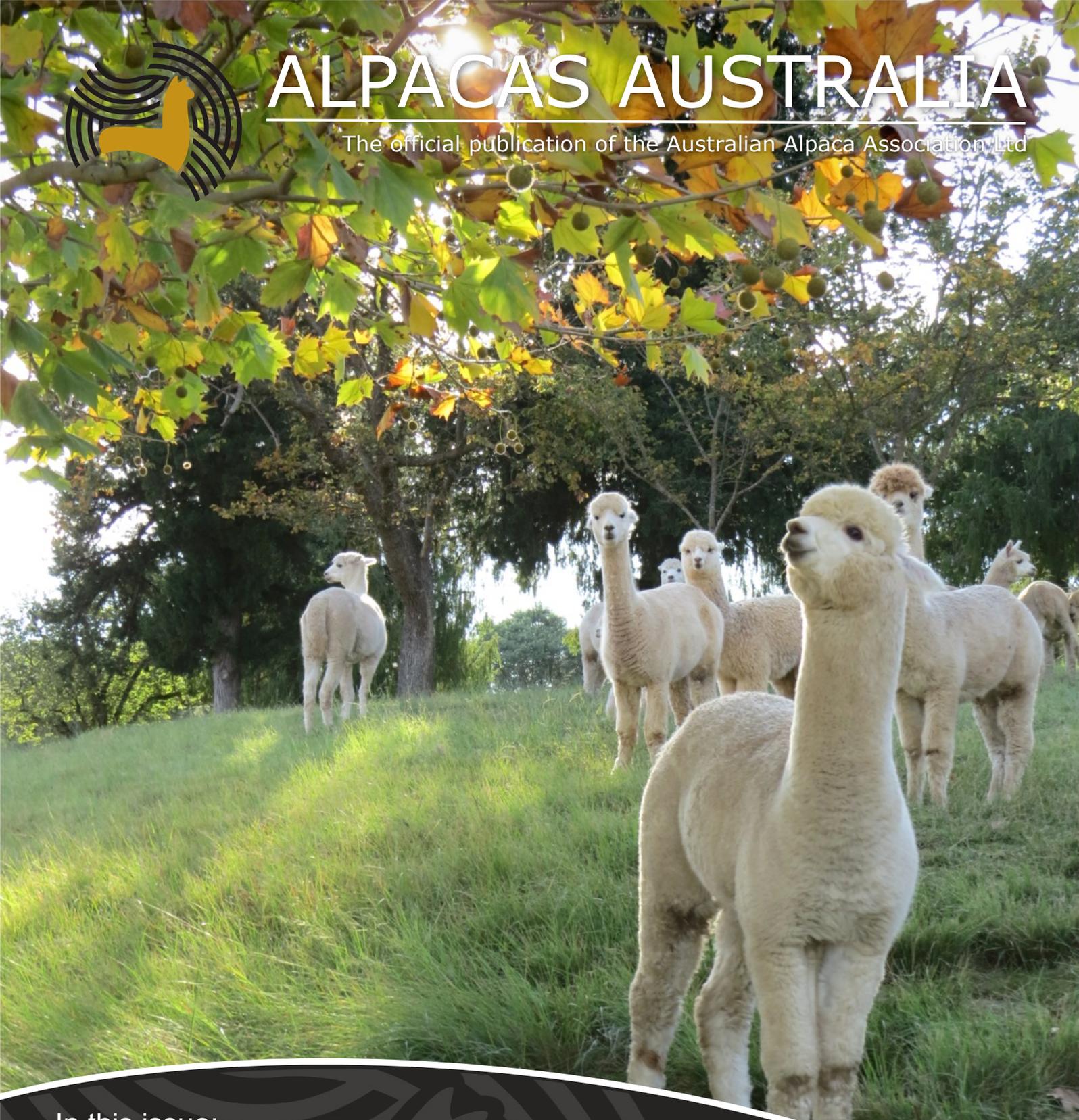




# ALPACAS AUSTRALIA

The official publication of the Australian Alpaca Association Ltd



## In this issue:

- The Wilder Side
- Sydney Royal 2017
- Assessing Fertility



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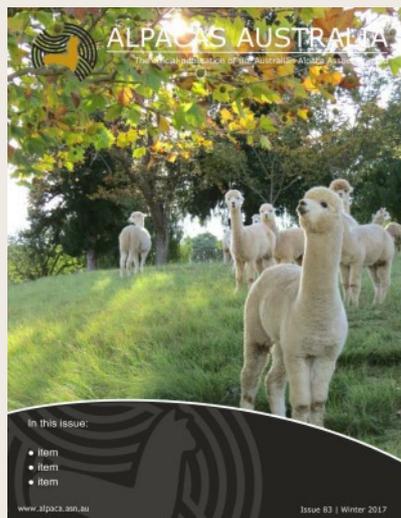
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Cover: Autumn scene at Oak Grove Alpacas NSW  
Photograph courtesy of Julie McClen - Oak Grove Alpacas

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# Presidents Message

Firstly, as this is the last edition of our magazine in its existing format, I would personally like to thank Esme Graham, our long serving editor (and previous Board Member) for the incredible dedication she showed in making sure our members received their publication. It is a thankless task, taken for granted, and as she rarely received material on time, this means follow ups galore. So thank you Esme for your passion and dedication. Also a big thanks to Julie McClen, from Oak Grove Graphics for her support and graphic design, which helped make the magazine what it is.

As previously notified two of our Directors have recently resigned. I should like to thank Annette Woodgate and Chrstine Cronshaw for their contribution and wish them well for the future. We have been fortunate to secure the services of Dr Sue Harris and Steve O'Keefe to replace our retiring Directors and I should like to welcome them to the Board.

We have also recently lost the services in our office of Kris Brown who has resigned for personal reasons. Highly efficient, Kris will be sorely missed by the Board, staff and members. We hope all goes well with your future.



It is fast approaching the end of the financial year and one wonders where the time has gone.

The Board has been extremely busy working on the amended Constitution which will be put to all members to be voted on at the General Meeting at Hamilton Show in Victoria on 17th June.

If you can make it will be good to see you there there, if not, make use of your postal votes and/or proxy. Lawyer and new Board member Sue Harris in conjunction with Fiona Vanderbeek (your Vice President) and Nick De Bruyn (Company Secretary) have spent countless hours putting the amended Constitution together, updating it, and bringing it into the 21st Century.

The new website is now up and running and is more user friendly. Thank you to Annette Woodgate and Kris Brown for driving this project from start to finish.

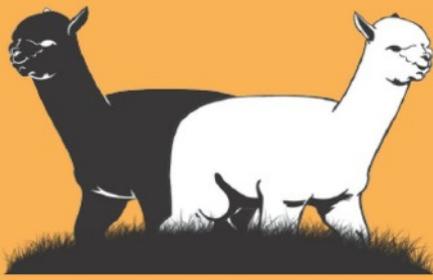
Our new online registry, eAlpaca, is finalised with only minor tweaks required and this occurs from members input and we thank all members who have made contributions. Since last years National Show and Sale in Adelaide, Fiona and Nathan have been on the road demonstrating to Regions and their members Australia wide and have also educated trainers in each State to help facilitate any problems from members who experience any difficulties. To date there has been nothing but praise from all those members who have been shown the new registry and show system. eAlpaca will be initially trialled by the convenors of the Spectacular at Bendigo and will then go live in August for members.

Speaking of the Spectacular in August, even if you are not showing, come on down and be part of the fun. See what great alpacas Australian studs are breeding and their fleece and products.

Book your accommodation and catch up, rub shoulders, enjoy the social scene, dinners and refreshment with other members. Watch the auction, and don't be afraid to bid, you might only have this one chance to obtain that elusive animal you have been missing for your herd!

Kind Regards,  
Ian Frith  
President





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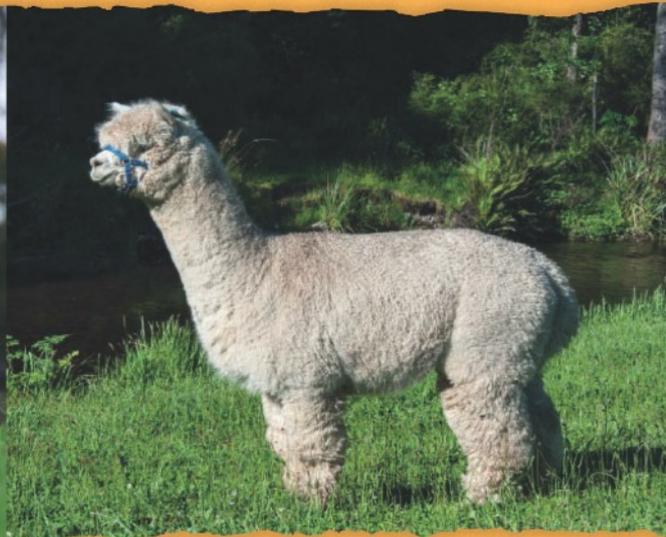
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# OUR FAREWELLS

## From the Editor

Julie McClen and I have been producing Alpacas Australia magazine since 2011 and it is rather sad that a magazine which has been running for 25 years is coming to a close as a stand alone magazine. Not always an easy task, but an interesting one, which has kept us in touch with alpaca people all over Australia and around the world.

Right from the first magazine produced by Cherie Bridges in the Autumn of 1992 the various editors have kept members informed about significant advances in breeding, fleece, husbandry, craft, showing and judging and various AAA activities.

We should like to thank those members who have supported us with articles and photographs, especially the photos – Julie's nightmare, trying to get high enough resolution photos that will print well! Special thanks to the advertisers who have supported the magazine – some over many years. Our thanks to the AAA office staff for their support with financial and logistical matters and also members who over the years have been part of the magazine committee helping to find stories of interest.

I believe a new format to keep members informed is on the drawing board and I wish the new team every success.

In 2011 I was the AAA Director responsible for the magazine and volunteered to take on the editor's position as we were trying to reduce costs. I knew very little about producing a magazine and it was a steep learning curve, helped immensely by Julie's professionalism. During all this time we have never actually met face to face but have become good friends via phone and email and I shall miss our brain storming sessions. Thank you Julie for all your help.

Esme Graham – Editor



## From the Designer

As both an alpaca breeder and the owner of a web and graphic design agency I have enjoyed creating a visually interesting, educational and informative AAA magazine for the last 6 plus years.

Working on a subject matter that you have passion for adds depth and a level of satisfaction to the project that comes from more than just doing your job well.

As a breeder of ultrafine Huacaya and Esme, until recently, a breeder of Suri, our over 37 years of combined first hand knowledge of alpacas and the alpaca industry has enabled us to bring an alpaca owners perspective to what articles may interest members. Over the years I have very much appreciated the positive feedback we have received from members who have enjoyed our collaborative efforts, it's rewarding knowing the many hours spent on researching/writing articles, layout design, chasing content and proof reading have produced a magazine enjoyed by a membership with a diverse range of alpaca related interests.

Thankyou to the AAA for trusting Oak Grove Graphics with the design of the magazine. It is sad to see that the AAA will no longer have it's own stand alone flagship publication, and I will very much miss working on the magazine which has been such a regular part of my working life for so long.

Lastly, but definitely not least, thank you to Esme for your support in providing what I needed to complete my half of the magazine project tasks, and most of all for your friendship.

Julie McClen - Designer  
Owner/Manager Oak Grove Graphics





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## What are the key changes

By Fiona Vanderbeek

In the previous edition of this magazine I provided a brief overview of the Why, What, How and When of 'eAlpaca' - the new online registry and show system which will manage our International Alpaca Register (IAR). Since that time, the build phase has been progressing rapidly, with on-going testing by AAA members, and demonstrations at various shows and events around the country.

- A team of trainers has been recruited so that every Region will have one or more members who are totally familiar with the new system and able to run Regional demonstrations and training seminars in the lead-up to our "go-live" date. They will then be able to provide assistance when the system first goes live in late July/August 2017.
- For those planning to enter animals in the forthcoming Australian Alpaca Spectacular, you will be able to complete the process fully online using the show entry module of the new system, even before the full registry goes live!

One of the most exciting things about building this new registry software from scratch has been the opportunity to incorporate some key changes in policy and structure, to ensure we are meeting the needs of you - the members of the AAA.

These changes will provide a whole raft of benefits to all users, whether of hobby or commercial scale:

- Major improvements to the accuracy and completeness of our IAR – the jewel in the crown of the AAA.
- Streamlined processes which will ensure all transactions and changes are quick and easy to perform
- Cost-benefits through revised and flexible fee structures

The most significant changes are described here – we hope you agree that they will help drive us forward into the next phase of evolution into a fully-fledged commercial agricultural industry operating in the 21st Century.

