy for the highest scoring fleece was won by Kurrawa Legends Challenge shown by Faversham Alpacas.

Alpaca Degustation Dinner and Fashion Parade

ABOVE - Sires Progeny Open Huacaya

LEFT - 2017 AAA National Supreme Grand Champion Huacaya EP Cambridge Sin City

ABOVE - 2017 AAA National Supreme Grand Champion Suri Bedrock Cryptic

LEFT - Highest price alpaca sold at AAA Elite Alpaca Auction Kurrawa Legend's Thrill Seeker with breeder Natasha Clark and NZ buyer consortium.

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Dyeing Alpaca

By Angela Smith - One Tree Hill Alpaca Stud

Beginning Dye Class

Dying alpaca yarn is fun and easy. There are lots of dyeing techniques to dye your yarn but let's start with understanding dye terms first:

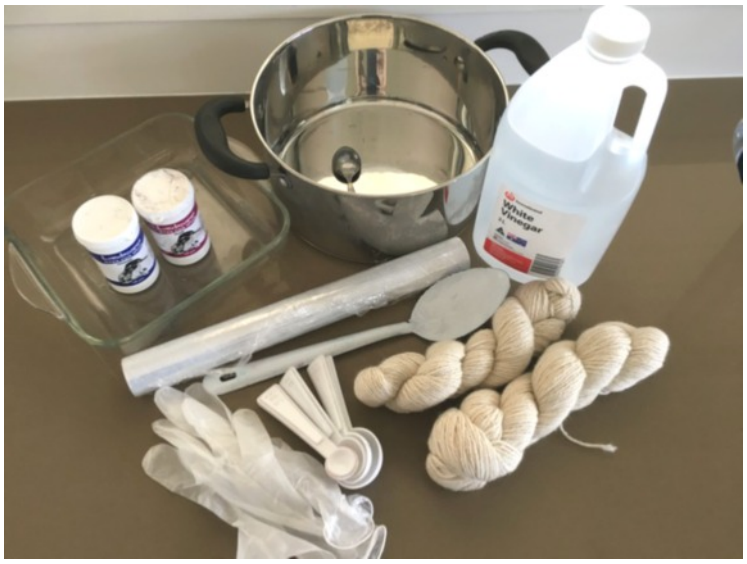
- **Protein Fibre** - this refers to all natural animal fibres such as alpacas, mohair, merino and silk.
- **Mordant** - helps the dye to fix to the fibre - in the case of natural fibre the mordant I use is white vinegar - the cheap home brand type work well. You can also use citric acid.
- **Wetting Agent** - this helps the dye to evenly spread throughout the yarn, when dying to get a more even colour. I use plain old home brand dish washing liquid. Don't use it if you want to dye uneven colours, which are sometimes very nice.
- **Exhaust Dyeing** - this means where the dye is fully absorbed into the fibre and when you press with a teaspoon the water collected is clear. This means that all the dye has been taken up in the fibre.
- **Acid Dyes** - these types of dyes need heat to set them (e.g. Landscape Dyes - which I use)
- **Cold Dyes** - dyes that are cold set, no heating required (e.g. Earth Pallet Dyes - I also use these)

Safety messages:

- Use dye equipment for dyeing only.
- Wear rubber gloves when mixing and handling dye.
- When handling dried dye power, or when working in an enclosed space, wear a mask.
- Keep away from kids and pets. Both the dye and the hot water are hazardous to kids and pets.

To start dyeing you will need:

- Yarn (alpaca of course)
- Vinegar or citric acid
- Dish washing liquid
- Dye
- Cling wrap
- Gloves and dust mask
- Bucket or old ice cream containers
- Measuring spoons
- Microwave
- PH strip test kit (you get these from EBay)
- Teaspoons (white plastic ones are good)
- Old plastic tablecloth
- Stainless steel pot (for stove top) or glass container/bowl (for microwave)
- Paper towel



Tips I have learnt along the way:

- Handle the yarn carefully - warm/hot water and movement of natural fibres may cause the yarn to felt.
- Read the dye instructions from the supplier. They will tell you how much dye you need for the weight of yarn you intend to dye. You can add less dye powder if you like a less intense softer colour.
- If dying solid or semi-solid colours you need to mix the dye powder in hot water to dissolve the powder. This does not apply to dye techniques where you are wanting speckled yarn.
- Cover the benches if you are working in your kitchen. Dyeing can be messy and it's best to cover where you can. An old plastic tablecloth works well.
- When dyeing don't walk away to do another job…you may forgot the dye and ruin your yarn (yes I have done this from time to time).

To start dyeing (now the fun part)

If your yarn came as a ball you will need to wind into a hank.

In a bucket add enough warm water that will cover your yarn and then add a couple of drops of dishwashing liquid and 1/2 cup of vinegar.

Mix and then test the PH. You are looking for a PH of 4 - at this point most dyes will fully absorb into the yarn and the yarn will be colour fast. If the test result is not sitting at 4 then add more vinegar and test again. Repeat until you have reached PH 4.

Add your yarn and fully submerge. Let it sit for at least 30 mins to 1 hour.

