ALPACAS AUSTRALIA

The official publication of the Australian Alpaca Association Ltd

National Alpaca Week 4th-12th May

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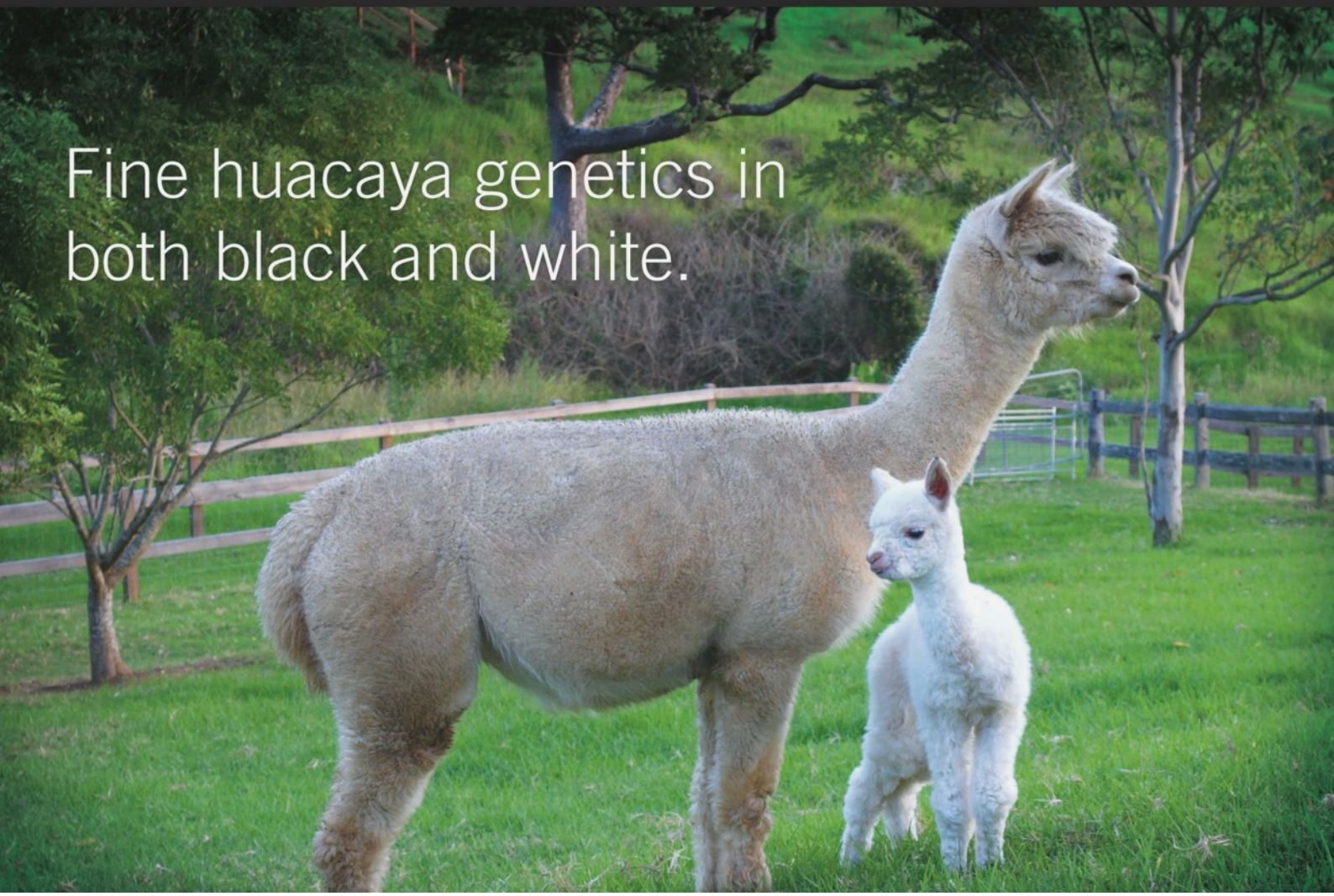
millpaca



FEATURED STUD MALES

BANKSIA PARK MYSTIC CHALLENGE ET

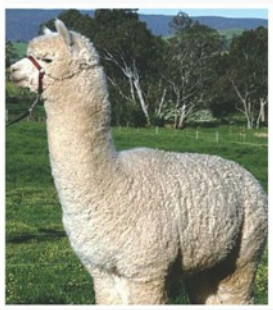
Millpaca Alpaca Stud are proud to own this true to type male. His brilliant show record confirms he has perfect conformation with a beautiful soft, dense fleece with excellent structure.

2012 - Mic 28.9 - SD 5.7 - CV 19.8

KOORANA PARK BLACK KNIGHT

Black Knight was again placed 1st in his class at the national show. He has the fleece characteristics of a seedstock (wool) stud male. Black Knight is a true to type blue/black male with fleece demonstrating fibre diameter uniformity, good density, lustre and soft handle.

2012 - Mic 27.4 - SD 4.8 - CV 17.6



SHANBROOKE ACCOYO INVINCIBLE

Invincible carries an incredible bright lustrous fleece that handles like silk. His fleece character is a bold bundling deep amplitude crimp that peels open into individual staples.
He has good width of chest on a large frame with sound bone.
His follicular density is 63.1 with a secondary to primary ratio of 11.

2012 - Mic 24 - SD 4.7 - CV 19.8
Fleece weight 6.1kg

CANCHONES YATAGAN ET

Canchones Yatagan is a blue black male with exceptional substance of bone, luster and handle.
Do to his quality and follicular density he is a SRS recommended male.

2012 - Mic 29.9 - SD 6.5 - CV 21.8

www.millpaca.com

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ABN 30 067 146 481
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Unit 2, 613 Whitehorse Rd, Mitcham Victoria 3132 Australia
(PO Box 1076, Mitcham North Victoria 3132)

Telephone +61 (0)3 9873 7700 Fax +61 (0)3 9873 7711
Email: alpaca@alpaca.asn.au Internet: www.alpaca.asn.au

Designed and Produced
By Oak Grove Graphics
PO Box 4059, Candelo NSW 2550
Telephone +61 (0)2 6493 2036
info@oakgrovegraphics.com.au
www.oakgrovegraphics.com.au

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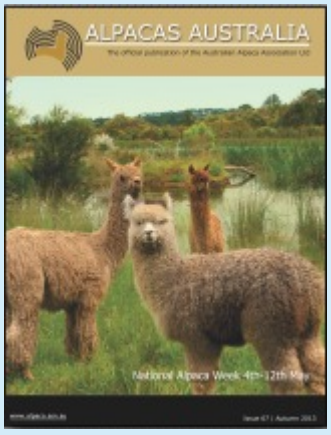

Cover: Photo by Penelope Beveridge
Penelope Beveridge Photography

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President's Message

Welcome to your first edition of the Alpacas Australia magazine for 2013. This magazine includes a range of articles covering animal health matters, research activities, the varied things happening with our 'end product' and the adventures and journeys of alpaca growers. Whether purely informative, practical or more technical in content, each article contains something of interest and relevance to all of us involved in the Australian alpaca industry.