### Cria Registrations

#### Inactive Males

The most important change being introduced in relation to cria registrations is the new descriptor "Inactive Male".

- Male cria can be recorded on the IAR as "Inactive Male" free of charge
- These males must not have an IAR tag inserted. An IAR tag is an indicator that an animal is registered and so should not be used on any unregistered alpaca, male or female). They should instead have the breeder's own herd management tag, electronic tag or a state-approved brand-tag (WA) used for identification.
- eAlpaca will automatically generate a default name for Inactive Males which comprises the breeder's herd prefix followed by Identity Number (eg. Birrong VDB N013), though this can be changed to a name if desired (eg. Birrong Silky)
- Inactive Males cannot be transferred, shown or certified. They can only have their status changed to SOLD or DEAD
- At any time an Inactive Male can be upgraded to Active Male by payment of the appropriate registration fee. An IAR tag must be inserted and recorded along with any change of name. If desired, an Inactive Male can be upgraded to Wether – primarily for the purposes of show entry into a wether class.

The key benefit of this change is that it saves the breeder the cost of registering males ultimately destined to be pets, guards or meat, but ensures the registry is up to date and complete, providing a full breeding history for the dam and sire and more accurate national herd figures.

Those breeders who wish to update their herds by the recording of Inactive Males born in the past are welcome to do so. It also has significance for traceability/biosecurity in the event of an emergency animal disease outbreak.

#### Sliding scale of registration fees

For breeders with large stud or commercial herds, the cost of registering a significant number of cria each year has resulted in many cria remaining unregistered, again leading to our IAR being an incomplete record of the national herd. For males this has been



# you need to know about?

addressed by the introduction of the Inactive Male category. For females (and active males) there will be a sliding scale of registration fees: the first 10 cria registered each financial year cost X, numbers 11-20 cost Y, numbers 21-50 cost Z etc. eAlpaca will track the number of cria registered against each herd code and automatically apply the correct fee when each fee band is achieved during the year.

## Recording of IAR tag numbers

When IAR tags are purchased from the AAA, the tag numbers will be recorded in eAlpaca against the purchaser's herd code(s) and can only be used for animals within those herds. For breeders who manage herds of agisted animals, the owner/agistee will be able to assign management rights to the agister who can then manage the herd/apply IAR tags as though they are the owner.

The key benefits of this change are a greatly reduced risk of typing in the incorrect tag number (eAlpaca will reject it) together with a monitoring system for the AAA to ensure IAR tags are not being used as identifiers in unregistered animals. This is important, particularly for less experienced purchasers, as a means of knowing that the animals they are buying are fully registered and can be used to breed registered progeny.

## Late registration of female cria

The current rule is that an additional fee applies for female cria registered over 12 months of age. This age limit will be extended to allow up to 24 months before a penalty rate is applied.

## Colour and patterns

There has been a lack of clarity around some of the colour/pattern definitions. Reviewing animals registered on the current database there are, for instance, animals registered as "White/White" or "Medium Fawn/Medium Fawn"! The appropriate use of the prefix "Solid" has also been reviewed by the AAA Board, who voted unanimously that neither greys nor roans can be "Solid" as these colours will always include a mix of different coloured fibres. "Solid" does not mean the absence of a spot, it means a fleece where every fibre is the same colour – an important distinction as we progress to commercial fleece production. To reflect this:

- Once the prefix "Solid" is selected, the choice of colours will only reflect those which can be "solid". Greys and roans cannot be registered as solid.
- Once the prefix "Solid" is selected, only one colour can be selected

- When registering cria that are more than one colour, once the first colour has been entered, the second colour must be different (to prevent the anomalies quoted above)

## ET recipients

ET recipient females will no longer need to be recorded on the registry (though obviously must be clearly identified by IAR or other tag, for the ET practitioner and for herd management purposes). The procedure for donor females remains unchanged.

## Sire authority required

If the cria registration requires a sire authority for a non-owned sire (A4) and one has not already been created, eAlpaca will generate an email to the sire's owner requesting completion of the authority. Once completed, an email confirmation will be sent to the owner of the female, to allow them to complete the pending transaction.

## Certificates

At the conclusion of the registration process, the owner will be asked if they require certificates to be emailed in PDF format, or stored electronically on the register for printing on demand. An option to have a printed certificate mailed from the AAA Office will be available, but there will be an additional fee for this service.

## Bulk uploads

For large stud/commercial breeders who record their births in their own databases, an option for a bulk upload in CSV format will be available.

## Transfers

### Who pays the transfer fee?

Over recent years, with the decrease in average sale price of an alpaca, the trend has increasingly been for the purchaser to pay the transfer fee – particularly for less expensive animals. For high quality stud stock commanding top prices it may still be reasonably expected that the vendor pays the fee. With transfers being undertaken on-line using eAlpaca, the system is designed to facilitate payment by either party. When completing an on-line animal transfer, the vendor is asked who is paying the transfer fee:

- If it is paid by the vendor, the transaction can be instantly completed and the animal transferred to the purchaser's herd
- If the fee is to be paid by purchaser, the animal will be moved out of the vendor's herd into that of the purchaser but in a de-activated state, so that the purchaser cannot show, sell or register cria from that animal until the transfer is completed and paid for. This ensures the vendor's herd records accurately reflect the animals in their ownership, whilst also allowing easy traceability of animals which have been sold but without the appropriate transfer being completed.

### **Early bird discounts**

If the transfer is completed within 30 days, a discounted transfer fee may apply. Thus, if the vendor pays the fee, the discount will automatically be applied. If it is to be paid by the purchaser, there is a clear incentive to complete the transfer process quickly, with email reminders being sent as the deadline approaches.

### **Transfers to non-members**

If the purchaser is a non-member, their details will be recorded by the vendor as part of the transfer process.

If the purchaser has not joined the AAA within 12 months of the transfer occurring, the animal will become inactive on the database, until that person joins.

### **Transfers by non-members**

When a person ceases to be a member of the AAA they will still be able to transfer animals out of their herd for a 12-month period, allowing time for retiring members to disperse their herds.

After this time transfers will require processing by the AAA Office for an additional fee.

### **Transfers between herds owned by the same person**

Some breeders own more than one herd/herd code. Transfers between these herd codes can be completed on-line by the owner and will be free of charge. This will be limited to one transfer per animal per year.

### **Batch/whole herd transfers**

The current system whereby "whole herd" transfers occur at a reduced fee will be replaced by a "batch transfer" option offering discounted fees where 10-20, 21-50 or more than 51 animals are transferred at one time from one herd to one other herd.

This a fairer and more equitable system, as currently a "whole herd" can sometimes be three animals, whereas a group purchase of a large number of animals (but not the entire herd) can cost a significant amount in transfer fees (often resulting in failure to transfer the animals out of the vendor's herd).

## Other new features

### **On-line show system**

You will be able to quickly and simply enter your animals in shows, as they become open for entries. Once you select the animal to enter, it will automatically be assigned to the correct class (whether an age or colour show). Convenors will be able to perform all of the set up, schedule and catalogue functions via eAlpaca.

### **Login for members**

Currently, access to member functions of the IAR (such as cria registrations) is via the AAA website. The new system will be directly accessible so you can save it in your Favourites for quick access. There will still be a quick link from the AAA website.

As is common practice in most systems these days, your login name will be your email address, with a password selected by you (and the usual facilities to change password or retrieve it if forgotten).

To use eAlpaca you will, therefore, need an email address. For members with more than one herd code, you will be able to access all your herds once logged in. Likewise, if you manage herds for agistees, you will be able to access those herds as well as your own once logged in (provided the agistee has assigned management rights to you).

Joint members are encouraged to have separate logins/email addresses for each member, to ensure exact traceability of any transactions conducted; this will not be essential, but is good practice, and could avoid potential conflict within Joint Memberships.

### **Operating systems**

eAlpaca has been designed to work on all devices – desktops, laptops, tablets and phones – however, to achieve full functionality it is important that your computer has a recent operating system (whether Windows or Apple). Those with older Windows products such as XP (released 2001-5) or Vista (released 2007) are encouraged to upgrade their operating system or, at worst, use a browser which is fully supported with security updates. Commonly used browsers such as Windows Internet Explorer receive security updates on newer operating systems, but are no longer provided with this support if run on XP or Vista. If you do not want to upgrade your operating system, we recommend switching to a browser such as Opera (<http://www.opera.com/>) which is still supported with security updates.

### **Payment for transactions**

In order to instantaneously process transactions, with exact traceability of who made the payment (which rules out systems such as EFT), we are encouraging all users of eAlpaca to pay for their transactions with a debit or credit card. Other systems, such as PayPal, have very high transaction fees which we are reluctant to have to pass on to users. An alternative is to hold a credit balance with the AAA.

## Login for vets

Members will be able to interact with their vets for processes such as male certification and Q-Alpaca reporting/post-mortems, with the vet submitting the relevant forms electronically using their own login.

## “Owner only” viewable information

Every animal on the IAR will be viewable on a screen providing information on its pedigree, progeny and ownership history. There are additional fields within this screen which will be viewable by the owner only:

- Show results. If these have been recorded by the convenor on eAlpaca, they will be visible here. These are not publicly available on the animal details screen as this could be perceived as providing a marketing advantage to those breeders who show their animals, compared to those who choose not to enter shows.
- All show results, for all animals, are publicly viewable through the show results section of an individual show (which will appear on eAlpaca for all shows convened using the system)
- Private notes. This field will enable the owner to record private notes about an animal (eye colour, toenail colour etc) which they may not wish to be publicly accessible
- Change history. Every change to an animal - ownership, status, colour etc - is recorded, but will be viewable by the owner only

## Editing your information

Owners will be able to edit many fields relating to animals they own, along with their own details.

eAlpaca will require owners to complete a herd inventory at least annually, to update any status changes (such as deaths, or animals sold off the register) which have not been entered during the preceding year. When the system first goes live, a herd inventory will also be required on initial login, as a first step towards making our registry accurately reflect the true size and demographic of our national herd.

eAlpaca will automatically note any animal over the age of 25 years as “Presumed Dead”, though owners will be able to correct this if required.

## Leasing

Although the facility to lease an alpaca already exists within our current IAR by-laws, it is rarely utilised.

eAlpaca will allow a member to register the lease of an animal to another member for a defined period of time.

- For a certified male this avoids the need for the owner to create multiple sire authorities if a male has been leased for a season to another breeder
- If a female is leased and has a cria during the term of the lease, that cria will have the herd prefix of the lessee

## Public viewing of the register

Our current database can be accessed by anyone (type International Alpaca Registry into Google and it takes you straight there); while this may be useful for a non-member researching animal pedigrees or AAA members, as an Association we cannot identify who is viewing our database. eAlpaca will allow a non-member accessing the IAR to see only very limited information on specific animals they search for. However, on payment of a small annual registration fee they will be able to view full data – this will allow reporting of who is viewing the register and potentially allow marketing of the AAA to these individuals

## Summary

We hope you are excited by these new features! Our intention is to make the management of your herd simple, quick and cost-effective. You will all be aware that over recent years the AAA’s income has been steadily declining, primarily due to a reduction in memberships and transactions (registrations and transfers) from which most of our income is derived. We understand that everyone wants a reduction in transaction fees – we have responded to this in a variety of ways, including some of the new initiatives described here. It is up to you, the members, to now ensure that our IAR becomes once more a reliable and accurate reflection of our national herd - by using eAlpaca to its full potential you will not only benefit your own alpaca business but also contribute to the ongoing sustainability of the Association and industry as a whole.

Enjoy learning more about eAlpaca at Regional workshops and demonstrations in the lead-up to Go Live!



Home



My animals



My herd(s)



Inbreeding calculator



Members



Help



# Sydney Royal - 2017

By Keryn Burns - Convenor

Sydney Royal Alpaca Show 2017 proved as competitive and as enjoyable as ever.

Despite a reduction in the number of entries the competition was fierce. I'm also sure a lot of us come to Sydney Royal for the social catch up as much as for the competition. Nothing beats sitting around the huts at night after a tough day showing, spending time with friends, sharing a laugh and a drink or two.

Angela Preuss, ably assisted by trainee Judge Amber O'Neill, spent two days judging fleeces in the weeks prior to the show opening. I would like to thank all those helpers who work so hard to make the Fleece show happen each year. This year we said a sad farewell to our long-term Fleece Convenor, Helen Fritch. Helen and her husband Michael have some big plans and fun times ahead and we wish them all the best. I'm sure we will see them both around the show in future years.