Follow these instructions for speckled yarn:

- Remove your hank and squeeze as much water out of the yarn as possible. If the yarn is too wet the speckles will be less defined.
- Spread the cling wrap, overlapping a little bit, across your bench to the length of your hanks. Make sure you use enough wrap to cover the length and width of the yarn - again depending on how much you are dying at one time. I dye 5 hanks of 100 grams at one time but it might be best to start with one hank.
- Put on your gloves and dust mask.
- Pick your colours (the really fun part). Using very little dried powder sprinkle your yarn. Like you're adding salt and pepper to your food. At this point you need to remember that less is sometimes the best. You can always add more but you cannot take away. You can add one colour or lots - just depends on what you like.
- Once you have finished on one side of the yarn you have 2 options: leave or turn over. It will just depend on how speckled you like your yarn. If you want more speckles carefully turn the yarn over but change or rinse (and dry) your gloves off first. Sprinkle this side.
- Wrap the hanks up with enough cling wrap that the yarn is not touching itself. Fold into a long parcel with the ends folded in.
- If possible, place in glass dish.
- Microwave for 2-3 minutes. Let it rest for about 5 minutes and microwave for another 1 minute (Note: this time will depend on how much yarn you are dyeing at once - reduce if you are only dyeing one skein at a time). Be careful not to overcook and burn your yarn.
- Take out and set aside. Allow to cool.
- Unwrap your yarn and rinse in cool water with dish washing liquid.
- Hang out to dry.

Sprinkling dye on yarn

Yarn soaking

Dye in pot ready for yarn

Yarn going into pot

Yarn in the pot

Dye exhausted in pot

Final dyed yarn

For another dye option consider Earth Palette Dyes. These are "Ultra" cold dyes, meaning they need nothing more than room temperature (approx. 20-25 degrees) to set. No heating up on the stove top or in the microwave! These dyes self-mordant, meaning you don't have to add vinegar to the pre-soak bath.

Earth Palette website: www.earthpalette.com.au
Kraftkolour (supplier of Landscape dyes) website: www.kraftkolour.net.au

Follow these instructions for solid or semi-solid yarn:

- Mix dye powder with sufficient hot water to dissolve. Remember to check with the instructions provided from the supplier for the amount of dye to use for the amount of yarn that you will be dyeing.
- Add a little vinegar to the water.
- Check the PH - you are looking for PH 4. If not at 4 add more vinegar and test again.
- Add the dye and mix well. At this point you can test the colour with a section of paper towel. If you like a more intense colour add more dye to hot water, mix together, and add to the dye bath.
- Add a couple of drops of dish washing liquid.
- On your stove top - heat the dye bath to a slow boil (just beyond a slight bubble).
- Remove your hanks from the pre-soak bucket and wring out slightly. Add to the dye bath.
- For a more even colour, very slightly move the yarn in the dye bath. Remember hot water and movement may felt your yarn - so don't move it around too much.
- Maintain a slow simmer for about 20-30 minutes.
- Leave in the dye bath until the water is exhausted (clear). If after 30 minutes the water is not clear you may need to add a little more vinegar and simmer for another 5 minutes. Repeat until the water is clear.
- Set the dye bath aside and let it cool.
- Once cooled, rinse in cool water and dish washing liquid.
- Hang out to dry.

You can also 'cook' your yarn using a microwave bowl with a lid. Add enough water that will cover your yarn entirely. Add the mixed dye, and set for 1 minute and check. Repeat until the water is almost simmering. Add yarn and set for 1 minute, check, repeat at 1 minute intervals until the dye is absorbed.

Yarn in microwave

NEWS

Camelidynamics Workshops

Two fabulous Camelidynamics workshops with Marty McGee Bennett were held in July - one in NSW at Regal House Alpacas in Kurrajong and the other in Qld at Southern Cross Llamas in Ipswich.

With three full days of learning, laughter and fun both workshops were a huge success - topics covered included (but not limited to!) understanding animal behaviour, using balance and leverage instead of restraint and force, why correct halter fit is so important, leading techniques, basics of Event Marker Training and much more! Everyone went home with new skills to use in their daily interaction with the camelids.

Did you miss out? Alicia Anderson from Regal House Alpacas is a Senior Consultant for Camelidynamics and has worked extensively with Marty. She offers one-on-one or group training and will travel to you, contact her at regalh@bigpond.com.

Who is the next farm biosecurity producer of the Year?

If you know an Aussie farmer who takes biosecurity seriously and goes the extra length to avoid diseases, pests and weeds coming on to their property, then nominate them for the 2018 Farm Biosecurity Producer of the Year by 20 October.

For information on the awards, including the nomination form, visit agriculture.gov.au/aba

Australian professor wins top US award

Professor Stephen Powles of The University of WA, an internationally recognised authority on herbicide resistance in plants,has won the American Chemical Society International Award for Research in agrochemicals.

He is the first Australian to win the award, which is given to a scientist who has made outstanding contributions to the field of agrochemicals at the international level.

COMING EVENTS

Guest speakers are - Dr Judy Law BSc.BVSc and Kerrie Lovell from Positive Enforcement/Clicker Training.