The Australian Alpaca Association is a membership services organisation, and the key resources and assets of the association are its members. The role of our members in this industry body is to represent and promote the alpaca industry at all levels, and our reach may be local, regional, national or global. The paths we take to our destination may not always be the same, but I believe we all share a common aim to be part of a successful, thriving livestock industry.

When you read this the Board and Council will have met in Melbourne to review and refocus on our priorities for this year and beyond, and to share the ideas and activities that have been successful at a local level.

The summer season has provided its usual challenges in weather extremes, with searing and unrelenting heat in many areas, compared to sudden unpredicted deluges of rain after extended dry spells. I know there are members who are active volunteers in their local community who have been fighting bushfires, clearing mud and debris, and providing both hands on and strategic support.

In closing, I would like to acknowledge the work of our many volunteers, the AAA office staff, and my fellow Directors in maintaining the activities of the association, and for their enthusiasm to continue the forward momentum necessary for our industry to grow and prosper.

Michelle Malt
AAA Ltd President

News & Views

Book Review by Julienne Gelber

Farming Alpacas Ag Guide: A Practical Handbook, written by Fiona Vanderbeek published by the Department of Primary Industries.

Full Colour, 143 pages, soft cover, retailing for around AUD $30.00 available from the DPI and through the Australian Alpaca Association's National Office – see Merchandising Section of the AAA website.

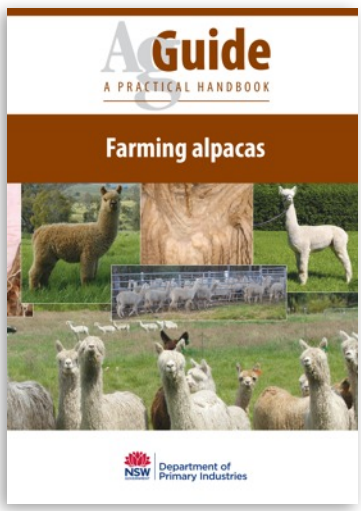
Congratulations to the NSW Department of Primary Industries and Fiona Vanderbeek for producing this commonsense and comprehensive guide.

The 27 chapters are packed with useful, practical information that covers everything a prospective buyer or new breeder needs to know about alpacas: from purchasing and managing their livestock through to setting up a farming environment suited to alpacas, showing etc. Well established breeders will find the more sophisticated, scientifically based and technical information on farm management systems, fleece and breeding of great benefit and a good refresher.

The content has been scrupulously researched and sourced from the top alpaca experts in Australia. (After 18 years in the industry I had lots of "wow, I didn't know that" or "maybe I've forgotten" moments!)

The general health, physiology and husbandry sections are such a good reference and all breeders will find the sections on Biosecurity, Record Keeping and particularly the Management Planner, excellent templates for managing an alpaca business. The layout of the guide is excellent, all of the photos are beautifully reproduced and really relevant to the appropriate sections, as are the tables and graphs.

Every alpaca breeder should have a copy! The guide is considerably cheaper than any of the imported, glossy alpaca books, so you don't have to wait for a birthday or Christmas to justify the purchase.



Magazines that feature alpacas

Town & Country Magazine is now featuring a 4 page lift out section dedicated to Alpacas!
Available at newsagents nationally/subscription.

The New Rural Industries Australia produces a bi-monthly online magazine that features article/s submitted by the AAA.

View it online at:
http://issuu.com/NewRuralIndustriesAustralia/docs/sepoctnov2012/1

NEWS FLASH!!!

The protocol for exporting alpacas between Australia and Taiwan is now in place. Congratulations to Steve Ridout and the Export Panel who have worked very hard in conjunction with DAFF (Department of Agriculture, Fisheries & Forestry) to get these protocols accepted.

TAIWAN

Deadline for articles & advertising Issue 68
15th April 2013
Magazine Due – Early June 2013

All editorial contributions should be typed and preferably submitted electronically as a Word document. Photographs should be digital, high resolution, sent as attachments, to ensure good reproduction.

2014 National Conference

The 2014 Australian Alpaca Association National Conference will be held at the Adelaide Convention Centre on the bank of the River Torrens.

The Adelaide Convention Centre is a sought-after venue and we are proud to have secured it for our conference. Surrounded by parklands, Adelaide boasts an amazing array of restaurants, nightlife and shops, a thriving local arts scene and several major attractions. Visit the Art Gallery, SA Museum, Adelaide Botanic Garden or National Wine Centre of Australia, or discover the bustling Adelaide Central Market. Shop in Rundle Mall, or dine alfresco in one of the city's many "eat streets". The city's beautiful sandy beaches are just minutes away. There is a huge range of accommodation in the city to suit everyone's needs and the committee will publish a suggested accommodation list on the website later in the year. The city of Adelaide is built on a square mile block so everything is close by. The Convention Centre is serviced by the tram that runs through the centre of the city and down to the historic beach suburb of Glenelg.

The theme for this conference is "Alpaca Excellence – the business of farming alpacas". Sessions will cover all aspects of owning and breeding high quality alpacas. Topics will include animal health, nutrition, genetics, marketing, business, fleece, value adding to create products for sale, recent research and much more. This wide range of topics means that all delegates can choose the sessions that are most applicable to their goals, whether you are new to alpaca farming, or long-term farmers looking to improve models or develop your business further.

The conference theme reflects the Australia Alpaca Association's overall ethos, and our commitment to excellence by administering to every aspect of the business of alpaca farming. We are passionate about supporting research and industry development, as reflected by our ongoing research and development programs. However, we don't stop at documenting the developments and achievements of our industry. We strive to make the research available to our members so they can benefit from it by having access to effective ways of putting the knowledge into practice.

The conference is one of the major ways we communicate new research to our members, by situating it within the relevant context and giving us the opportunity to discuss and demonstrate methods of application.