## **Our Fleece winners for 2017 are:**

Supreme Champion Huacaya Fleece - Ambersun Fortune of Monaco  
Owned by Jenny Carey of Forestglen

Supreme Champion Suri Fleece - ElySION Paris  
Owned by Paul & Fran Haslin of ElySION Alpacas

We started halter judging on Friday this year (previously Saturday) and Judged through till Sunday. This change was to prepare for change by the Sydney Royal Easter Show in 2018, whereby the show will close one day early (Tuesday). Yes, that means less time at the show so for those of you pushed for time, keep reading.

Our Judges Joanne Ham and Molly Gardner from New Zealand, did a wonderful job sorting their way through all the stunning animals, to finally end up with our Champions, Grand Champions & finally Best in Show.

## **Our Suri top prize winners for 2017 are:**

Grand Champion Female Suri - Eversprings Goldlocks Bella  
Owned by Tara & Chris Ravenhill of Bedrock.

Grand Champion Male Suri - Bedrock Cryptic  
Owned by Bedrock Alpacas.

Best Suri Alpaca in Show was Bedrock Cryptic  
Bedrock was also the Most Successful Suri Exhibitor.



*Supreme Champion Huacaya Fleece - Ambersun Fortune of Monaco  
Owned by Jenny Carey of Forestglen*



*Supreme Champion Suri Fleece - ElySION Paris  
Owned by Paul & Fran Haslin of ElySION Alpacas*

In the Huacaya Section, our top prize winners for 2017 are:

Grand Champion Female - Millpaca Ice Dancer  
Owned by Ian Frith of Millpaca

Grand Champion Male - Alpha Centauri Kamando  
Owned by Andrew & Bronwyn Munn from Alpha Centauri

Best Huacaya Alpaca in Show Alpha Centauri Kamando  
Owned by Andrew & Bronwyn Munn from Alpha Centauri

Softfoot Alpacas took out the Harriet Davison Perpetual Trophy for Most Successful Huacaya Exhibitor in Show. This is the 4th year in a row that Softfoot have won Most Successful Huacaya Exhibitor - Congratulations Softfoot. Let's see if they will make it 5 in a row, or is someone out there planning to steal it from them in 2018?

Thank you to all those exhibitors who joined us this year and a huge thank you to all the team who work so very hard for months prior to the show and even harder at the show, to ensure we have a trouble free fantastic Sydney Royal.



*Best Huacaya Alpaca in Show Alpha Centauri Kamando  
Owned by Andrew & Bronwyn Munn from Alpha Centauri*



*Left - Best Suri in Show and Grand Champion male Bedrock Cryptic  
Owned by Chris and Tara Ravenhill - Bedrock Alpacas.  
Right - Grand Champion female suri - Eversprings Goldocks Bella  
Also owned by Bedrock Alpacas*

### **There are quite a few changes in the wind for 2018**

Firstly, with the reduction in the Show days we will be changing bump out days

Bump in will remain either Thursday night or Friday morning with Judging beginning Friday, however in 2018, Interstaters will be able to leave Monday am while other exhibitors will be able to leave on Monday night. We still must have a presence in the pavilion on Tuesday so you are more than welcome to stay and there might even be a few incentives as well. So YES for those really pushed for time, that means just three nights at Sydney Royal in 2018 is possible. For the rest of us who just can't get enough of Sydney Royal we can still have five nights if we choose.

2018 will see a new direction for our Alpaca show, new competitions and as always, a friendly fun show with lots of opportunities to catch up with those you haven't seen for a while, talk business or just forget the outside world for a few days. We encourage you all to come along and experience what is truly a wonderful show. If you are selling animals then encourage those new breeders to join in the fun in 2018.

Thank you to everyone for helping to make Sydney Royal 2017 a huge success.

# Sydney Royal - 2017

By Sharon Dawson



## The Performance Alpaca Shearing Competition

What a successful second year for the Performance Alpaca Shearing Competition.

This competition was started to enable an entry point for our up and coming young shearers, to entice new shearers into the industry and also to strengthen our pool of current shearers, whilst giving them all an opportunity to showcase their skills to breeders and members of the public at the Sydney Royal. The competition is growing and evolving rapidly with lots of support and interest for next year, including our very first female shearers!

Congratulations to our Competitors, you all did an amazing job!! It's not an easy thing to be on stage in front of huge crowds, you did yourselves, your sponsors and our industry extremely proud!



### Young Guns

1st: Mitchell Power - Sponsored by Nurrenyen Alpaca  
2nd: John Dawson - Sponsored by Pacofino Alpaca Stud  
3rd: Sean Timmony - Sponsored by Kobler Alpacas

### Intermediates

1st: Kurtis Parker - Sponsored by Bringarum Alpacas  
2nd: Glenn Dawson - Sponsored by Walkley Fields

### Opens

1st: Nigel Wood - Sponsored by Qozqo Alpacas  
2nd: Chris Power - Sponsored by Forestglen Alpacas  
3rd: Shaun McFadyen - Sponsored by Australian Alpaca Yarn

### Trans Tasman

1st: Nigel Wood - New Zealand  
2nd: Chris Power - Australia

### Roustabouts & fleece skitters

Amber O'Neil - Sponsored by Broadmeadows Alpacas  
Megan Parker - Sponsored by Bova Alpacas  
Jess Sharpe - Sponsored by Bova Alpacas

A huge thank you to Andrew Hulme from Adagio who did an exceptional job of Judging and to John Hay from Gunamatta Alpacas our MC extraordinaire!

We would also like to thank the sponsors and helpers, without your assistance there wouldn't be a competition:

Heiniger, Top Gun Shearing, Dubbo Shearing Supplies, C W & J E Power Shearing, Nigel Wood, Dairy Road Alpacas, Fletchers Ark Alpacas, Dural Alpacas, Dear Enahs Alpacas, Storybook Alpacas, Rembrandt Park Alpacas,, John Dawson, Glenn Dawson, Kurtis Parker, Amanda Parker, Neil Parker, Sharon Dawson, Jennjoley Alpacas

If you would like to assist, support or enter next year, please contact either myself Sharon Dawson on 0410 461 343, [jennjoley@bigpond.com](mailto:jennjoley@bigpond.com) or Neil Parker 0428 771 264.



# Use of Coloured Fibre - Part 2

By Elizabeth Paul - Erehwon Alpacas

## Introduction

Small breeders have always had problems getting their fleeces machine processed, as commercial spinning mills ran on large volumes and refused coloured fleeces. However that is less of a problem today, with the demise of most commercial spinning/textile mills in Australia anyway. Fortunately, mini mills arrived to fill the gap. All of my fleece is processed by my agistor in her mini mill, into standard 8 ply knitting yarn.



It is important to note that mini mills charge on weight in. My return averages 75%. (In wool processing this would be called the washing yield, however commercial processors, as I mentioned before, do not routinely use dehairing machines.) In preparation, I only use fleece with least amount of vegetable matter, I sort out uneven fibre lengths and I put the final batch through the hand picker first. I am less concerned with dust, however I have in the past also washed dusty fleece myself before sending it, since extra dirt means extra weight in. The more uneven the fleece, or the more matter of any kind there is in it, the lower the return, sometimes 50% or even lower.

## Colours

Right from the start I fell in love with grey alpacas. I then discovered a slight problem in that greys only accounted for about 6% of the national herd. I have had all colours, but in the last few years I have concentrated on bringing my herd down to grey and black. I really only use white as a highlight colour; light fawn is often combined with rose grey or even occasionally with silver grey, and the bulk of the items that I make now are in the grey shades with the addition of darker colours.

## Dyeing

My emphasis is on using the natural colours. Obviously white alpaca is dyed commercially, however for those interested, both fleece and yarn can also be dyed with natural dye materials such as dahlia flowers, birch bark, onion skins, lichen, berries etc. Alpaca will take on a more muted, softer version of sheeps wool colour in the same dye bath. Light fawn and light grey can also be overdyed. Note that dyeing, whether with natural or commercial dyes, plus heating and added mordants (the colour fixing agents such as salt or alum) will harden the fibre. Fading could also be an issue.

## Crafts

### Handspinning/Felting

In my experience, wool spinners tend to be less than enthusiastic about spinning alpaca, in part because in the early days, they may have been given low grade alpaca to use (by low grade I mean really rubbish). They also tend to spin alpaca like wool, at high speed and with tight tension. I am by no means an expert spinner, but I have found that spinning alpaca requires a lighter hand and less tension, than spinning wool. If it is too tightly spun, or over plyed, it can quickly turn into hard string. Also it may cut your fingers.

On the other hand, using too much fibre at once will result in much thicker yarn, than if wool was being used, because alpaca has less "memory" than wool and does not grip itself as tightly as wool does. It tends to puff up when plyed. I like to rest the yarn in between events such as spinning and plying; plying and skeining or winding; winding and knitting.

I have tried spinning from the raw fleece, but gave that up after ten minutes of being enveloped in a huge cloud of dust. Also there are often burrs and beetles (among other things) to look out for. I usually have a small amount of washed and carded/picked fibre on hand to sell for handspinning and felting. I make a point of having

all these as clean and free of VM as if I was using them myself. Felting is not my preferred craft, but I have seen some beautiful pieces made. See Pic 1 below. This little hen was made by Ineke van Neuren of NZ, from some of my grey fibre.

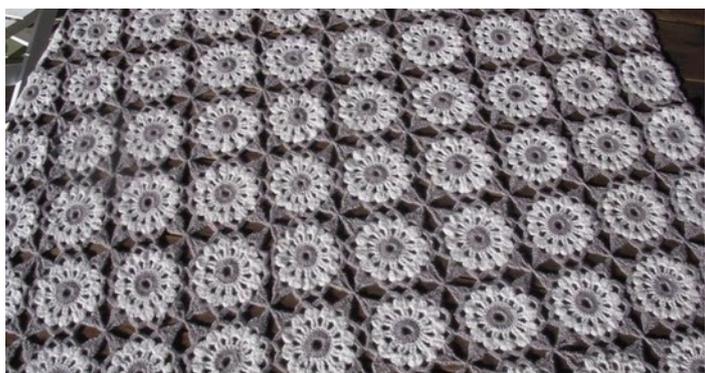


### Knitting/Crochet

I use 90% of my own yarn for knitting small items. See Pic 2 below. I prefer to knit alpaca into simple rib or cable patterns, which helps give springiness to the fabric and still reflects the lovely handle. Alpaca knitted in garter or stocking stitch will feel lovely but will drop. Tight bobbly or knotted patterns do not exhibit alpaca at its best. (Just as a knitting tip, I do not recommend beginners to start with pure alpaca. It does not like being undone; dropped stitches need careful reworking or they will stretch, and if the yarn gets into an unintended knot, it will almost certainly have to be cut.) I have used both 8 and 5 ply in a hand knitting machine, but electric knitting machines generally require much finer plys on cones.



Alpaca also comes up beautifully in crochet work. See below.



### Weaving

In my opinion alpaca was made to be woven, because it drapes beautifully and the colours can be seen to best advantage. I use commercially processed yarn for more classic designs, and handspun or even carded fibre for a more rustic look. I have included a short explanation of weaving, as despite being one of the oldest crafts known to man, it is less well known today (judging by the many times I explain weaving to my customers).

Almost all cultures have developed their own materials and styles. Practically any long thin piece of material can be woven into a piece, such as plant leaves, stems or bark strips to make baskets; natural fibres such as silk, wool, alpaca, or cotton to make clothes; or unusual items such as rag strips joined together, to make a rag rug.

Weaving involves placing a cross thread, called the weft, over and under adjoining threads held firmly at right angles to the cross thread. These long threads are called the warp. To hold the warp firmly and create tension while weaving in the cross threads, it is necessary to either weigh the threads down or tie them to an immovable object.

A loom is an object designed to help keep the warp taut, which makes passing the weft threads over and under easier. Also when the tension is released, the threads come together better in the fabric, making it firmer. Modern looms have pieces of equipment called heddles, through which the warp threads pass, and which can be raised or lowered to make a space, called the shed, to pass the shuttle more easily through the warp. See Pic 4 below. The warp is tied to both front and back rollers. Note the rigid horizontal bar, with vertical plastic heddles, through which the warp has been threaded. On larger



looms, such as old four shaft table looms, the heddles might be string or looped aluminium wires, suspended from wooden bars or shafts, each of which is raised or lowered independently of the others. The more shafts, and therefore heddles, the more complicated are the patterns that can be created.