Royal Hobart Show - 28th October 2017

Convenor: Sally Vance
Judge: Bronwyn Munn/Lyn Dickson

Flying Colours Colourbration Show - 11th November 2017

Longford TAS
Convenor: Neil White
Judge: Steve Ridout

If you have a major state/national show or specialist event that is camelid related then please let us know.*

Email: info@camelidconnections.com.au

*We will make every attempt to include your listing here free of charge if your listing meets our criteria, but due to space limitations cannot guarantee every listing will be published.

Testing the Testers

Fibre Testing Alpacas

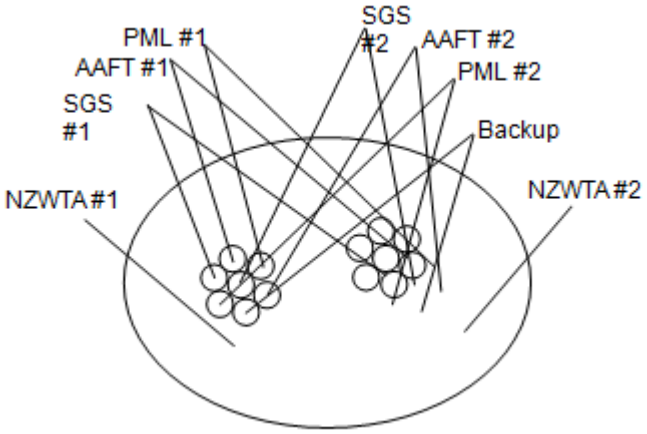
By Stephen Mulholland, Ph.D. for the Camelid Health Trust www.camelidhealth.org

Alpacas are capable of growing fibre of excellent quality, such that many people refer to it as “the fibre of the Gods.” But as we've all experienced, sometimes the Gods have a cruel sense of humour; for every silky-smooth 16 micron fleece, there are plenty of carpet-coarse 38 micron fleeces out there.

In order to breed alpacas with better fleeces, we need to know the quality of the fleeces of our dams and sires. The only quantitative, repeatable, transferable way to get this information is to submit samples for analysis in one of the many alpaca-fibre-testing laboratories. We are reliant on those results in assessing our animals, yet we rarely ask critical questions about those labs: how consistent and reliable are their test results? What instrument do they use for the test? What information do they provide? Where is the best value for money?

In this study I examined four different labs commonly used by NZ alpaca owners: New Zealand Wool Testing Authority (NZWTA) in Napier, SGS in Timaru, Pastoral Measurement Limited (PML) in Christchurch, and Australia Alpaca Fleece Testing (AAFT) in Australia. For the experiment I gathered fibre samples from 16 alpaca (10 huacaya / 6 suri, 11 females / 5 males), ranging from ~16 to ~36 micron, and from white to blue-black with many colours in between. A larger sample size of 40 to 50 would obviously have been preferred to increase statistical confidence, but AANZ's National Council unfortunately declined funding.

Sample Preparation: In order to measure the consistency of the labs, I had to ensure that the fibre samples were all prepared in a proper manner. This started at shearing where I collected extra-large side samples from the animals to be used in this study. Each such side sample had about 50 grams of fleece. Three of the testing labs (SGS, PML, AAFT) only required a small sample, usually specified as “2 staples”, while NZWTA requires a larger sample on the order of 20 grams, which in the field I interpret as a “generous fistful” of fibre. To reduce error from inconsistencies within a given fleece, I assembled each sample from fibre taken from similar locations in the fleece. For the seven smaller samples (two each for the labs, plus a backup in case a sample was lost or damaged) by taking two clusters of fibre staples about 50 mm apart, and then combining one staple each from each cluster to create the sample for submission. While we know that animals do vary in fleece quality over their bodies, it seemed reasonable to assume that adjacent staples should be relatively consistent. For the NZWTA sample I took the remaining fleece, manually mixed it a bit, then split it in two. A rough graphical representation is provided below:



The samples were submitted to the labs in February and May of 2017. The three month gap between sample submissions was a way to see how consistent the labs were over time. Scientific instruments can drift out of calibration if not maintained properly, or a different technician might handle the process differently on the day, so checking consistency at different times is a good measure of lab reliability.

I emailed the four laboratories requesting information on how they handled the samples, and how their staff are trained in the use of their instruments, and received replies from all.

In summary:

PML, AAFT and NZWTA wash/degrease all of the samples before testing. This is done with an organic solvent or a quick-drying alcohol. The samples are allowed to dry before scanning. NZWTA specifically allows all samples to "condition" for two hours in a controlled atmosphere before micro-coring, as they have found this produces more consistent results. AAFT commented that they are trialling a data-adjustment "wizard" that may allow alpaca fibres to be scanned without scouring, but as it has not yet been validated they are still scouring the samples they analyse. SGS runs the samples "as is" without degreasing, and apply a software correction factor to the calculated results.

AAFT, SGS and NZWTA have formal internal training methods for their own staff, and only certified operators are allowed to run tests. NZWTA runs four instruments to support the large volumes of wool they study, and they have internal consistency checks between these machines. NZWTA also complies with various ISO-standards for the testing of wool in the international market. PML maintains consistency by conducting all its tests with the same operator (Don Morrison).

AAFT runs their ODFA 2000 with the trim-hi feature turned on, SGS runs with it turned off, unless otherwise instructed by the sample submitter.