The conference will run over three days, from Friday May 9 to Sunday May 11, 2014, and there will be farm tours running on Monday May 12. Other highlights of the conference will be the Saturday night gala dinner held at the Convention Centre. There will also be a Friday night function offering members a chance to meet and greet others in the industry in a relaxed setting.

While in South Australia you may want to make the most of your trip by visiting other Australian alpaca studs in the region, or enjoying some of the country's best wine and dining to be found around the Barossa Valley and Fleurieu Peninsula. While in the city itself, enjoy the many parks dotted around the CBD, as well as the Art Gallery, South Australian Museum and the botanic gardens, all conveniently located within 100 metres of the Convention Centre along the gorgeous North Terrace strip.

We are already excited about the conference and we are well on our way with planning. We are calling for expressions of interest from speakers with knowledge across the planned range of topics. Hands-on workshops are being planned across the weekend and each day will conclude with a forum. We are also welcoming expressions of interest from sponsors and from members who wish to have trade stands at the conference. If you are interested in presenting sessions or sponsoring the event, please email Joy: joy@alpaca.asn.au
If you are interested in a trade stand, please email Nick: shandara@westnet.com.au

The National conference provides the highest level of exposure available to Australian alpaca owners, and a brilliant opportunity to meet others to network, gain feedback on your animals and alpaca-related products, and to gain the skills and information that will be vital to your future business growth. Help us plan for our biggest and best event of the AAA calendar. Join us to support "Alpaca Excellence – the business of farming alpacas", to develop your business and to be an active part of the Australian alpaca community.

Conference

alpaca excellence 2014

The **Australian Alpaca Association 2014 National Conference** offers you a valuable opportunity to share knowledge and network with others who share your passion and goals.

Session themes for the conference will cover a rich and diverse range of topics to discuss a broad range of questions of common interest. It will also provide a platform to establish new business relationships.

Be...

Be there!

9-11th May 2014

Save the date now!

Adelaide 2014

ADELAIDE CONVENTION CENTRE

Australian Alpaca ASSOCIATION

Future Growth of the Australian Alpaca Industry

Through Export and Marketing

By Steve Ridout
Wildflower Alpacas

The current situation with exports from Australia to Europe are slowing due to economic downturn and previous imports. Subsequently the need for genetic diversity is diminishing.

We have seen a 50% reduction over the last 2 years in the numbers being exported from Australia to Europe. As many people are aware, all Australian exports to Europe must go via New Zealand, discussions for direct exports have been ongoing for years now with diplomatic hurdles stagnating the progress. The hurdles do not look like being resolved in the foreseeable future. The exports via New Zealand do add additional costs onto every Australian alpaca resulting in the New Zealand Industry benefiting through a cheaper alternative.

We do not want to forget the European market but it's now essential to investigate alternative markets around the world. The aim is to target markets due to their proximity, logistical ease in transport and those countries that have already established agriculture trade with Australia. We would benefit the most by selectively targeting the markets that will have capital expenditure to invest in Australian alpaca at all levels.

The establishment of protocols is currently being undertaken by the Export Reference Panel and DAFF (Department of Agriculture, Fisheries and Forestry) Biosecurity Department for countries such as Taiwan, China, India, South Korea, Japan and Turkey. The Taiwanese and Chinese protocol should be in place by the end of quarter one 2013.

The AANZ has already established the Taiwanese protocol and has been exporting for over a year now and in turn are well advanced into other countries. We need to catch up and proactively move our industry forward.

The protocol establishment of live exports for breeding purposes is only the first step. Protocols for meat/hide exports along with fleece will also be targeted, opening up avenues for a joint working group (exports and marketing) to focus on opportunities for trade displays by the Australian Alpaca Association in those countries being targeted. The AAA does have a significant role to play following on from protocol establishment: it will allow the board to research trade possibilities, to establish business relationships and trading partners along with facilitating international trade events. This singular approach will take the focus off the Australian market but I feel that the overseas markets are a clear development opportunity for our industry. It will broaden the industry's horizons, allow for further investment in all facets of the alpaca and allow all growers an equal opportunity to further develop their own businesses.

At present the protocol establishment is governmentally funded however this is being reviewed for 2013. If the protocol establishment is reviewed and costs are implemented, the exact amount depends on the complexity of the protocol, discussions between DAFF and the country of destination, the time taken to implement a Draft Model Health Certificate for live export (breeders).

Who will pay for these costs and how can they be recouped? If a licensed exporter establishes the protocol it then opens up markets for all exporters to take advantage without the expense incurred. Or should the AAA as an industry take the lead and establish a model similar to other livestock industries, and establish a system whereby levies are imposed on exports and fleece, not only for the establishment of protocols but research and development along with promoting the industry at international level?

Your complete solution from fibre to fashion.

Australian Alpaca Fleece Limited is the complete solution for growers, wholesalers and retailers.

AUSTRALIAN ALPACA

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www.aafl.com.au

"An A-Z of

A is for **alpaca** (obviously!) – adorable, affable, affectionate, alpacas

B is for **Best in Show** – every alpaca breeder's dream. (We haven't quite got there yet... but we're trying!)

C is for **cria** – a baby alpaca, the cutest thing you've ever seen

D is for **dustbathing** – one of an alpaca's favourite things, and just one of the many ways they conspire to make a mess of their lovely fleece

E is for **eccentric** – alpacas (and their owners) are colourful, characterful, weird and wonderful creatures

F is for fabulous, fine, fluffy **fleece**

G is for **grass** – and lots of it (although the odd carrot or apple goes down rather well, too)

H is for **Horatio** – big bad boy of the Lavender Bee herd; and **huacaya** – the teddy-bear-like alpacas with the big crimpy, fuzzy fleece

I is for **idiocy** – think of something stupid and you can guarantee an alpaca will do it

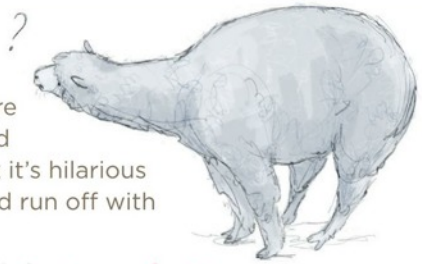
J is for **joie de vivre** – being an alpaca is just fun, fun, fun!

K is for **kushing** – the term when alpacas kneel down and chill (although they can also do it in a bit of a passive-aggressive way, like when they decide they've had a enough of being led around the show ring and go for a sit down instead!)

L is for **llama** – as in, an alpaca is not a...

M is for **manure** – alpaca poo is just the best fertiliser!