The weft thread can be wound into a ball or around a pointed piece of wood called a shuttle. In Pic 4 above the shuttle wound with black yarn, is being passed through the shed space from left to right. When it is pushed all the way through, the heddle is lowered to create the reverse space and the shuttle is then returned to its starting side. As it makes a loop around the outside warp thread,

the yarn cannot be pulled all the way back again. This creates a firm edge. Then the shuttle with grey yarn will be used, in this pattern the colour of the weft is changed every two rows.

In ancient times, small rocks with holes bored into them would be tied to each thread, and the threads placed over a cross bar raised from the ground by a framework similar to that used to suspend pots over a fire. The warp threads could be wound around each rock to make a longer warp. These rocks are called loom weights in archaeology, and are considered evidence of weaving even though the organic matter, the yarn or fabric and wood, have long disappeared.

Sometimes triangular frameworks of sticks were used to tie the warp threads up; or one end of the warp would be tied to a tree or other solid object, or even the feet, with the other end tied around the body, so that warp tension is created when the person leans back. This kind of loom is called a backstrap loom. The advantage of these simple looms is of course that they were completely portable.

As people settled first into a more agricultural and then into more village ways of life, looms became larger and more solid. Spinning and weaving were probably originally the province of the village women in their homes, but the growing importance of woven cloth materials as trading goods saw the emergence of weaving guilds and textile industries usually run by men.

Different countries developed their own materials and styles, such as silk weaving in China, cotton weaving in India and woollen weaving in colder European countries.

## Patterns and Plys

Generally I use 5 or 8 ply yarn for the warp, but any ply can be used for weaving, from very fine to very thick, or even just carded fibre for special effects. This wrap was woven on a double 8 ply warp from ultra thick yarn supplied by Gayle Herring of Fibre Naturally Mill, Macclesfield Vic. See Pic 5 below. Weaving may look inflexible compared to, say, knitting, as once the warp is tied on to the loom, it cannot be changed or pulled out. However by varying the number and arrangement of rows of each colour in the weft different patterns can be created. I weave mostly scarves, wraps and cushion covers, and I have found it almost impossible to duplicate any given piece, given the almost infinite variety of checks, stripes and blocks of colour. I am now concentrating on using mostly grey and black colours.



## Adding Other Fibres

Apart from silk, I feel that adding other fibres to alpaca detracts from the handle. Between 5-10% wool is usually added to commercially sold alpaca yarn to improve the processing and memory of the yarn and there are cotton and acrylic blends as well. Woollen yarn made with 5% alpaca, is pointless.

## Summary

Whatever is made with alpaca should reflect the two best aspects of the fibre, namely the colour and the handle. All the colours are beautiful. The best handling fibre is the cleanest fibre, meaning as free as possible of vegetable or any other matter. Clean fibre can be achieved by early shearing, perhaps tipping cria fleeces, and good preparation before processing, whether by hand or machine. The more preparation you do prior to processing, the better, as once in the pipeline, there is nothing more you personally can do to improve it. It is really up to us, the breeders, handlers and users of this wonderful fleece, to use and present it in the best possible way, to get the most positive feedback.

In closing, I would like, if I may, to pay tribute to my late dear mother Betty, who has been my right hand woman over many years of picking skeins, winding balls and knitting hundreds of items for our stall, and who, if she were here today could still outknit me.

Disclaimer: All of the above represent my personal views and experiences, and are not intended to represent the views of any other breeder/s or any official views of the Australian Alpaca Association Inc.

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Australian Alpaca

Spectacular

AAA National Age & Colour Championships

**Bendigo Regional Exhibition Centre, Prince of Wales Showgrounds  
Thursday 24th - Sunday 27th August 2017**

The Australian Alpaca Spectacular is a new event hosted by the Australian Alpaca Association with a very full program and the opportunity to see, touch and buy the best alpacas in Australia!

### **AAA National Age and Colour Championships**

A completely new format, set to build on the well recognised history, prestige and success of the AAA National Show and Victorian Alpaca Colourbration. Details available on the website.

### **AAA National Elite Auction**

Alpacas inspected by Peter Kennedy, AAA and International Judge, with strict selection criteria.

### **The F Factor**

A new initiative to highlight the beauty and versatility of Australian Alpaca Fibre and the talents of our crafty AAA members.

### **Interactive workshops with world renowned experts**

Improve your farm and business productivity with topics ranging from animal husbandry and genetics through to fleece preparation and marketing.

### **Industry forums and networking functions**

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**The Australian Alpaca Spectacular** is a new event designed 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.

Along with the AAA National Age and Colour Championships, the 4 day program will feature an elite alpaca auction, interactive workshops and industry forums, fashion parades, traders selling husbandry and farm equipment plus beautiful Australian alpaca fibre, garments and accessories. And of course some great networking functions including an Alpaca Degustation Dinner at a local winery with guest chef Alejandro Saravia from Pastuso on Friday night and the inaugural Spectacular Showring Soiree on Saturday night.

The AAA National Age and Colour Championships are set to build on the well recognised history, prestige and success of the AAA National Show and Victorian Alpaca Colourbration.

This will not simply be two shows back to back, but a totally new format designed to give AAA members the best opportunity to display their animals, promote their businesses and learn as much as possible to improve their breeding programs and productivity.

Colour champions will be given much greater recognition than the old 'best of colour' classes squeezed at the end of the National Show. Essentially this is elevating the Colourbration concept to its well deserved place in the international spotlight.

The traditional Age Championships will benefit from a refreshed format, dynamic event management and promotion, along with the undeniable benefits of a world class venue and the latest audio visual technology including live streaming worldwide.

#### **Proposed halter program:**

**Wednesday 23rd - arrival from 3pm**

**Thursday 24th & Friday 25th** - halter classes grouped by colour.

This is the same format as Colourbration but only place ribbons will be awarded in this round. There is more detail about the program on the website: [www.australionalpacaspectacular.com.au](http://www.australionalpacaspectacular.com.au)

**Saturday 26th** - championship & supreme awards.

1st and 2nd placed animals will enter the ring twice grouped by colour and then by age.

Champion and reserve champion male and female awarded for each colour and age.

Colour champions will enter the ring for national colour supreme champion awards.

Age champions will enter the ring for new national grand male and female champion awards and the inaugural supreme grand champion award.

#### **Sunday 27th** - progeny classes

Predictability in breeding is key to the future of the industry and the sire and dam's progeny classes deserve 'prime time' recognition. Sire's progeny will be run in colour groups with only 2 alpacas required per entry, with all entries to be judged even if they are the sole entry in that particular colour. This will be the culmination of showing at the inaugural Spectacular event and a fabulous opportunity for breeders to promote their stud males and females.

#### **Halter judges - Lyn Dickson and Joanne Ham**

Both Lyn and Jo have been incredibly helpful and supportive in developing the concept for this new show and event. Lyn in particular has been an integral member of 'Team Spectacular' and while we acknowledge that she did co-judge 'The 2016 National', we could not envisage running this completely new format without her steady 'hand on the rudder' in and out of the show ring. We are all working incredibly hard to deliver a truly spectacular forum to promote Australian alpaca to the world and allow all breeders to learn as much as possible from the judging process.

#### **Fleece judge - Karen Caldwell**

We are delighted Karen has accepted this role in the first fleece show of its kind in Australia. All fleeces will be grid tested on site and judged for places, then both colour and age based championships will be awarded, with a Supreme fleece of each colour and an overall 'National Grand Champion'. Karen has agreed to be 'miked up' to present some examples of high and low scoring fleeces (beamed onto the big screen) and explain why they received the awarded points in each category of the new fleece scorecard. Her passion for fleece quality and preparation, and commitment to breeder education will make this an event not to miss!

#### **The F Factor**

A new initiative to highlight the beauty and versatility of Australian Alpaca Fibre and the talents of our crafty AAA members.

Spin, weave, felt, knit and crochet to create something unique and write a brief description about how and why you made it with alpaca. All entries will be displayed at The Australian Alpaca Spectacular, reviewed by an expert panel and voted on by the public.

Prizes will be awarded to both exhibitors and voters. This competition is replacing the various craft sections offered at previous National Shows. An online photography and art competition will be announced soon.

Entry forms and instructions will be available on the website in coming months, but get started on your entries now as the only rule is the item must be made from Australian Alpaca!



# Australian Alpaca Spectacular

# THE CASE OF THE MISSING COARSE FIBRES

## Explaining the 'Trim High' setting on OFDA2000 fibre testing equipment

By Paul Vallely, AAFT Fibre Testing Laboratories

In consultation with Mr Mark Brims (BSC Electronics), inventor/manufacturer of OFDA technology

When I first became involved with fibre testing alpacas over 15 years ago, about the only figure on alpaca fibre test reports that received any interest was the average fibre diameter (microns). Thankfully, SD is now co-starring alongside micron, as breeders appreciate the need to reduce fibre variability when breeding towards quality fleeces.

Most alpaca fibre testing these days is carried out using OFDA2000 fibre testing equipment. OFDA2000 equipment measures the full length of the fibre sample. It can measure fibre samples after the samples are 'scoured' or cleaned of lanolin, seeds, grass etc, or it can be used to test raw fibre samples using capabilities to offset the presence of impurities on the fibres. Another form of OFDA testing technology used when testing alpacas is the OFDA100, although these devices are no longer manufactured. Laserscan is another form of testing technology, but is not as widely used when testing alpacas.

*This paper refers only to the use of OFDA2000 testing devices.*

When breeders use fibre test results, there are two elements that underpin their ability to rely on the data. Firstly, the results need to possess a high degree of accuracy, whereby the test results give a true account of what has just been measured.

Secondly, the test needs to possess a reasonable degree of precision, that is, the test result needs to be relatively repeatable. Put another way, if we test one midside sample from one alpaca, then test more midside samples from the same alpaca, yet the results continually have significant differences, then any of these test results would be useless. There would be no way of telling which result can be relied upon.

With these two essential elements of fibre testing in mind, there is a characteristic of alpaca fibre that presents a dilemma for operators of OFDA2000 equipment. As many would be aware, fleeces are comprised of bundles or clusters of fibres (staples). While the diameter of the individual fibres within these staples can vary by around 25 microns, the extent of that variation remains surprisingly constant between staples throughout the fleece, particularly around the saddle area.

A problem exists however, at the very coarse edge of the micron range within these staples. An extremely small number of extremely broad fibres (can be more than 40 microns broader than the average) become evident at unpredictable levels. In other words, one sample from the midside may have none of these extremely coarse fibres, while the staple next to it may have, say, 5 of these fibres. These fibres will represent no more than 1% of all fibres, but because of their very high microns, they can have a big impact on the SD figure of the sample if they are present. This would substantially reduce the level of repeatability of the testing, thereby rendering the test unreliable.

For example, a typical alpaca staple test of 1400 measurements with a mean of 22.4 and an SD of 4.9 will return a mean of 22.4 and an SD of 5.1 with addition of a single 80um fibre. This fibre could also be a piece of fibrous vegetable matter.

To preserve the integrity of fibre testing using OFDA2000's, the units have the capacity to remove the very small number of fibres with extremely high microns. For those mathematically minded, this function removes fibres with average diameter that is greater than 4 standard deviations above the mean.

The thing to remember is that we are only removing less than 1% of the fibres. Further, the test results for the remaining 99%+ fibres will tell us if there is a problem with the level of coarse fibres (including guard hair) on the alpaca – we don't need to include these 1% to find that out.

This function is called the 'Trim High' (TH) setting. When the TH setting is turned on, the OFDA is removing the extremely coarse fibres. When the TH setting is off, the OFDA is including all coarse fibres. In saying that, there is another function that allows OFDA2000 operators to set a maximum diameter the device will include in measurements (normally 80mm), but that's another story.

To illustrate the impact the TH setting has on testing alpaca fibre, the following table represents the testing of midside samples taken from 2 alpacas. Each midside sample was divided into three subsamples. All subsamples from each of the two alpacas were tested with the TH setting turned off (TH Off), then tested with the TH setting turned on (TH On).

With regard to testing samples from alpaca one, we find the three subsamples with the TH setting turned off gave a range in SD from 3.9 microns to 4.7 microns, while the testing of the same three subsamples with the TH setting turned on gave a range in SD of 3.6 microns to 3.7 microns. The fact that the SD varies by a substantial 0.8 microns when the TH is turned off reflects the erratic nature in which these very coarse fibres can appear in samples. These coarse fibres have such an unpredictable impact on the fibre test result, they seriously impede the test's repeatability.

When the TH setting is applied, we find the remaining 99% of fibres (or thereabouts), fall into a normal distribution, with the consequence that testing of these samples becomes highly repeatable. This is evidenced by the range between the three SD figures of only 0.2 microns. This repeatability allows breeders to effectively rely on these test results.