The labs had reported expected repeatability of their micron tests as:

NZWTA ~ +/- 1.0 µ
AAFT ~ +/- 0.3 µ
SGS ~ +/- 0.3 µ

The instruments used:

Both AAFT and SGS use the ODFA 2000.

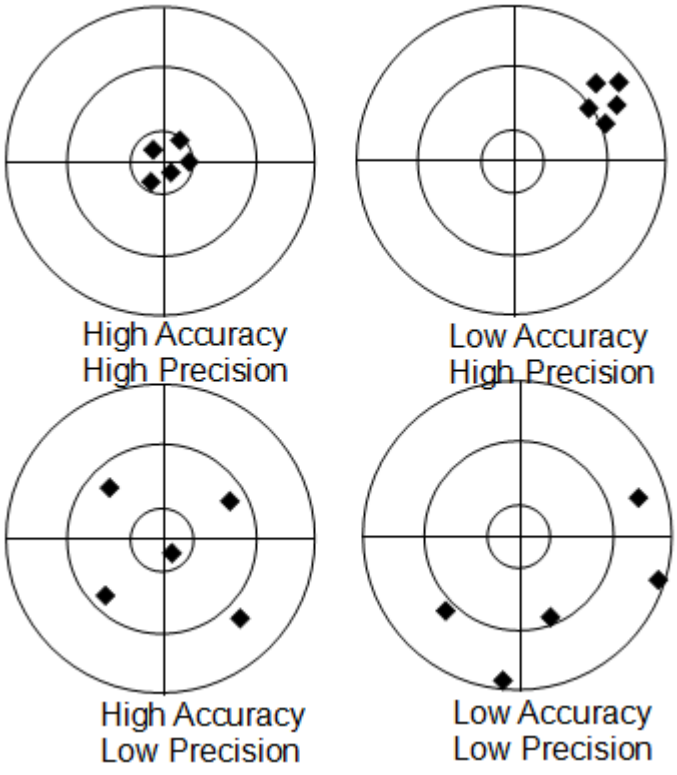
The ODFA 2000 provides the same accuracy and speed as the older ODFA 100, but this instrument can produce more information about each sample analysed. The instrument uses a microscope video camera to capture images of the fibres which are then computer analyzed to measure the fibre diameter. The accuracy for a single fibre measurement is about 1 micron, but by combining measurements from thousands of fibres the overall accuracy can be as low as 0.01 micron (as per the ODFA specifications, see www.odfa.com) The ODFA 2000 provides data for mean micron, SD, CV, Coarse Edge Micron, comfort factor, spin fineness, staple length, FPFT, SD along, curvature, SDC, as well as micron along the fibre.

PML uses an instrument of their own design, called Fiberscan Technology, which like the ODFA 2000 captures a high-resolution image of the fibres coupled to a computer analysis of that image. The PML Fiberscan instrument also provides "micron along fibre" data. The Fiberscan instrument provides data on mean micron, mean curvature, staple length, SD, CV, Coarse Edge Micron, Medulation % and comfort factor.

NZWTA typically uses its Laserscan machines for alpaca fibre samples. This instrument was developed by CSIRO for use in the wool industry, and uses "micro-cored" samples. This is when the fibre is mechanically cut into 2 mm segments before scanning. Because of the sample preparation method the Laserscan can provide neither along-fibre nor staple length measurements. The Laserscan provides information on mean micron, SD, CV and % over 30 micron (which is the inverse of the comfort factor measure). The Laserscan and ODFA 2000 instruments have been long-used in the sheep's wool industry, and IWTO methods have been established for each.

For this paper I'm looking at results for Mean Micron and Standard Deviation of Mean Micron for all four labs, and for the Along-Fibre and Staple Length measurements from SGS, PML and AAFT.

Measurement Nomenclature – Accuracy versus Precision



Accuracy is a measure of how closely centered your measurements are in respect to the target. Precision is a measure of how consistent your measurements are. It is possible to be very precise/consistent (a very tight group of measurements), but be way off the target (low accuracy).

I could not measure the absolute accuracy of these instruments, because I have no way of knowing what the "real" microns of the samples I submitted were, so I can't say which answer (if any) was "right." I could measure their precision (tightness of re-tests of the same sample), and their accuracy relative to one another (if a lab gave higher or lower results than the average of all the labs).

It is important to distinguish between accuracy and precision as we look at the results below.

The results in Summary (an average of all 8 tests on each sample):

ALPACA	COLOUR	TYPE	FLEECE#	MICRON	SD	STAPLE
H-1	FAWN	HUACAYA	1	15.7	3.59	92.33
S-1	BROWN	SURI	1	17.7	5.2	101
S-2	LT FAWN	SURI	1	18.6	4.16	140.5
H-2	BLACK	HUACAYA	1	19.1	4.7	76.17
H-3	BROWN	HUACAYA	5	20.3	4.79	79
H-4	WHITE	HUACAYA	2	20.6	5.08	103
H-5	BROWN	HUACAYA	2	21.7	3.94	125.5
S-3	LT FAWN	SURI	1	22.3	5.68	141.5
S-4	FAWN	SURI	5	22.7	4.68	89.5
H-6	WHITE	HUACAYA	4	23.2	4.74	81
S-5	WHITE	SURI	1	23.6	5.15	137.67
H-7	FAWN	HUACAYA	3	24.3	4.53	88.33
S-6	BROWN	SURI	1	28.8	7.31	153.33
H-8	BLACK	HUACAYA	8	34.4	7.96	82.33
H-9	BROWN	HUACAYA	9	34.7	6.23	82.33
H-10	BROWN	HUACAYA	6	38	8.39	98.17

Where "Black" are Blue/true (double recessive) black alpaca, and where "brown" spans a range from a very dark brown-black to medium brown/dark fawn.