Alpacas" from The Border Mill



N is for **nosy** – alpacas are curious about anything and everything (they also think it's hilarious to creep up behind you and run off with your tools)

O is for **orgling** – a strange cooing, gurgling noise male alpacas make when they're feeling amorous...

P is for **paddling** – alpacas just love it; and **pronking** – a funny bouncy skipping thing they sometimes do, especially at sunset

Q is for **quoi** – as in *je ne sais...* (whatever it is, alpacas have certainly got it!)

R is for **rose grey** – a gorgeous pinky, browny, grey; just one of the 22 natural colours of alpaca fleece

S is for **suri** – the cool dude alpacas with the long, shaggy, silky dreadlocks

T is for **Tatiana** – our first cria, an absolute babe, with an overdeveloped sense of humour and a knack for untying shoelaces

U is for **...umm** – can't actually think of anything for that one. Ideas on a postcard, please – best one wins a woolly hat!

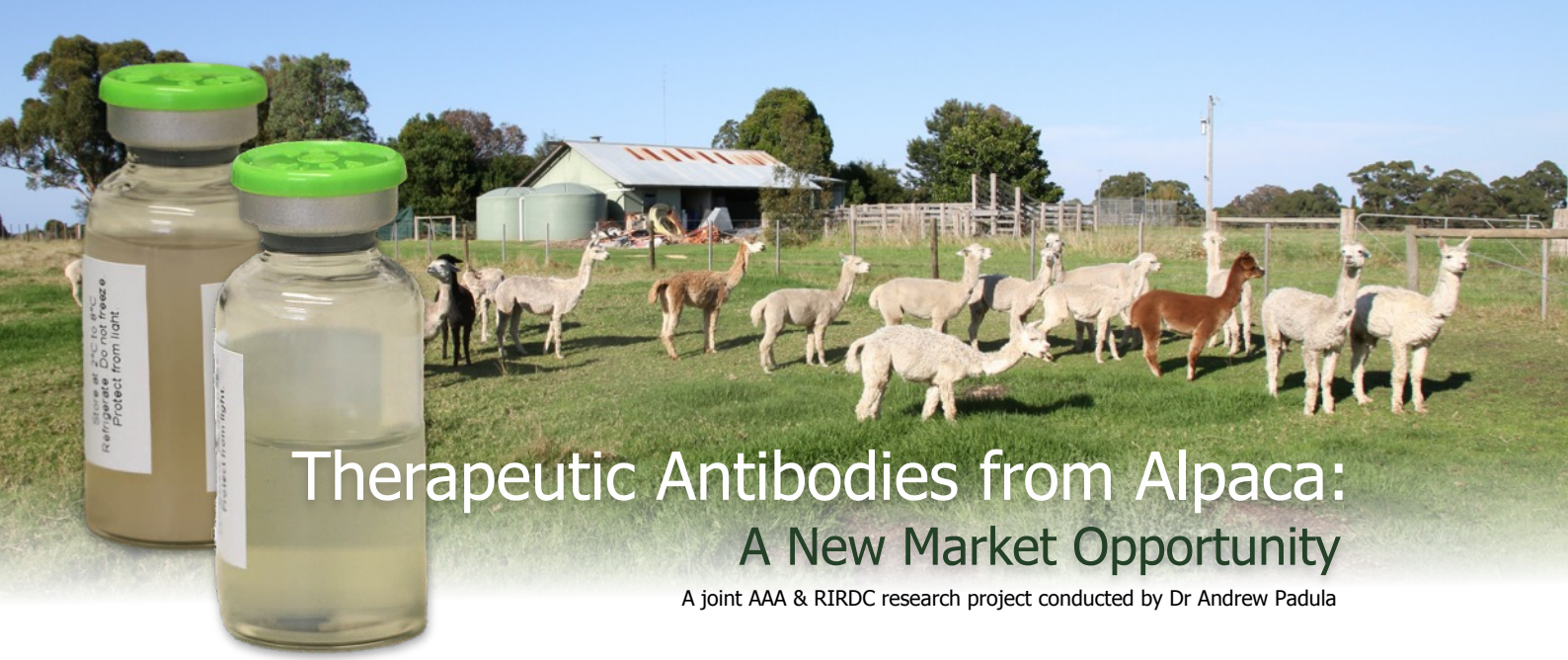
V is for **vegetable matter** – bits of twigs, straw, hay, leaves, seeds – you name it, they get it stuck in their fleeces

W is for **Want one!** – well, who wouldn't? Just remember that you need at least two; preferably (and almost inevitably) more

X is for **Xmas** (sorry!) – but what could be more festive than alpacas in the snow?

Y is for **yarn** – gorgeous soft, smooth, silky alpaca yarn

Z is for **...sssshh!** – just try an alpaca duvet and you'll see what we mean



Therapeutic Antibodies from Alpaca:
A New Market Opportunity

A joint AAA & RIRDC research project conducted by Dr Andrew Padula

The issue:

This proof of concept study has explored the use of alpaca for the production of medical grade therapeutic antibody products. Alpaca are members of the camelid family. Camelids produce a unique class of immunoglobulin molecules in their bloodstream. [1]

These immunoglobulins can be harvested and refined for production of specialised therapeutic medical products. The unique properties include reduced allergenic potential, greater heat stability and greater capacity for inactivating certain enzymes. [2,5]

Australia is an ideal location because it is recognised as one of the lowest disease risk countries in the world for producing medical products derived from animals. [3] There are over 130,000 alpaca currently in Australia. This early stage research has successfully demonstrated that alpaca can be used to produce therapeutic antibodies. These findings could lead to a new high-value niche market for producing alpaca-derived medical products in Australia.

What are therapeutic antibodies?

Therapeutic antibodies are molecules found in the bloodstream that can bind to, and inactivate, a wide range of chemical substances. There is a billion dollar global demand for therapeutic antibodies. [4]

A diverse range of medical products with well-defined markets already exists. Amongst these include various anti-toxin serums for snakes, spiders, bacterial infections (tetanus, rabies, botulism, anthrax), emerging anti-cancer therapies, and a host of other applications.[4] Currently these products are produced primarily in horses, sheep, rabbits and a small range of other animal species. Camelid antibodies have tremendous potential to improve the quality of products available in this existing product marketplace. [5]

How are therapeutic antibodies made?

The production of antibodies requires stimulating the immune system with the product that antibodies are desired for. This process takes time for the animal's immune system to respond with high levels of a specific antibody.

Blood is then collected from the animal and processed to concentrate the specific antibody fraction. The product is then tested for its potency and a range of other physiochemical parameters. Typically, these products are final-packaged in sterile glass vials for human or veterinary medical use.