With regard to testing the three samples from the second alpaca, we find the same thing has occurred.

Once again, because the very small number of very coarse fibres occur within these subsamples at highly variable numbers, the SD

**OFDA 2000 REPORT : SORTED BY EID/TAG**  
Trim High trial (12Records)

EID	Animal Eartag	Mic Ave	SD Mic	CEM	<15 %	CF %	SF Mic	SD Along	CRV Dg/mm
Averages		21.7	5.1	9.2	10.5	90.1	21.7	1.37	39.1
Alpaca 1	TH Off 1	18.1	4.7	7.8	17.8	98.0	18.5	1.40	48.3
Alpaca 1	TH Off 2	18.2	4.5	8.1	17.2	98.2	18.4	0.60	47.0
Alpaca 1	TH Off 3	17.8	3.9	7.5	19.1	99.5	17.5	1.10	48.5
Alpaca 1	TH On 1	17.9	3.7	7.0	16.8	99.8	17.4	0.50	48.0
Alpaca 1	TH On 2	17.8	3.7	7.3	17.5	99.8	17.3	1.20	46.8
Alpaca 1	TH On 3	17.5	3.6	6.9	18.7	99.7	17.0	1.10	47.4
Alpaca 2	TH Off 1	26.0	6.5	11.3	2.8	78.4	26.3	1.80	29.1
Alpaca 2	TH Off 2	25.7	6.2	10.4	2.3	82.0	25.8	2.00	28.6
Alpaca 2	TH Off 3	24.9	7.0	11.8	5.2	81.5	25.9	1.40	33.5
Alpaca 2	TH On 1	25.6	6.1	10.7	3.0	80.3	25.5	1.80	32.3
Alpaca 2	TH On 2	25.4	5.8	10.5	2.5	82.7	25.1	2.10	28.0
Alpaca 2	TH On 3	25.5	6.1	10.9	3.3	81.3	25.5	1.50	31.4

**Table 1** – Test results showing impact of TH On/Off



figures lose their repeatability if the TH setting is turned off. In this case, we find the SD figures range from 6.2 microns to 7.0 microns.

Conversely, the repeatability of the SD's is returned with the TH setting turned on, with the range narrowed down to 5.8 to 6.1 microns.

One thing that should be stressed is that while a small number of coarse fibres are excluded from the reported data with TH on, the remaining 99% + fibres provide an accurate account of the characteristics of the fibres within the sample being tested.

A second benefit of the TH setting is that it removes any measurements taken from foreign matter such as seeds, although the 'maximum diameter' setting will also help to deal with this.

Given the TH settings can be responsible for significant impact on the fibre test results, BSC Electronics who invented and manufacture the OFDA2000, has released new procedures it recommends be implemented by operators of OFDA2000 equipment. To inform breeders if their samples have been tested with the TH setting turned on or off, the test report will have 'TH on' or 'TH off' as the case may be, printed at the top of the report.

On a final note of comfort to breeders, nothing has really changed. Since OFDA2000 devices have been used to test alpaca fibre, the TH settings have been turned on, and will remain on unless, for whatever reason, the client asks the OFDA technician to turn the setting off.

Just be aware though, if you ask to have the setting turned off, be prepared for higher SD measurements and less repeatable results.

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# UNDERSTANDING THE WILDER SIDE OF THE FAMILY

By The Food and Agriculture Organization of the United Nations

The Camelidae Family is represented in South America by four species. Two are wild: the guanaco (*Lama guanicoe*) and the vicuña (*Vicugna vicugna*); and two are domestic.

The domestic llama (*Lama glama*) and alpaca (*L. pacos*) are found throughout the Andean altiplano and the southern part of the continent.

They are extraordinarily important in economic, social and cultural terms. The domestic species are believed to derive from the guanaco - or perhaps the alpaca was a hybrid of the guanaco and the vicuña. They were domesticated some time between 4000 and 3500 B.C.



# LAMA GUANICOE (GUANACO)

## Geographical variation and distribution

The wild guanaco originally ranged from the Andean areas of northern Peru and Bolivia and adjacent parts of Paraguay down to Tierra del Fuego, covering most of Argentina and Chile. *L. guanicoe* survives in some isolated parts of the Peruvian altiplano, in northern Chile, in western Argentina from Catamarca to southern Patagonia and in Chile's Magallanes province. There are two recognized subspecies: the smaller *L. guanicoe cacsilensis*, in Peru and Bolivia, and *L. guanicoe guanicoe* in Chile and Argentina.

## Abundance

At the time of the Spanish conquest, the guanaco was the most abundant ungulate in South America, with an estimated population of ten to thirty million. Current numbers are thought to be about 575,000, of which nearly 550,000 live in Argentina, 20,000 in southern Chile and 5,000 in Peru. Regional population density estimates in Magallanes vary from 0.02-0.2/km<sup>2</sup>, but there may be 2.8-40.5/km<sup>2</sup> in more densely populated areas.

## Behaviour

Guanaco live in family groups of one male, several females, and their young. The group size varies from two to thirty and averages eight to sixteen. The groups tend to be bigger during the mating season although some females may leave in the winter. Subadults are forcibly evicted from the group at the age of thirteen to fifteen months and form male groups. The old males live alone. These family groups live in permanent territories of thirty to fifty hectares that the territorial male defends, but may migrate altitudinally or laterally in many areas, and sometimes form large mixed groups that winter together. Guanacos are active during the day, much of which is spent feeding. On detecting a potential predator they give a cry of alarm and flee while maintaining visual contact with the pursuer.

## Feeding habits

The guanaco is a non-specialized herbivore and basically a grazer, but may also browse. The diet in Magallanes is made up of sixty-two percent grasses (mainly *Festuca*) and fifteen percent browse (*Nothofagus* spp). Dicotyledons form eleven percent of the diet and are particularly important in the spring, i.e. the months of October and November. Guanacos also eat epiphytes, lichens and fungi. The guanaco inhabits a great variety of habitats and so its diet may also vary greatly at different times and places. Guanacos are more efficient than sheep at digesting crude fibre and dry matter, and may compete with them for winter fodder. Winter food shortages caused by overgrazing by sheep are probably the main cause of guanaco mortality in Magallanes.

## Growth and age

The baby guanaco grows very fast: a female reaches sexual maturity at, perhaps, two, and adult size in three or four years. The age may be estimated by the tooth eruption and replacement pattern and the degree of wear and layers of cementum on the first mandibular incisor. Guanacos in captivity may live as long as twenty-three years.

## Guanaco:

**Height:** 3.5 - 4 ft at withers, 5 ft at head

**Weight:** Maximum of 260 lbs

**Life Span:** 20 - 25 yrs

**Breeding Season:** Nov - Mar

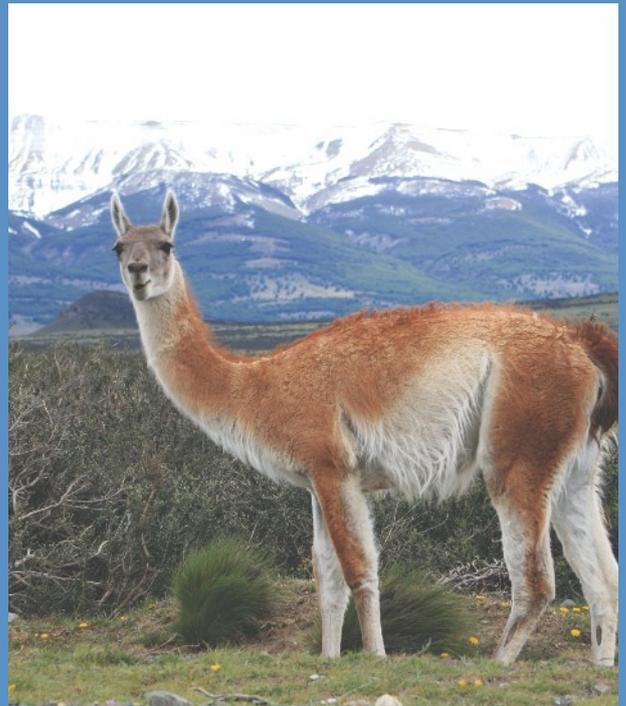
**Gestation:** 345 - 360 days

**Births:** Single birth

**Natural habitat:** High Andes Mountains, altitudes to 13,000 ft as well as lower plateaus, plains and coastlines of Peru, Chile and Argentina. Occupy lands that tend to be very dry. Now protected by law

**Distinctive Features:** Slender, pale brown back, white underside, short tail, large head, very long neck, big pointed ears.

**Sexual Maturity:** F = 2 yrs M = 1 yr



## Hunting

The people of South America used to hunt guanaco by driving them into a ravine where another group of hunters waited in ambush to spear them. They were also hunted on horseback with bolas. Today the weapon of choice is a long-range repeater rifle, while baby guanaco are driven to exhaustion by mounted riders and then clubbed to death.

## Products

Guanaco used to be the major protein source for many indigenous groups in the Andes and in southern South America. People prefer to eat guanaco meat in the form of "charki" (jerky), a salted and

dried preparation. The fresh meat is not considered very appetizing. The dressed weight constitutes 55-57 percent of the total weight and the dried meat 10.2 percent.

The soft pelts of baby guanacos two to three weeks old, much persecuted in Patagonia, are the most lucrative product. A total of 443,655 skins were exported from Argentina between 1972 and 1979, but the amount dropped to 13,157 in 1983 and 10,250 in 1984.

The short, coarse, scant (250 g/adult) wool is woven in various ways and the cured hides are used for shoes.

#### Management

Argentina's remnant guanaco population is about eight percent of the original estimated population and Chile's a bare one percent. Increasing numbers of European immigrants and their livestock, particularly sheep, displaced the guanaco as the prime herbivore on the steppes and mountainsides of southern South America.

Guanaco populations have been slashed by culling to protect pasture for sheep, commercial hunting of baby guanacos, fodder shortages in winter due to overgrazing by sheep, fencing that blocked seasonal migrations and became a fatal trap for guanacos attempting to cross it, and deforestation. The species is listed on Appendix II of CITES and is considered endangered in Peru. Guanaco hunting has been forbidden in Peru since 1977 and in Chile since 1972, but it is still authorized in Argentina's southern provinces.

South American camelid research and conservation began to receive considerable attention in the 1970s. The data on guanaco biology and abundance are good, and there are a number of management guidelines. The small, dispersed, remnant populations of Peru and northern Chile still need protection from hunting. In southern Argentina and Chile, there is a need for more explicit management goals and policies and to locate and define areas where guanaco could be given priority. There must be unified laws and management designed to make the rural population the prime beneficiaries and to enlist their support and cooperation.

With proper management, it is believed that guanaco populations could stabilize at about one million in Argentina and 100,000 in Chile, with a respective annual production of 100,000 and 10,000. Guanaco management options should be designed and analysed as alternative economic uses for marginal land. The social structure of the species would allow a good proportion of the solo males to be harvested without affecting the reproductive capacity of the population as a whole.

The key factors in guanaco management are probably primary production and food availability for these affect: land carrying capacity; the effect of density-dependence on fertility; the extension of adequate environments in the management areas; the effect of migration on population; and various socio-economic aspects.

## VICUGNA VICUGNA (WILD VICUÑA)

Vernacular name: Vicuña

#### Geographical variation and distribution

The wild vicuña originally ranged from northern Peru or southernmost Ecuador across the Peruvian and Bolivian altiplano to northern Chile and Argentina. Today's disjunct populations are scattered from the department of Ancash in Peru to the provinces of San Juan in Argentina and Atacama in Chile, including the Bolivian departments of La Paz and Oruro. There are two recognized subspecies: *V.v. vicugna* in Argentina and *V.v. mensalis* in Peru and Bolivia.

#### Abundance

The vicuña was the dominant ungulate in the puna of the high Andes under natural conditions: the Peruvian population in Inca times is estimated at 1.5 million. In 1957 the population was probably still about 400,000 but by the end of the 1960s the figure had dropped to 7,000-12,000. By 1985 the total population was back up to 129,000, of which 100,000 was in Peru. The IUCN lists the vicuña as vulnerable and it is on Appendix I of CITES.

Population densities in the Pampa Galeras National Vicuña Reserve in the province of Ayacucho, Peru, can be as high as 87/km whereas the figures are 0.9-1.8/km for Lauca National Park in northern Chile. The optimum estimated density for vicuña production in Pampa Galeras is 40-43/km.

#### Behaviour

The vicuña is a diurnal, gregarious and territorial animal. Most of the population (sixty percent) lives in permanent, territorial family groups, usually made up of a male, three females and two sets of offspring. They occupy the best habitats. Group size varies in accordance with the size and productivity of the territory from two to nineteen. There are also territorial family groups in marginal habitats, mobile family groups, bachelor groups of non-breeding males (5-50 individuals representing 22-24 percent of the population) and solitary males.