Overall Measurements - Mean Micron

Mean micron is probably the most-quoted numerical statistic about an alpaca, and it is a common measure of animal quality. Knowing the variability in measurements is important, as that is how you can differentiate inconsequential difference (when the two numbers are within measurement error of one another) from consequential and meaningful differences.

Comparing micron results between different farms always introduces complicating factors because feed, weather and management practices vary from farm to farm. All of these factors can influence the reported micron of otherwise similar animals. Two of the test providers emphasized that their results are best applied within a herd of animals living on the same farm. Farm to farm comparisons are likely to have larger error bars, such that only proportionally greater differences in measured traits should be considered significant.

Precision of Measurement of Mean Micron

We wanted to know first if the labs would show the same result if we sent them the same sample twice. Based on this difference between the samples mailed in February to those mailed in May, the calculated variation in the results you are likely to see is shown in the table below.

LAB	AVERAGE VARIANCE	MAXIMUM VARAIANCE	ANIMALS WITH VARAIANCE > 2 µ
AAFT	+/- 0.41 µ	1.7 µ	0
SGS	+/- 0.75 µ	2.4 µ	1
PML	+/- 1.50 µ	5.7 µ	3
NZWTA	+/- 0.91 µ	3.6 µ	2

("µ" Is the Greek symbol commonly used for "micron.")

Variance between tests tends to increase as the animals coarsen. Four of the six cases where variance between measurements was above 2 µ happened in animals with fleeces greater than 28 µ, though these animals only constituted 25% of the sample set. So where a two micron difference between animals may be significant for fine-fleeced animals, for coarse animals expect much more noise (variance) in the reported micron numbers.

It is also impossible to consider what role luck played in these results. With such small sample set good or bad luck could have easily made one of the result sets look better or worse than the reality, so do not read these numbers and become overly obsessed in small differences, as they might not reflect reality.

There did not appear to be any great difference in the variance between measurements of white fibre vs blue-black, though the sample set was too small to detect anything less than a major difference. Likewise suri and huacaya fibre appears to have performed similarly in these tests, having about the same level of variance test-to-test.

Accuracy of Measurement

This study did not provide for an absolute assessment of the accuracy of the various instruments / laboratories. I could tell roughly which of the samples I sent were coarse and which were fine, but I didn't have an independent, verified answer as to the "true" mean microns.

What I could measure however was how results of the four labs compared to each other. This was done by averaging the eight results for each animal and generating a mean-of-the-means number, then seeing how the individual results compared against it.

LAB	AVERAGE VARIANCE FROM MEANS OF MEANS	SAMPLES ABOVE THE MEANS OF MEANS	SAMPLES BELOW THE MEANS OF MEANS
AAFT	+ 0.39 µ	22	10
SGS	+ 0.71 µ	26	6
PML	- 1.09 µ	3	29
NZWTA	- 0.01 µ	15	17

As you can see, the NZWTA data seemed to sit right in the middle, on average almost precisely the mean of all the measurements, with half above and half below. The ODFA 2000 instruments used by AAFT and SGS tended to measure higher average microns, while the PML instrument measured lower microns. Which is correct? As I said above, I don't have that answer. But, based on these results, if you are comparing a result from SGS to a a result from PML, you need to account for the fact that, on average, the same fleece will read 2 microns different between the two labs.

Overall Measurements - Standard Deviation

Standard deviation is a measure of the variability of fibre diameters within a given fleece. Fleeces with lower SDs will tend to have a better handle, and produce a higher quality garment because a consistent, low SD fleece will have a smaller "tail" of coarse fibre, and thus a better comfort factor. Precision of measurement of Standard Deviation Average Variance in S.D. between the samples sent in February and May

LAB	VARIANCE OF SD
AAFT	+/- 0.32 µ
SGS	+/- 0.84 µ
PML	+/- 0.66 µ
NZWTA	+/- 0.35 µ

What stood out most in this data was that every sample SGS analyzed in February had a higher measured S.D than the same fleeces analysed in May. The data from the other three labs had a natural-appearing distribution for S.D. measurements, with an even mix of some up, and some down (7 up &9 down for AAFT, 12&4 for PML, 8&8 for NZWTA). This suggests there might have been a systematic error in the measurements taken by SGS in February (or May), but the sample set was too small to tell if this was just statistical bad luck or a true error.

Overall Measurements - Staple Length

The ODFA 2000 and PML instruments also automatically measure the staple length. Compared to the mean micron and SD, this measure seemed have a great deal more variation, and this variation was not limited to the longer suri fleeces.

The six measurements for each alpaca were averaged to generate the average (mean) staple length. Then each individual test was compared to that mean to see how far it fell from the average. The first column in the table below is the average amount each lab varied from that calculated average. The second column shows their most extreme difference from that calculated mean. The final two columns show how often each lab's results were above or below the calculated mean.