Alpaca derived anti-toxin antibodies:

This proof of concept project explored the potential for alpaca to make therapeutic antibodies against a range of different snake venom toxins. Snake venoms were chosen because, for an antibody to be effective, it must neutralise the actions of the venom. This approach provides a very robust demonstration of all the steps required to produce the neutralising antibody.

Snake venom is a complex pharmacological substance with many different components. This project has also examined the antibody response of alpaca to different venom components. Alpaca respond to venom immunisation with rapid development of neutralising antibodies. Extremely low doses of venom were used, which did not harm the animals.
Blood tests were performed regularly to monitor the animals' general health and these showed no abnormalities. All animal procedures were approved by the Victorian Department of Primary Industries Wildlife and Small Institutions Animal Ethics Committee (Approval numbers 16.11 and 06.16).

The alpaca serum was successfully processed with modification to existing protocols used for other species. A very pure and concentrated antibody product was produced from the alpaca serum. When tested for venom neutralising capacity the experimental products were effective in neutralising venom.

Industry opportunities:

This proof-of-concept study has demonstrated that alpaca can be used successfully to make therapeutic camelid-type antibody products. For such an industry to develop in Australia, a commercial partner would be required who would develop the antibody products and support them through the relevant government testing and approvals processes.

Australia has potential for such an industry given it has an abundant number of alpaca, at an affordable price with low disease risk. [3]

For more information contact:

Dr Andrew Padula, Project Leader: 0419 555 477
Julie Bird, RIRDC: (02) 62714140
Fiona Vanderbeek, AAA: (02) 4878 9310

Studs contributing alpacas for this project:
Jen McDavitt, Merungle Alpacas
Paul and Fran Haslin, Elysion Alpacas
Paul Cramley and Linda Davies, Pacofino
Fiona and Ian Vanderbeek, Birrong Suri Alpacas
Ros and Michael Davis, Elimbari Alpacas

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An Italian Alpaca Experience!

Once an alpaca breeder, always an alpaca breeder!
2012 was the year for me to make life changing decisions, ones that I shall never regret.

My property "Triple Peaks" was leased, the alpaca herd sold, the on-farm tourism and retail businesses ceased trading, and I was off to distant lands – a top priority on my "wish list" for several years.

In August I departed Australia for Umbria, Italy, for a long-term stay in the "green heart of Italy", a beautiful, unspoilt region of mountains, rolling hills, tiny medieval villages and ancient churches, one of the most traditional parts of the country, and of course, the wonderful fresh foods, wines and olives, truffles and fungi are ever tempting.

It is indeed a true saying, that a love of animals crosses many borders and cultures. I spent the first month on arrival at the fascinating medieval village of Montone, set on a hilltop, streets so narrow that it is a "car-less" borgo dating back to the 12th century, with a small central Piazza and a slow-paced lifestyle.

Surprise, surprise! It was here that I befriended another alpaca breeder, who had previously farmed both suri and huacaya in the UK for 10 years, before moving to Italy 5 years ago to further introduce the industry to European countries.

Some of you may know Hilary (Shenton) Zarza Alpacas via her website: www.zarza-alpacas.com. She is a UK Judge and has been very active in the British Alpaca Society for many years. Hilary and her partner John, live in Umbertide, a busy agricultural town in Northern Umbria, with their herd of 33 animals agisted on 3 acres in the foothills of Montone.

The short story is I am now a hands-on alpaca assistant once again, and loving the experience. The farming conditions are VERY challenging, small parcels of land are very difficult to find in Italy, hence the 3 acre cleared block was soon eaten out during the drought conditions last summer.

Australian alpacas live in "alpaca heaven"!

To add to this, the native predator here is the wolf (not a good surname to have in this part of the country), and a 2.4 metre high electrified fence had to be erected around the block.

No pasture, no laid-on water supply and no power with the paddocks located on a steep hillside makes for very difficult farming and a huge commitment on Hilary's part. Large round bales of alfala and 2 x 1000L water containers are delivered by a local farmer each 10 days or so. The herd is totally hand fed and watered but despite these trying conditions they are in good condition, appear happy and quite used to their Italian way of life.

With winter fast approaching, which also brings the seasonal rain, wind and snow, the pacas and 'carers' are constantly battling the muddy, slippery ground. I might add that the alpacas are far more stoic than the two female 'carers' who attend them; Hilary makes twice daily visits, and I provide an extra pair of hands once or twice a week depending on weather and husbandry needs.

There is only one Alpaca Show in Italy each year, held in September, with 38 animals judged this year by another UK Judge – the total national herd number at present is approximately 2000 head. Hilary entered 5 head, sold one, and won a Reserve Champion and 2 first ribbons – a great result considering the harsh conditions and fleece growth.

The fleece clip is processed in the UK and Sardinia and products are made by Italian handcraft contractors.

We set up a stall at the annual Montone Festa del Bosco last weekend, a 4 day event were we sold lots of garments and provided information for hours to enquiring Italians who really don't know a great deal about the species, but

are keen to learn, even though they think the animals are quite comical looking and have no idea of their use.

The beautiful Villa Capanne in the mountainous Antognolla Valley is my home until April next year.

Train travel in Europe is very convenient, fast and reasonable. I have short stays planned for Florence, Milan, Lake Como, Bologne and Genoa, as well as exploring the surrounding beauty of Tuscany and Umbria by car.

I have recently done the quintessential Italian thing: harvesting the olive crop from the 400 year old trees at the Villa, yielding 36kgs from 6 ancient, gnarled trees.

With great excitement off to the crushing mill I went to produce 5L of very special extra virgin olive oil – green in colour and not quite like any oil I have ever tasted before. I enjoyed the fruits of my labour with a stick of hot bread , slices dipped in garlic then salt and/or spread with Mousse di Funghi Porcini (Porcini mushroom paté).

Despite this idealic lifestyle, I do think of you all at home often and always remain grateful of the favourable conditions that the Australian alpacas are able to enjoy. Kind regards to one and all, hoping you had a very Happy Christmas and wishing you a safe and healthy New Year.

Arrivederci Sheila

PS. Sincere congratulations to Michelle and regional members on the wonderful achievement of Michelle's appointment as President of the Australian Alpaca Association.

Very busy but exciting times ahead!