The sedentary groups have a sleeping territory where they spend the night, usually in high areas, and a feeding territory in the valleys and plains. The average size of the feeding territories in Pampa Galeras is 18.4 hectares but the range is two to fifty-six hectares. The young males are expelled from the group by the territorial male when they are four to nine months old and the females at ten to eleven months, before the next litter is born. The evicted males form bachelor groups whereas females generally attach themselves to marginal or mobile family groups. They normally have fixed scat stations and drink once a day. Their main sense is sight and their flight distance with respect to people varies from 50m in protected reserves to 500m.

#### Feeding habits

The vicuña is classified as a selective and efficient grazer, preferring bunch grasses such as *Calamagrostis vicunarum*, and spends most of the day grazing. There are apparently no specific studies on the vicuña's diet.



### Mortality

An estimated ten to thirty percent of newborn vicuñas die from hypothermia due to cold storms, or from pneumonia, diarrhoea caused by *Escherichia coli* and depredation. Stray and/or sheepdogs are cited as top predators. The fox *Dusicyon culpaeus* and the puma *Felis concolor* may occasionally attack vicuñas. The incidence of mange is linked to malnutrition. The record age in captivity is nearly twenty-four years .

### Hunting

In pre-Colombian times vicuña were often driven into stone-walled corrals or ditches, or hunted with bolas. They are currently hunted with medium-calibre repeating rifles, preferably with telescopic sights, on foot or from vehicles, the hunters getting as close as possible for a sure shot (roughly 100 m). Or the vicuña may be hounded to someplace where the hunters can reach them on horseback or with dogs.

When family groups are hunted the male is killed first, and then the rest of the group, disoriented by the absence of their leader. An alternative is to kill several animals in a male group before the rest can flee out of gunshot range. In the Pampa Galeras reserve, when vicuñas need to be captured alive for relocation or shearing, a system has been worked out to drive the animals into a funnel arrangement of wood and nets with sides 400 m long, converging into a holding pen built at a 45° angle.

### Vicuña:

**Height:** Just under 3 ft at withers

**Weight:** 77 - 143 lbs

**Lifespan:** 15 - 20 yrs

**Breeding Season:** Mar - Apr

**Gestation:** 330 - 350 days

**Births:** Single birth

**Natural Habitat:** Cold, puna, bofadesles, borders and/or overlaps that of the guanaco in the foothills of the cordillera at lower altitudes.

**Distinctive Features:** Smallest of the camelids, slender body, relatively long neck. Ears are long, pointed and narrow. Head is round and yellowish to red-brown in colour. Finest fleece of camelid family.

**Sexual Maturity:** F = 2 yrs M = 1 yr

### Products

The products of the vicuña are its meat, skin or hide and wool. The dark red, lean meat is highly esteemed by indigenous people in the high pampa, and there are good prospects for marketing meat fresh, frozen, or as jerky (dried salted meat of the whole carcass with bone in). The animals are in peak condition for slaughter at the end of the rainy season, i.e. May-June.

The skins are stretched, preferably salted, and spread to dry in the shade, pegged to the dry ground with the inner side up. Vicuna products made from cured skins and wool, particularly the wool of young vicuña, are attractive and in great demand by tourists, but the very slender fibre limits the vicuña's value as a pelt. It is recommended that the wool be shorn or separated by sweating and the hides cured. There is little demand for the hides, which are not appropriate for gloves or shoes, although they can be used for purses, bags and other upmarket craft goods.

The fine wool of the vicuña, with a diameter of 10-16 microns and length of 3-6 cm, is the most valuable product. The animals are shorn alive every two years (each vicuña produces about 250g) or the wool may be taken from the hides of slaughtered animals. It is very good for certain types of weaving, preferably in the natural tones, and is worth from 500-1,000 US dollars per pound.

### Management

The vicuña is unquestionably the key wild species of the Andean high country, with great economic and social potential for management. The species was driven to the brink of extinction in the 1960's, but Andean countries (Argentina, Bolivia, Chile and Peru) then joined forces in an ambitious vicuña population recovery effort constituting what was apparently the most successful wildlife management plan in Latin America. The project has so far consisted of effective vicuña protection against poachers, reintroduction of the species in specially regulated areas, biological research and a series of experimental management measures. The success of the project can be attributed to the following:

- 1) the prohibition of hunting and international trade through vicuña conservation agreements (La Paz 1969, Lima 1979);
- 2) the organization of relatively effective supervision in protected areas;
- 3) substantial research efforts covering vicuña sociobiology, habitat carrying capacity, estimates of population levels and productivity;
- 4) fairly substantial backing from the rural population (targeted as the prime economic beneficiary should the project prove successful) and,
- 5) the existence of large stretches of marginal land unfit for other economic purposes.

A good part of the technical problems of vicuña use at phase three of the project are currently being solved. Population increases have so far been achieved only in strictly protected areas and the Peruvian objective of repopulating 150,000 km<sup>2</sup> of puna with three million vicuñas still seems very far in the future.

Close working relationships between the national programme promoters and the campesinos have yet to be achieved, and local community responsibility for supervision has not been as successful as hoped. Vicuña recovery has recently suffered serious setbacks as a result of guerrilla activities in the mountains of Peru.

Educational extension and campesino organizational work must be increased if the rural community is to take greater responsibility during stage three of the project. Moreover, an ecological and economic study of the relationship between vicuñas and domestic herbivores in the habitat is also needed for effective vicuña management within the overall ecosystem.

### Captive breeding

Newborn vicuñas are rather easily tamed and the species can be maintained quite well in zoo collections. The valuable wool has spurred a number of attempts at domestication and captive breeding. However, the animal's shy nature makes it difficult to manage whereas the rigid social and territorial organization generates constant fighting when vicuña are confined in small areas, particularly between males, and vicuña-proof fencing of vast areas of its natural habitat is counter-productive, economically speaking. Captive breeding does not seem to be a viable alternative to rational vicuña management.

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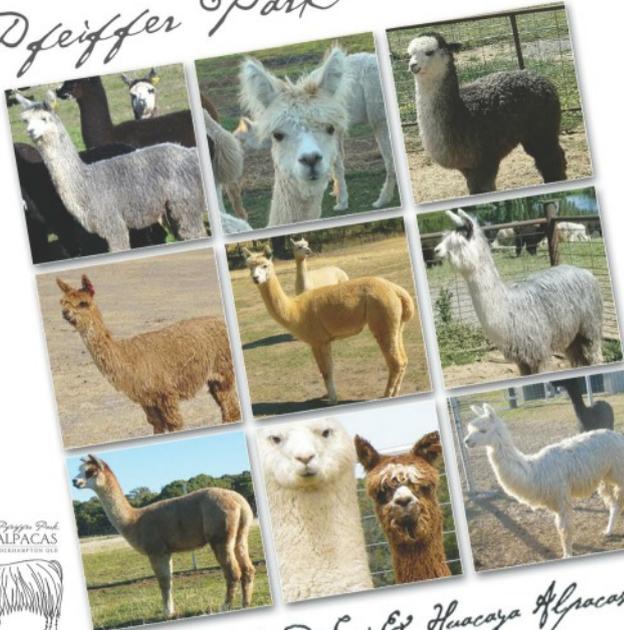


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# Alpacas, Fibre Types

BY D. Phillip Sponenberg, DVM, PHD

Alpaca is exquisite fibre and, as a handspinner myself, I find both the colours and textures very appealing. Alpaca fleece types are also fascinating to me as a geneticist, and alpaca breeders have a great responsibility to assure that these fibre types are maintained into the future.

Alpaca fleeces vary along a few important dimensions. Each of these few is distinct, so that by adding them together it is possible to appreciate that there are several different final fleeces that are possible. Major sources of variation are fineness, length, density, presence of coarse hairs, uniformity, lustre, crimp, and fleece weights. Each of these is important for final overall fleece quality, and each is under genetic control. Each fleece varies in each of these characteristics, so it is possible to have one fleece that is very fine, short stapled, free of coarse fibres, uniform, and very light, while another one may be fine, long, not dense, have some coarse fibres, be only moderately uniform, but have a heavy total weight. Each of these might find some practical use both in textiles and in breeding programs.

One very important dimension of variability in alpaca fibre is the huacaya - suri dimension. The details of this are tricky. Most alpacas can be easily classified as either one or the other, but many alpacas occur at the boundary between the two - and are difficult to accurately classify. Microscopic studies reveal that a good portion of the uniqueness of the suri fibre is large, flat external scales on the fibre. This structure gives the fibre its smooth silky hand, and is in large part responsible for its unique characteristics. In addition, within suris a variety of lock types occur, all of which are equally "suri."

Classification of animals as to their status as suri or huacaya is an important first step in genetic investigations, and in some populations most alpacas are reasonably easy to classify as one or the other. This has resulted in a few genetic studies. A particularly useful Australian study suggests that suri is due to a single dominant gene. This means that all suris have this gene in either one dose or two doses. By this hypothesis, the expected results of mating suri to suri are mostly suri, with occasional huacayas. The expected results of mating suri to huacaya is mostly suri, with a variable frequency of huacaya crias as well, for this will depend on the relative frequency of homozygous suris among the parents. The results of mating huacaya to huacaya should be only huacaya, at least by the single-gene hypothesis.



*Suri fleece (above) is characterized by a vertical hanging lock structure.*

Several years ago an investigation into North American data provided these results:

These results are interesting for a variety of reasons. At one level, they do cast at least some doubt on the accuracy of classification as to either suri or huacaya. Communication with some of the screeners involved in importations suggest that in several herds of alpacas the intermediate animals are fairly numerous. Screening of fleeces was not based on the suri or huacaya distinctiveness, but rather on fineness and low variability. As a result, several of the intermediate animals have indeed made it into the North American population. These alpacas with intermediate fleeces are important. At this point, though, it is still possible to evaluate the data in the table with the assumption that they are accurate and that all the animals are correctly classed into suri or huacaya.

It is important to note that the suri x huacaya matings provide more huacaya than suri offspring. This is the reverse of what should be happening - if any suri alpacas are homozygous, then the deficit should be in huacaya offspring, not in suri offspring. Surprisingly, the suri x suri matings have nearly the opposite problem in that there are too few huacayas if (and this is an important "if") the suris were all heterozygous. Under that assumption there should be 195 huacaya crias, instead of the observed 278. This suggests, but only suggests, that there are many homozygous suris in the population, and that these decrease the production of huacaya crias following the mating of two suris. Another realistic explanation, though, is that the huacaya crias resulting from mating two suris are less likely to be registered than are the suris, or even than the huacayas from a suri x huacaya mating.