LAB	AVERAGE VARIANCE FROM THE CALCULATED MEAN	MAXIMUM DIFFERENCE FROM MEAN	MEASUREMENTS ABOVE THE MEAN	MEASUREMENTS BELOW THE MEAN
AAFT	6.7 mm	23.5 mm	25	7
SGS	10.1 mm	22.3 mm	31	1
PML	15.1 mm	40.5 mm	4	28

In this case the PML instrument tended to measure the staple as consistently shorter, while SGS tended to measured it consistently longer. There was no obvious effect of colour or fleece type (suri/huacaya) on the accuracy of the measurements.

Independent of this study I also hand-measured the staple length all the samples submitted using a ruler. My results were consistent with the lab-generated results. So this should be something that most people could do on their own consistently and accurately enough.

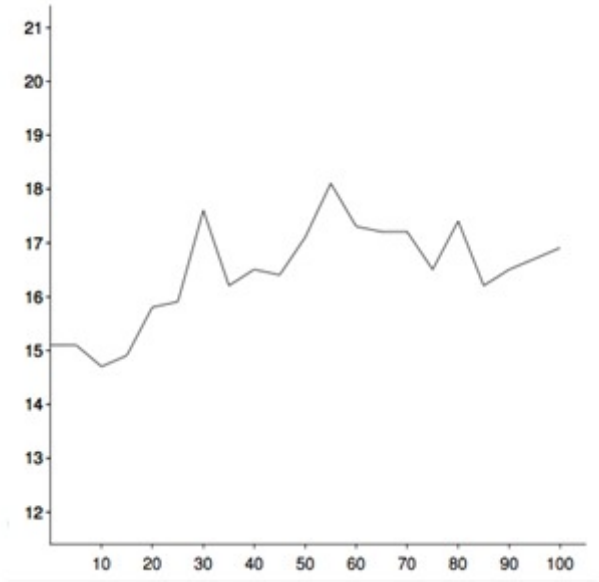
Measurements of Diameter Along Fibre

The ODFA 2000 used by SGS and AAFT and PML Fiberscan instrument are also capable of measuring the fibre diameter along the fibre. The along-fibre data can reveal a great deal about an animal, both in terms of genetic and environmental contributions to the mean-micron.

But what about the quality and consistency of the along-fibre data reported by AAFT, SGS and PML?

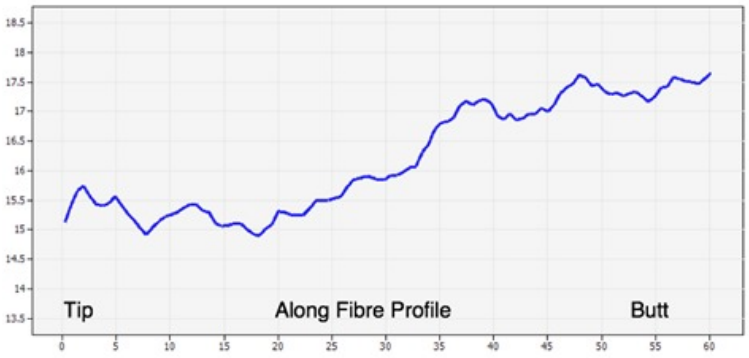
Because along-fibre data can be subject to "noise" (jumps up and down in the measurements along the fibre) it is best suited when looking at samples that have a clear trend. Many of the fibre samples submitted had fibre that didn't change much through the year, as it came from adult animals that had settled into their final adult fleece characteristics. Some of the younger animals had clearer trends in their data. For this example I will use the three along-fibre measurements from May of the animal S-1.

From AAFT we see:



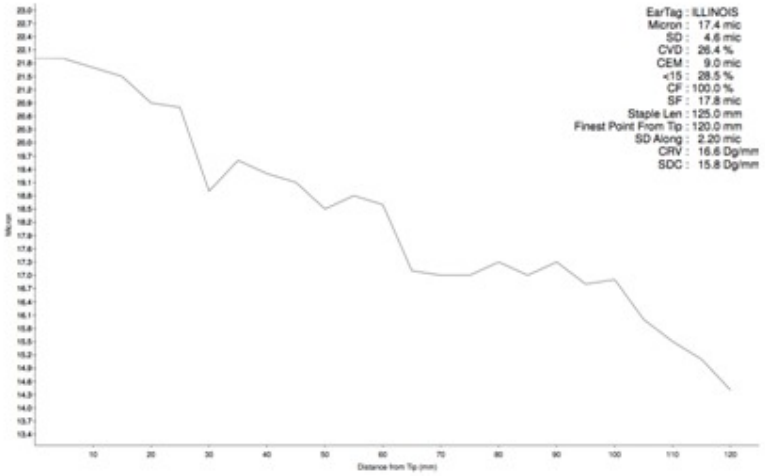
This shows, with some considerable noise, an animal that started with a fleece of about 15 micron and over the year it coarsened to about 17 micron.

From PML we see:



Again the fibre starts fine, about 15 microns in this case, and ends the year it is just over 17 micron. As with the AAFT results, about a 2-3 micron increase over the year. (The PML machine uses a FiberTrac software system which scans the fibre every 19 microns along the staple, the large number of data points this produces is why the PML data looks "smoother" than the ODFA2000 data.)