For over 10 years Creswick has used 'fibre of the gods' to offer superior, natural softness and a high level of comfortable warmth in its blankets and throws. With tireless dedication to Australian Manufacturing, Creswick proudly blends, spins and weaves Australian Alpaca fibre in Australia. Through David Jones and specialty retailers, Creswick has continued to grow the number of blankets & throws manufactured in Australia. The consumer truly values light weight Alpaca, naturally lighter relative to wool blankets. Feedback from our diverse customer base around the world shows they appreciate the unique thermal properties that release heat in warm conditions and trap heat when the weather is cool. A perfect seasonal insulator.

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Beware the CV

By Bob Kingwell (BSc), Monga Alpacas

There are limitations to the usefulness of using the coefficient of variation (CV) in alpaca breeding programs. These limitations are discussed and an alternative to using the CV is introduced.

The CV and the standard deviation of fibre diameters (SD) are both measures of uniformity. The SD is an absolute measure whereas the CV is derived from the SD and is relative to the average fibre diameter (FD).The wool industry uses the CV to compare the uniformity of fleece bales and to determine the spinning fineness (SF). This is determined by a formula based on the FD and CV so that when the CV is 24%, the SF is the same as the FD. However for every change of 5% either up or down from 24% there is a 1 micron change either up or down in the SF compared to the FD. Buyers use the CV to compare bales that have a similar FD and processors use the SF rather than the FD.

The FD and SD are independent measurements based on the diameters of the fibres in the tested sample. The CV however is not an independent measurement. This is because it is obtained by dividing the SD by the FD and expressing the answer as a percentage (CV = [(SD/FD) x 100] %).

The SD is the range of fibre diameters either side of the FD that encompasses 34% of the fibres in a sample. It therefore indicates the range of fibre diameters that together includes 68% of the fibres. If the SD is 4µ then 68% of all the fibres will be between (FD – 4µ) and (FD +4µ). This range is independent of the FD and will be the same for a particular SD regardless of the FD. The SD is therefore an absolute measure of uniformity.

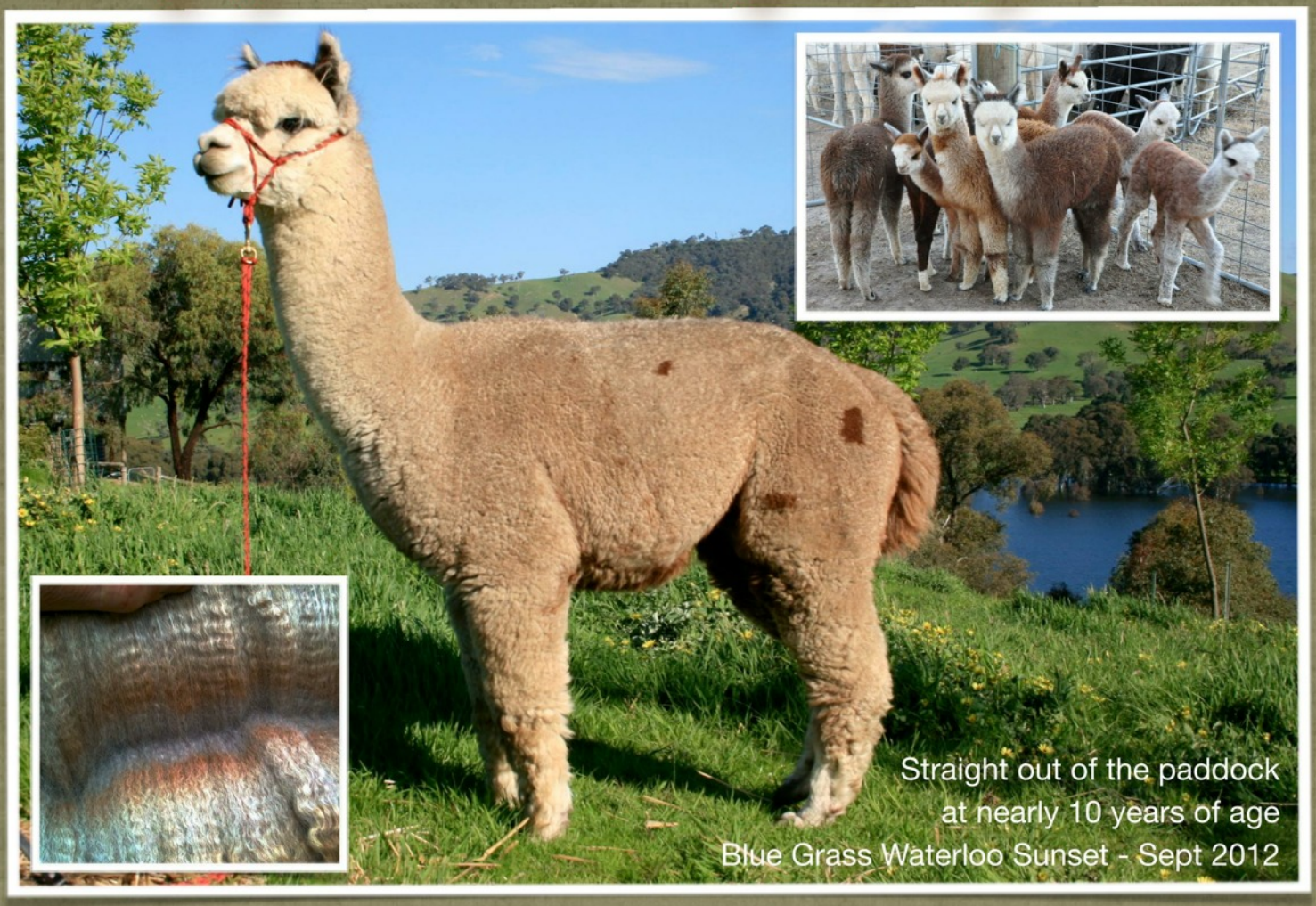
When the FD is low the range of fibre diameters for a particular SD will represent a larger percentage of the FD than when the FD is high. This is the opposite to another type of uniformity referred to as tolerances. This generally refers to the accuracy in size to which items are manufactured and in this case smaller items are usually made to finer tolerances than larger items.

The CV is an expression of this absolute uniformity as a percentage of the FD and is therefore relative to the FD. This relative uniformity can make it difficult to compare fleeces from alpacas of different ages since the FD usually blows out at a faster rate than the SD. Thus, as an alpaca ages, its CV usually decreases. This gives the impression that the uniformity is improving whereas its absolute uniformity is actually becoming worse. Unless the rate of the declining CV can be determined and related to the age of the alpaca, it is difficult to determine whether or not it is better than another. The relevance of the SD and FD in a particular situation will determine whether or not the CV is useful when assessing alpacas. This can probably best be demonstrated in the following examples:

Suppose two samples each have an SD of 4µ and one has an FD of 20µ and the other 24µ. The 20µ sample will have a CV of 20% and an SF of 20-0.8=19.2µ. The 24µ sample will have a CV of 16.7% and an SF of 24-1.5=22.5µ. Based on the CVs, the 24µ sample appears to be the more uniform and that is the case relative to the FDs. In absolute terms however they both have the same uniformity and most breeders would choose the alpaca with the lower FD which also has the lower SF. In this case the FD has more relevance than the CV.