# & Genetics

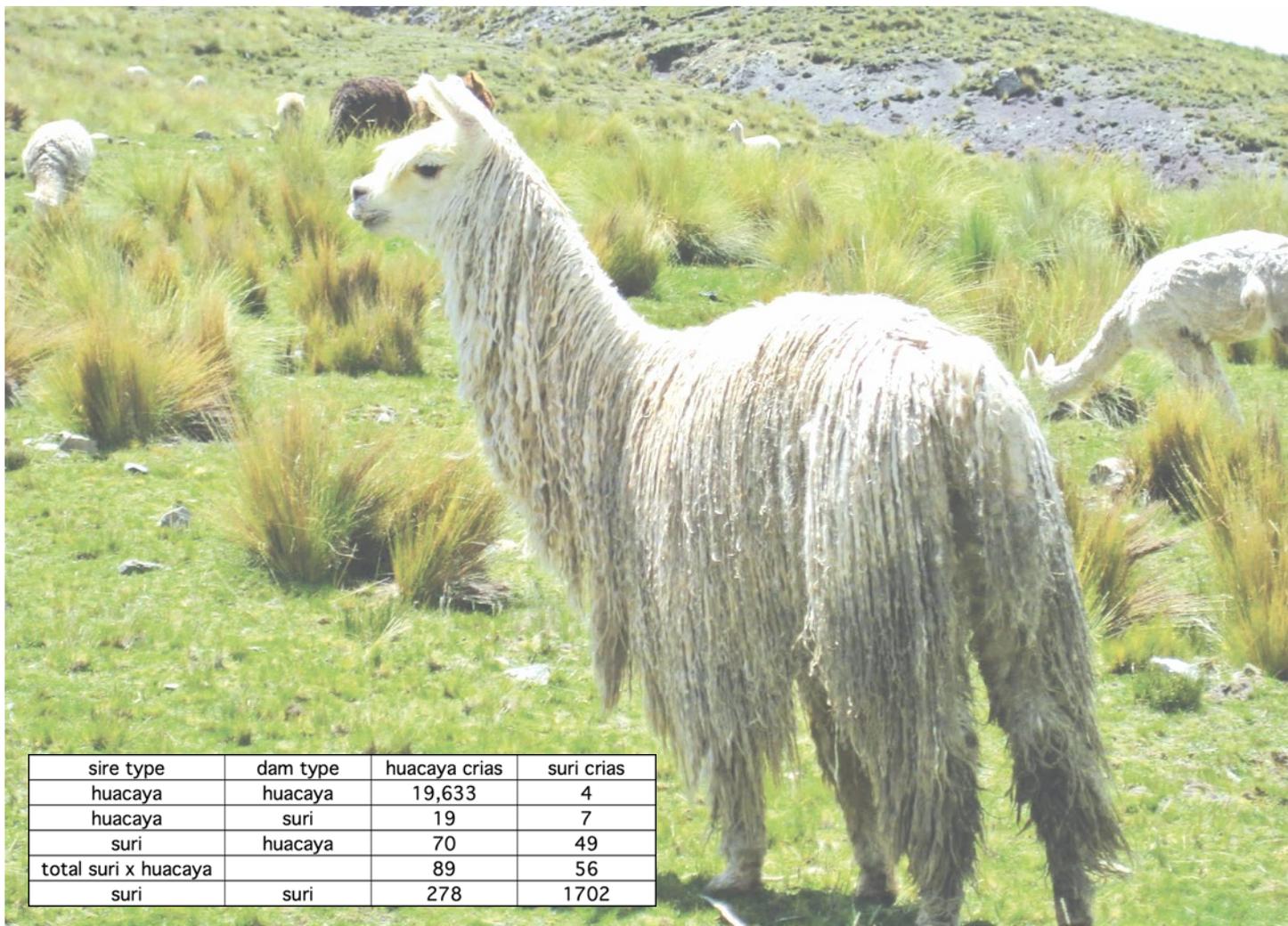
With these thoughts in mind, the data do indeed need some further explanation. One explanation is that suri expression is suppressed in some situations. This likely results in a huacaya, or nearly huacaya, phenotype. These animals, though looking like huacayas, would have the genetic information for suri locked away. This is a somewhat troubling result, because it indicates that the four suris with huacaya parents may actually be accurately identified suris. One way to determine this would be to track the further production of the huacaya alpacas that have one suri parent - if the "suppression" idea is correct, then at least some of these should be capable of producing suris.

These data also suggest a few strategies for breeding suri alpacas. This is a tangled topic, both politically as well as biologically, and I'm just chicken enough to leave the political ramifications for others. The biologic questions are fascinating enough, and dealing with them is no easy task!

The relative overproduction of huacayas from suri x huacaya matings suggests that these suri x huacaya matings are not all that useful a tactic for routine suri production. As with any general rule

there are important exceptions to it, and each breeder will have to make an individual decision regarding this tactic. One reason for caution is that some mechanism does appear to be at work in at least some huacayas that masks the expression of suri phenotype. Possible exceptions to the general suggestion to not cross the two types include the introduction of desired characteristics from individual huacayas into suri populations. Certain rare colours come to mind as an example, but no doubt there are other valid reasons for crossing the two types occasionally. In some populations the occasional outcross for overall genetic vigour may also be important and useful.

In contrast, the huacayas that come from suri x suri matings may actually be very useful to suri breeding programs for a number of reasons. It is clear that a huge portion of the genetic control between the two types is relatively simple, so that while a single dominant gene is unlikely to be the whole story it is almost certainly a big part of it. This indicates, to an extent that "huacaya + something = suri." One compelling question is "just what sort of huacaya, once we add the suri piece of genetics, makes a good suri?" This is an important question, and at least some anecdotal



sire type	dam type	huacaya crias	suri crias
huacaya	huacaya	19,633	4
huacaya	suri	19	7
suri	huacaya	70	49
<b>total suri x huacaya</b>		<b>89</b>	<b>56</b>
suri	suri	278	1702

evidence suggests that the huacayas that crop out of suri breedings do have some potential use in answering this question.

This question can be explored in a somewhat convoluted way by considering what is the 'best' huacaya fleece phenotype, if only huacaya fleeces are considered? While this answer is somewhat variable, in general finer is better, longer is better, more uniform is better, and denser is better. With suris, it appears that similar considerations are also generally true. However, it is still an open question as to what specific sort of huacaya would contribute best to suri offspring, and especially it is unknown if the most elite huacaya fleeces are the ones that best fit this specific task. Instead, what makes more sense is to mate those huacayas that pop out of suri x suri matings back to suris, for it is generally true that their phenotype, though huacaya, is exactly the huacaya phenotype that can produce a good suri phenotype once that suri piece of genetic information is reintroduced into the mix from a suri parent. As a result, tracking those huacayas from two suri parents may indeed be a useful strategy for suri breeding programs, because these are the very sorts of huacayas that are likely to produce good suris.

Tracking pedigrees and production is also going to be important for both types of alpacas. Some anecdotal evidence from suri llamas is that some animals are easily classed as suris while young, though the fleeces change with age and become much less easily confused with suri phenotype when older. These "misclassified suris" are a special threat to suri definition and breeding because, though the fleeces have some similarities, the animals do not produce crias like a suri. These, along with the South American intermediate fleece types, have a great deal to teach about the character of suri and huacaya fleeces and their genetics.

Along with the intermediate types comes a somewhat tricky concept that is widespread among domesticated animals, and this is the fact that for many phenotypes there are a number of different genetic mechanisms that can lead to them. So, for example, short-headed cats like the Persians have a completely different genetic mechanism for their head shape than do the superficially similar Burmese cats. Prolificacy in sheep is controlled by at least three different genetic mechanisms ranging from a single dominant gene (Booroola Merino, Thoka Icelandic sheep) to additive genetic variance (Finnsheep) and on to one that relies on heterosis after crossbreeding (Border Leicester).

In the case of alpaca fibre, it is likely that mechanisms other than the 'usual' suri mechanism can contribute to fleeces with many suri characteristics. Remember that all that needs to be done is to flatten and enlarge the surface scales, and the task is largely done. Any mechanism that leads to this will result in the same wonderful silky handle to the fibre.

This is not meant to be confusing, but rather to illustrate that animal breeding is complicated. Most successful and experienced animal breeders rely on art as much as science, and a good portion of the reason for this is that biological systems are indeed complex. By reducing them down to their simplest forms they can certainly be understood better, but this is always at the risk of omitting important details that can come back later to thwart progress. Better by far is a process that looks at the entire animal, as it functions in its production system, and to selectively breed animals that are adapted and productive for exquisite products such as suri and huacaya fibre.



*Huacaya fleece (above) is lofty with varying degrees of curvature, usually referred to as crimp.*

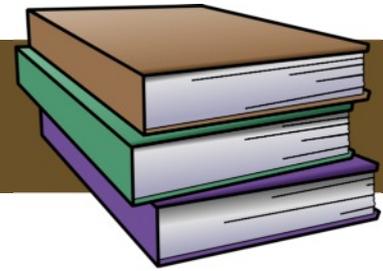


#### About the Author

Dr Phillip Sponenberg, DVM, PhD earned his Doctorate of Veterinary Medicine from Texas A&M University in 1976 and his Doctorate of Philosophy in Veterinary Medicine from Cornell University in 1979. Since 1981 he has been with Virginia-Maryland Regional College of Veterinary Medicine and is Professor of Pathology and Genetics in the Department of Biomedical Sciences & Pathology. He is a member of AVMA, VVMA and is Technical Programs Director with the American Livestock Breeds Conservatory, His areas of research interest include: Genetics of domesticated animals, Coat colour genetics, Conservation of rare breeds of livestock, Diagnostic pathology, and Reproductive pathology. Dr Sponenberg was the convener of the colour group of the international Committee of Genetic Nomenclature of Sheep and Goats, which expanded to cover all livestock species. He has taken the lead on Spanish horse rescues and is a conservation breeder of Spanish horses and Tennessee Fainting goats.

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# ALPACA BOOKS

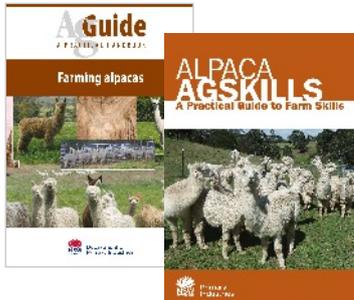


By Diane Boede

To assist members and others in locating information about farming alpacas in Australia, we have prepared a list of books that maybe of interest to you and your future alpaca purchasers.

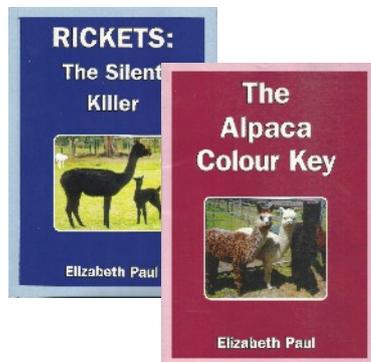
This list is not inclusive of all publications, however it provides you with a starting point for alpaca reference material. Further publications and information can be found on the AAA website (insert website), including the AAA publication, Managing Alpacas in Australia

We hope you enjoy reading.



1. AgGuide, A Practical Handbook  
Farming Alpacas. Published by NSW Government, Department of Primary Industries, 2012  
Available online: <https://www.alpaca.asn.au/shop-online>

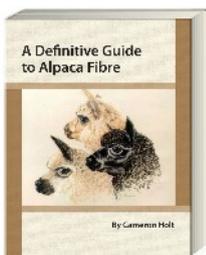
2. Alpaca AgSkills, A Practical Guide to Farm Skills  
Published by NSW Government, Primary Industries, 201. These publications are Australian and provide a very practical approach to farming alpacas.  
Available online: <https://www.alpaca.asn.au/shop-online>



3. Handbook of Alpaca Health by Elizabeth Paul 2012  
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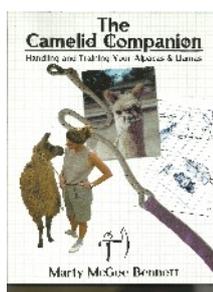
4. The Alpaca Colour Key by Elizabeth Paul 2011  
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Email: [erewonalpacas@gmail.com](mailto:erewonalpacas@gmail.com)

5. Ricketts: The Silent Killer by Elizabeth Paul 2011  
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Email: [erewonalpacas@gmail.com](mailto:erewonalpacas@gmail.com)  
These publications have been written by an Australian Alpaca breeder.  
Available online: <https://www.alpaca.asn.au/shop-online>



6. A Definitive Guide to Alpaca Fibre, by Cameron Holt, 2014.  
Published by Selle Design Group. This book is written by a fibre professional.  
Available online: <https://www.alpaca.asn.au/shop-online>

7. The International Alpaca Handbook, by editor and publisher Ian Watt 2004.  
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Contact the author: <https://www.alpacaconsultingusa.com>



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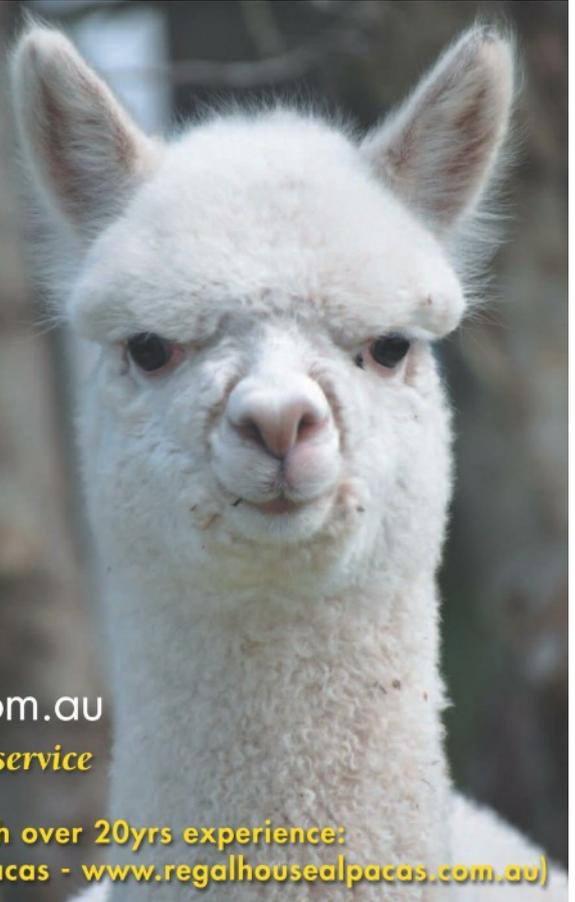
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# ASSESSING FERTILITY

By Michelle Ing, DVM

I recall early in my camelid experiences one particular case posed to me by a distraught client.