But when we turn to SGS we see:



Now the fleece started at 22 micron, and ended at 14 micron. Not only is this a large difference in beginning-to-end differential (7 micron compared to the 3 above), but it is moving in the opposite direction! This graph appears to show an animal growing finer during the year, not coarser as we would expect (barring other health or nutrition factors). This is probably an error, or possibly an extreme example of the possible sample-to-sample variability that can happen when running samples.

Serious discrepancies like this is why it is a good idea to double or triple-test animals that may be critical to your breeding program. If the tests don't concur, you know that at least one of them in in error. If all the tests concur it is highly unlikely that they all have suffered from the same error, and thus the result is likely quite trustworthy. In the case above because two of the labs concur, it suggests that the SGS data for alpaca S-1 was probably unreliable.

The “noise” inherent in these graphs meant that broadly speaking it was only safe to draw conclusions about trends in terms of fibre getting finer or coarser if there was a consistent and significant change. For many of the animals sampled there was little change during the year, as they were adult animals on consistent feed whose mean micron simply jumped around within a defined range.

A “backwards” or otherwise seriously wrong answer, if undetected, could cause you reach the wrong conclusions about an animals fleece quality. You can also sometimes spot possibly wrong results by simply comparing to previous years for the same animal. If an animal has been 30 microns for the last five years, but suddenly comes back with a 25-micron result (assuming the animal is not sick or otherwise compromised) you can assume that the outlier result is likely wrong.

Precision and regularity in along-fibre graphs

As you can see from the graphs above, there can be a good deal of “noise” in the along-fibre graphs. In an attempt to examine the consistency of these graphs I calculated the “trend” (difference between tip and butt of fibre) and “span” (difference between the minimum maximum values recorded during the year). Where the “span” was equal to or less than the “trend”, there were no large spikes, dips, or slopes in the data.

Comparing pairs of data (e.g. H-1 PML-Feb vs H-1 PML-May) I looked for examples where there was significant deviation (4 or more micron) in the measured “trend” between the two samples. For each of the three along-fibre testing labs, 2 of the 16 sample pairs had a deviation at least this great. So for 1 in 8 of the animals tested at each lab the two results did not concur. In these cases because each sample was in fact tested 6 times (twice for each of the three labs) it was easy to see which result was incorrect. But the high incidence of such errors suggests that a minimum of double testing for critical along-fibre data would be wise, while holding more sample in reserve for re-tests in case of non-consistent data.

Time for return of results

All results were received within 7 to 21 days of posting the samples. As I don't know how long it took the samples to arrive, I can't grade any of the labs as being quicker or slower.

Conclusions

On our own farm we get all our animals fibre tested every year, and all of our younger animals (at least until the third fleece) and any “core breeding program animals” are double tested at two different lab, at least one of which can provide along-fibre measurements. Double testing the most important breeding animals also provides the advantage that you might catch laboratory errors. If the two test results come back quite different, one is likely incorrect. Holding back a sample in reserve can allow for a re-test if it looks as though something has gone wrong; a few dollars well spent when compared to the cost and time investment in our animals!

Because some of the labs appear to produce systematically different results than others (trending finer, coarser, longer, etc), it is good practice to always list what lab you used when displaying any fleece data. If listed stats don't say where they're from, you should probably ask. If they tested at various labs all the different results should be available upon request.

Yes, it is possible to send your fibre samples to multiple labs to “shop” for the “best” results, or to send the many samples of the same fleece to one lab so that normal-statistical-distribution gives you one answer that looks “better.” Mis-representing your animals by using unreliable test results is fraud. Faked fibre data can and has resulted in legal actions. Don't do it.

Finally, this sort of “testing the testers” is the sort of thing we as an industry should do regularly. Hopefully in a few years' time the interest can be found to repeat this process, to see which labs are giving the most consistent results, and which are providing the best value for money.

I would like like to thank Phil Cranswick of NZWTA, Eugene O'Sullivan of PML, Jeremy Wear of SGS and Paul Vallely of AAFT for their advice and feedback in the preparation of this article.

Working With Camelid Fibres

By Tabitha Zarins

Some of the most ancient use of fibre was with the camelid family. The most commonly bred camelids include the camel, llama and alpaca. Of course alpaca is one of the finest ancient fibres and was treasured by the Incas in the Andes Mountains where the cloth made from alpaca was reserved for Inca Royalty. These original alpacas were thought to have had even finer fleeces than the finest alpacas of today.

Peruvian Weaver

Some of the most ancient use of fibre was with the camelid family. The most commonly bred camelids include the camel, llama and alpaca. Of course alpaca is one of the finest ancient fibres and was treasured by the Incas in the Andes Mountains where the cloth made from alpaca was reserved for Inca Royalty. These original alpacas were thought to have had even finer fleeces than the finest alpacas of today.

The most ancient camelid, called Protylopus, goes back to the dinosaur era nearly 50 millions years ago. There weren't any humans then but the earliest recorded use was noted in the Bible. Camels have been used extensively throughout the world for transportation, milk, meat, fertiliser and the unique properties of their wool. Both the Bactrian and the Dromedary have an outer protective hair called guard hair which is coarse and inflexible, the fine undercoat though is very soft and is gathered or plucked when the camel begins to moult.