What if the two samples have the same FD of, say 20µ; what happens then? If one has a CV of 15%, its SD will be (20x15)/100=3µ and its SF 18.2µ. If the other fleece has a CV of 20% then its SD will be 4µ and its SF 19.2µ. The first sample with a CV of 15% will be more uniform than the sample with a CV of 20%. The same conclusion could just as easily have been arrived at by comparing their SDs. In this situation where both samples have the same FD, even though the SF is different, the CV is just as relevant as the SD in a breeding program and either could be used.

Fifty Shades of Grey.....



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Let's take a third example in which both samples have the same CV and therefore their SF will differ from their FD by the same amount. Suppose a fleece sample has an FD of 15µ and an SD of 3µ. Its CV will be 20% and its SF 14.2µ. If the histogram was symmetrical about the mean then 68% of the fibres would be between 12 and 18µ. This is a range of 6µ.

If the second sample has an FD of 30µ and an SD of 6µ it will also have a CV of 20% but an SF of 29.2µ. However most of its fibres will lie between 24 and 36µ and the range will be 12µ. Even though the CV has remained the same, the FD is twice as thick and the range of diameters has doubled. So which is the more uniform sample here? Both samples have the same uniformity relative to the FD but the first sample, in absolute terms, is far more uniform than the second sample. In this case having a low FD and SD is far more relevant than the CV.

The difficulties associated with comparing alpacas on the basis of their CV should be apparent from the above examples. If one of your breeding objectives is to reduce medullation in the fibres then it is necessary to reduce both the FD and SD (Kingwell, 2010) and since the two values are independent of each other and equally important then the absolute uniformity, as determined by the SD, has more relevance than the CV.

When comparing fleeces, I suggest you use the FD and SD rather than the CV and remember that second fleeces often have a higher FD but a lower SD than the first fleece.

This results in the second fleece CV being lower than the first. A convenient way to compensate for this is to use what I call the Score of Uniform Micron (SUM). It is the sum of the FD and SD and our alpacas are graded each year according to this score (SUM = FD + SD).
If the fleece score is no higher than 21 then the comfort factor (CF) will usually be 100%. If it is no higher than 23 the CF will usually be at least 99% and if the score is less than 26 the CF will usually be at least 95% (Kingwell, 2012). There is however no correlation between CV and CF.

I suppose you're wondering why I go to the trouble of calculating the SUM when I could just as easily use the CF. There are several reasons for this. Firstly, I am primarily breeding for low and relatively stable FD and SD and even though there is a strong correlation between the sum of these two values and the CF, I find it convenient to use the SUM since it is a direct expression of my breeding objectives.

It also means that the SUM is a way of expressing the CF in terms of microns rather than a percentage. This is useful when a number of alpacas all have the same CF of 100% since they can still be compared by using the SUM. The SUM takes over when the CF is 100%.

So by all means use the CV to assess your alpacas but remember, it probably doesn't mean very much unless the FDs are similar.

References:

Kingwell, R., 2010. Can Guard Hair Be Bred Out Of Alpaca Fleece? Alpacas Australia Issue 60: Winter 2010.

Kingwell, R., 2012. Revealing Some Hidden Secrets Within The Fleece Histogram. Alpaca World Magazine: Autumn 2012.

"The above views are those of the author. There are many statistics provided with your fleece results and it is recommended you learn and understand how these statistics are beneficial to your particular breeding program. Letters to the Editor expressing an opinion on the article are welcome. (Editor - Esme Graham - alpacas@paltarrapark.com.au)

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Dog Attack!

By Mark Jessop, Mossvale Alpacas, Geeveston

Alpacas have a well deserved reputation of being flock protectors. Alpacas will naturally bond with other animals and have earned a place in Australian agriculture as "Lamb Guards".

Anyone who has lived in farming areas on the big island has probably witnessed the impact of fox attack on sheep – tragic to see the impact on lambing. Some breeds of sheep are particularly skittish and will scatter when under threat, making their lambs easy prey – not all breeds, but Merinos are particularly happy to run. If the paddock is poor for lambing (e.g. lots of shelter or a creek line), a fox will devastate lambing. One very cynical WA sheep farmer initially thought it was all poppy-cock until he purchased a couple of wethers. He claimed that after this his lambing rate increased by 30% – that is, his loss decreased.

If you consider that one alpaca wether is recommended per 50 ewes and you can increase lambing from say 80% to 100% or more. This means one wether will result in about 10 more lambs. In other words for a $500 wether you get about $1,000 more lamb in the first year and alpacas remain good guards for well over 10 years. Most farmers know a good investment when they see it!

But a fox is not a dog – they are cunning but relatively timid and will not take on a fight. I've seen alpacas race up to a fox who very quickly turns tail. Equally I have seen foxes walk up the lane between two paddocks of alpacas with no fear at all (but a lot of really annoyed alpacas!).

A dog on the other hand is a much more aggressive predator and two average sized dogs will do untold damage to livestock. I've had the misfortune to watch dogs 'work' a herd of alpacas.

In their natural defence alpacas will group together, forcing the predator to run around the outside of the pack. Alpacas will then take turns to charge out and drive the predator further away and then fall back to the pack. Sooner or later a couple of dogs will separate one of these brave defenders and then run them down and they often succumb to stress and have a heart attack, stumble and are pulled down or run into fences and often break their necks. Whichever way, it is a horrific death deserved by no animals.

In the past couple of months I became aware of dog attacks on two Tasmanian alpaca studs – one where three alpacas died and the other was on our stud where Helen was home and able to catch the dogs. I was off pressing fleece at the AAFL fleece day, but had I been home there might not have been a dog to catch!

Being dutiful citizens, when I got home we rang the local ranger who came around and took evidence and the two dogs. He was aware that the dogs were repeat escapees and, sadly, on their way to the alpacas had killed one of Helen's rare breed chickens. We were told by the solemn ranger that these were 'dangerous dogs' and the

owners would be dealt with and the dogs would not be released until a full investigation had taken place – at least a few days away. All was happy until the next day, when both Helen and I contacted the Council and were told that someone had posted 'bail' for the dogs that morning and they had gone. Hmmm – so much for an investigation.