She went on to explain that she had purchased a beautiful female llama from a sale and for the past three years had her bred repeatedly by proven males, all to no avail. She was about to give up when she called me for help. After taking a brief history and confirming that the female was open by ultrasound, I continued my exam. As I introduced the speculum into the vagina, the problem became immediately apparent. Yes, the hymen was intact and I am happy to report she gave birth to a healthy cria the following year. You may chuckle at this story but you would be amazed at how often this occurs.

Since current knowledge regarding reproduction in camelids is not always readily accessible, it is my intent to relate personal experiences on how I approach fertility problems. Assessing fertility in the camelid along with the use of diagnostics is a job that should only be taken on by a trained professional. The goal of this article is to briefly guide the reader through the integration of information from a history and physical examination; to explain the application of diagnostic tools such as ultrasound and hormone analysis in obtaining information about the uterus and ovaries; and finally to arrive at a diagnosis and treatment protocol for reproductive problems. My approach is to point the reader in the direction of the more common causes of infertility, rather than focusing on some of the more obscure conditions in which a camelid remains infertile. Focusing on rare conditions is likened to a human medical article, which outlines a rare condition in which general characteristics; clinical signs and symptoms are given. By the time you finish reading the article on this rare condition, to your horror you determine that you have personally experienced several if not all of its symptoms! If after reading this article, you find that your animal does not fit any of the descriptions, you then should seek the help of a trained expert.

I begin with a thorough history before proceeding with the examination. Ideally the owner should provide a written history and record of the animal's health and reproductive past. In many cases, your history will point in the direction of a diagnosis. If a written history is not available, valuable information can be obtained by observing the animal over a period of time. Specific questions regarding the female's breeding behaviour and whether she is continually receptive can be suggestive of a uterine infection. On the other hand, a non-receptive female whose behaviour consistently remains so, and is even aggressive towards the male may suggest an abnormal ovarian or follicular development that may be responsible for varying levels of progesterone and testosterone. Next, it is important to know if the female is proven or unproven. If the female is unproven, rule out an intact hymen, a uterine infection, and irregularities of the reproductive tract. The uterine infection is easily diagnosed by cytology and culture along



with a speculum exam and ultrasound. On the other hand, if the female is proven, then her breeding record should be carefully scrutinized. A history of dystocia or retained placenta, recent birthing details, and the most recent breeding exposure will offer valuable information about the female's current reproductive status. Ruling out uterine infections will resolve the majority of breeding problems for the proven female. In the work-up of uterine infections it is also important to know the number of times a female was exposed to a male, the time interval between breeding exposures, and the overall duration the condition has persisted. In my experience, the longer a condition persists without intervention, the less likely a successful outcome is reached.

You can never ask too many questions. Questions such as, was the breeding observed. And, was the connection visualized? Lack of confirmation on these areas may be reasons for the suspected infertility. There are times when selected pairs have resulted in the inability of the male to successfully breed the female.



I have watched time and again larger females mismatched by a smaller and shorter male. The male cannot perform a miracle! If the male cannot reach the cervix, the breeding will be a failure. A male frequently repositioning himself can characterize this event. The male may get up, move from side to side, or just walk away in frustration. This behaviour occasionally leaves owners wondering why the female is not getting pregnant. Again, rule out the simplest reasons before jumping to wild conclusions.

Clinical assessment highlights health issues that may prevent a healthy pregnancy. Heart murmurs, and extremes in body score are readily apparent with the physical examination. Conformation of the external reproductive genitalia is also noted on physical exam. Besides conformation, the position of the genitalia in respect to other body parts is important. For example, a recessed anus can predispose the animal to infection especially when unformed faecal material comes in direct contact with the vulva. I have often seen this associated with a downward-sloped vaginal opening leading to the cervix. Gravitational forces work against removing or discharging debris from the uterus and from directly in front of the cervix.

The use of ultrasound as a diagnostic tool has been a tremendous advancement in assessing fertility. The quality of the machine as well as the experience of the operator can be a diagnostic combination that can rival no other in routine evaluation of fertility of the camelid. Confirmation of pregnancy by ultrasound is a certain means of diagnosis. Progesterone levels along with behavioural testing strongly suggest of pregnancy, but the levels alone are not accurate 100 percent of the time. Behaviour alone can also be misleading. Not only does ultrasound determine pregnancy, ultrasound examination allows evaluation of the uterus and ovaries. It is possible to detect the presence of fluid in the uterus, the presence of follicular developments, and the presence of abnormal follicular structures. Pregnancy may be detected from day 10 until the time of birth.

Transrectal ultrasonography is most effective prior to pregnancy and during the first 50-60 days of pregnancy. Transabdominal ultrasonography is easily performed on females that are 60 days pregnant until the time of birthing. The ultrasound evaluation can also be a means of assessing foetal growth, sexing and the overall health of the foetus. In cases where a reabsorption or early term abortion occurs, you can examine the appearance of the fluid in the uterus. I have often seen the appearance of a speckled fluid-like substance associated with an early re-absorption. On one particular female the appearance of this fluid was noted just as the expulsion of the 45-day-old fetus took place.

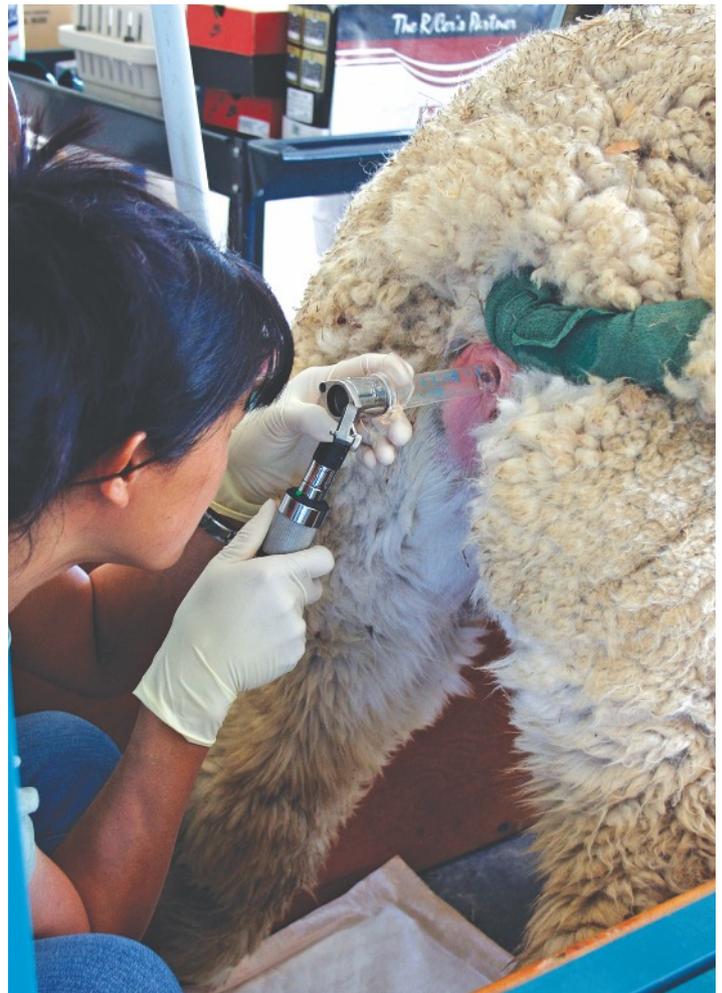
Treatment for some of the infertility conditions described above may involve the therapeutic use of hormones. Uterine infections are usually treated by flushing the uterus with sterile saline or lactated ringers to manually remove debris and by infusing antibiotics directly into the uterus to treat a localized infection. Other treatments prescribed may be merely an alteration in the breeding schedule or simply rest.

In conclusion, fertility assessment in the female llama or alpaca is derived from a history and physical examination and the use of ultrasound and or hormone analysis. These components work together allowing you to arrive at a diagnosis. They enable you to form a treatment plan that may resolve an animal's infertility. A simple and methodical approach at ruling out the more common causes of infertility is often a more practical and useful way to resolve the majority of fertility problems in the female llama or alpaca.

#### About the Author

Michelle Ing lives in Granite Bay, California with her husband, Steve Friend and their 16 alpacas, two dogs, a parrot, a mule and a miniature horse. She graduated from UC Davis in 1996 and spent the following year in Lexington, Kentucky where she completed an equine surgery internship. She then moved to Spokane, Washington where she began her camelid practice. In 2002 she returned to California where she continues her own busy private practice. Her special interests include camelid reproduction where she takes in several cases a month for work-up and treatment.

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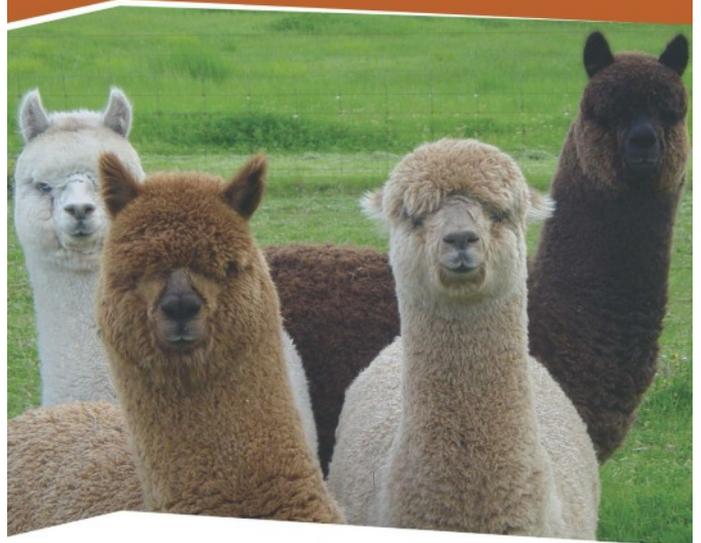


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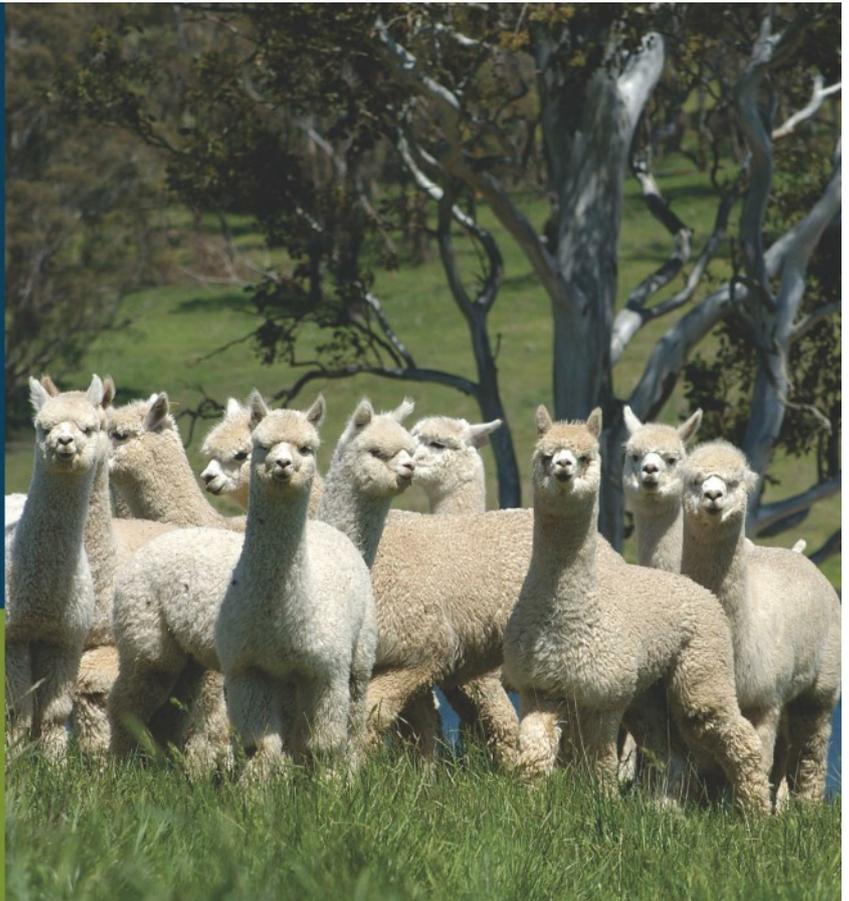
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