I have been using all the different camelid fibres for many years, however I breed only camels which I pluck every year. I have trained them to do this so they don't go and roll around in the dirt to get the wool off. They love the interaction, and it is a unique bonding time for us all. It takes about six weeks to pluck them completely, starting in November, and they all moult in the same order every year, the females being the last. They actually push each other out of the way to get to be groomed first!

Bactrian Camel

The main camelid fibres are very different; their uses are quite varied but each have unique qualities that are beautiful in their own right. I love working with them all. One thing they do have in common though is they are all very good insulators and light to wear keeping you toasty warm without the bulkiness of sheeps' wool garments.

When designing a garment or home wares it is important to know all the qualities and history of the wool. This helps in choosing the right wool for the right project.

For example, alpaca qualities are soft, silky, light, and fluffy with excellent drape. As a negative the wool lacks structure, elasticity and bounce compared to some sheep wools. I have observed that alpaca shrinks only 15% which is half the rate of sheep's wool, so samples are always a great way to gauge the outcome of a new design. You would use fine alpaca in

Click image below to watch my camel plucking video

gorgeous body hugging jumpers, shawls and luxurious blankets. Blending alpaca with silk or cotton makes for a royal combination. Having dyed many different wool and fibres, I have discovered that alpaca gives a more subtle colour or even pastel hue compared to that of sheep's wool.

Even though llama was woven into a cloth for the Inca commoners, I find it to be one of my favourites as it has charisma! It is great in designing Viking costumes, funky hats and for jazzing up the tops of felted boots. The natural llama colours are bold and strong and you have the added benefit of separating the long guard hairs from the soft undercoat quite easily by hand. The long guard hairs are great for spinning and weaving strong cloth and they are not itchy. They can be blended together to create an interesting cloth which is a very good insulator.

I am a bit of an advocate for the coarser fibres. I feel they are under utilised. I really like using double coated fibres, because I find them interesting and bold. Camel wool for example has been trimmed under the throat and the tail of the camel for centuries to spin string or thin rope as it is thick, coarse and strong. I mix my camel guard hair with LLama guard hair as it is great for spinning string and jute-like yarn.

Camel fibre would be the most versatile and widespread of all camelid wool. Although, not as prolific and readily available as the modern alpaca fibre. Camels are losing their appeal in many cultures as they are replaced by more modern methods of transportation and fibre is laborious to collect. The de-hairing process of the camel's fibre is a niche manufacturing process and therefore luxurious camel wool coats are very expensive.

I am lucky to have my four accommodating camels that allow me to personally harvest their wool from their bodies. From four camels I get seven different natural colours. I felt with it and spin it. I find it to be strong, flexible, soft, light and very, very special.

How to prepare fleece

1. I wash in small amounts; say around 250gms, which can be done in the laundry tub. Remove any vegetation and soiled fleece.

2. Fill sink with very soapy warm/hot to the touch water, nice and deep so you can submerge the fleece completely.

3. Gently submerge the fleece, pushing down with your hand in a gentle motion. *(below)*

4. Leave the fleece to soak for around 20 minutes, when you come back the water will be completely blackened and you will see that the fibre is not as clean as it first looks. To drain pull the fleece toward you and let the water out, pushing down on the fleece to remove excess water. Fill and repeat with no soap, just plain warm/hot to the touch water . *(below)*

5. For the final fill of water add about half a cup of white vinegar and leave again for around 20 minutes. *(below)*

6. The fleece is ready to remove from the bath when the final rinse is clear water.

7. Place fleece in an airy basket or shelf to naturally dry, use your hands to turn fleece over and to tease fibres open as they dry. Do this regularly otherwise the fibres will compress together and are much harder to work with once they are dry. The fleece should restore to its original state once dry ready for picking or carding.

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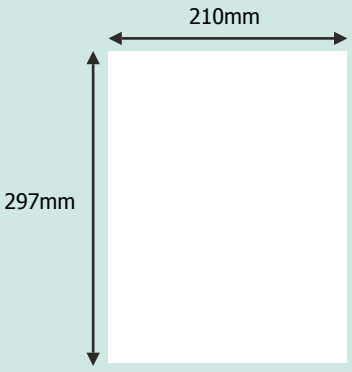

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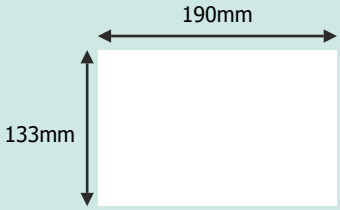

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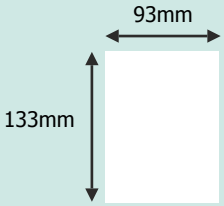

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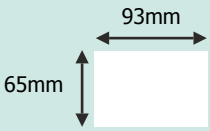

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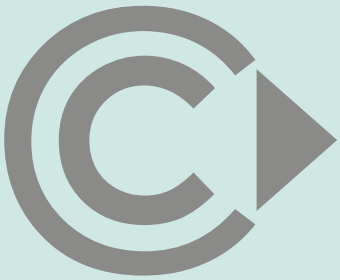

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