So step one in this situation, you would think, would be to ring the ranger. What then are the options when your local council does not follow its own dog policy and does not understand that sometimes when dogs repeat an action sooner or later it will end in tears? In this case we felt that the deeds of these dogs spoke loudly.

The first thing we did was ask "why"? There were various lame excuses from the Council staff member – 'it only killed a chicken', 'the owner is now going to keep them inside', 'they paid the fine' and so on.

If you are not happy with that you can always complain a little louder. When public servants do not follow the law or their own policy they can (and should) be held to account. Most Councils have their own dog plan and in fact they have to under the Dog Control Act 2000, so get a copy of that and quote it back to them. Most of these plans have a range of statements about responsible ownership and dogs not impacting on the 'utility' of other property owners.

The whole aim of this second strategy is to use the threat of public anger to get the Council to enforce it own rules. I felt that Huon Council was very sympathetic to my argument – basically why should my "enjoyment" or "utility" in the use of my land as a primary producer be impacted by someone's lack of responsibility as a dog owner.

There is no doubt that having to worry about your animals being harassed by dogs while you are off at work is a very stressful experience. However at the end of the day I feel that the Dog Act is relatively toothless when a council employee can release two attacking dogs with no investigation or no effective decision about their future.

This Act is administered by the Premier's Department and gives Local Government great powers to control dogs. Unfortunately it is a very poorly written Act as it does not give Councils an equal responsibility to do anything. As the nice fact sheet on the website says, "If a dog has caused a serious injury to a person or animal, a council's general manager may declare the dog to be a dangerous dog. A general manager may also declare a dog to be dangerous if he or she believes that a dog is likely to cause serious injury to a person or another animal – the general manager does not have to wait for an attack or serious injury to occur." While the general manager does not need to wait, they also do not need to do anything. It is not an Act that protects your rights as a land owner.

Another weakness of the Act is that there are only two speeds, nothing or full on. If the Council declares a dog dangerous the owner needs to build a POW camp to house it. Sadly, many people who live in the country with aggressive dog breeds don't seem to have a lot of cash, so Council workers, being good people at heart, will be reluctant to declare a dog dangerous and make people spend thousands of dollars. The Act does not have an intermediate step that forces owners simply to take a bit more care and at least get a chain worth buying.

So if the Council still does not get an outcome, your last step is to go to Court. A Magistrate can direct a Council to declare a dog dangerous. Another twist of the Act is that it appears anyone can take the matter to Court – so a neighbour could conceivably go to Court and get an order that directs the Council to declare a dog dangerous. Long, costly and subject to the vagaries of the legal process – not a path I would recommend.

The other option, which Council staff were quick to point out, is that a land owner can destroy a dog on their land. But the Act is specific about who can do that; "A person carrying on primary production relating to livestock on rural land." A hobby farmer might not fall under this definition. Of course there are also legal restrictions on where you can use fire arms. In other words there are some challenges to going down this path. But why should you have the blood of that dog on your hands, maybe have to pay legal costs and also risk starting a long term feud with your neighbour?

So what do you do if the establishment fails you? Talk to the owner? We tried this before and it had failed, the dogs were still escaping. With the intervention of Council the dog owner was a little more motivated, but they admitted they had tried to build a fence but could not afford the quality materials to make it durable. So we did the obvious thing – purchased the material and helped them build a pen. We also explained to the dog owner how dogs would kill our alpacas and how we felt about this. I have certainly had people tell me that alpacas will kill dogs so don't worry – that is simply untrue.

The last thing we did was took the dog owner up to meet a mob of baby alpacas and their mums – who could imagine them being killed by dogs and not be motivated. I even took him up to help me bottle feed our orphan Moses. So far I understand that the pen has held up and the dogs have stayed in. Maybe building good relationships with your neighbour is the best strategy – as they say good fences make for good neighbours.

As residential land encroaches into rural areas this is an issue Councils must address. Farmers (large or hobby) have a right to use their land to raise livestock – so shouldn't Councils get their act together and law makers write laws that protect the rights of land owners?

Editor's Note : Dog legislation is usually State legislation and will vary from State to State. The State usually empowers local Councils to enact the legislation.

Train the Trainer

By Cameron Holt and Graeme Dickson

Alpaca history created at Victoria's famous Dookie College.

Just 25 years after the first alpacas were imported into Australia in 1850, a large area of farmland was reserved at Dookie, Victoria as an agricultural training site and in 1886 opened as a training institution. Dookie College, halfway between Benalla and Shepparton, covers an area of 2,500ha of gently undulating plains and today is operated by Melbourne University.

This magnificent property operates a 14ha grape growing and commercial wine producing facility, runs 5,000 merinos on 1,200ha, crops wheat and canola on 650ha and has 3ha devoted to the growing of Pink Lady apples, just to name a few of the activities.

On the 21st January 2013 at Dookie Agricultural College, GOTAFE (Goulburn Valley Technical and Further Education) hosted the first formal professional training for TAFE teachers who will become alpaca trainers for wool classers and anyone else wishing to become an alpaca classer at whichever level they choose to operate.

The inaugural trainers for this program were David Williams and Cameron Holt assisted by the program co-coordinator Graeme Dickson. The course was also attended by Mr Peter Sudholz, the AWEX wool classer registrar for Australia. This enabled Peter to experience first-hand the standards for training that had been set by the alpaca industry, together with the differences in fleece properties and classing between wool and alpaca.

Here over four days the TAFE teachers studied alpaca classing, the theory of alpaca fibre structure, the differences between wool and alpaca, combined with an understanding of the Alpaca Code of Practice for both shearing sheds and skirting. Much time was spent on micron and style assessment during the classing of fleeces for both huacaya and suri.

On completing this workshop the teachers will then carry out their work experience in alpaca shearing sheds so that a full understanding of the differences between alpaca and sheep can be developed and clearly defined.

The participants will receive a certificate of competency in the two alpaca subjects from TAFE and will then be eligible to deliver the course as outlined at the end of this article. All these teachers are registered wool classers with AWEX.

At right : Peter Sudholz - AWEX - feeling the difference between wool and alpaca

How The System Will Operate

There will be two levels of classers: a Professional Classer and an Owner Classer. The latter will only be for alpaca growers who have passed all the necessary qualifications to class, with a restriction that they can only class their own clip.

Alpaca growers will now have the option to sell their fibre on the world market with their fleece prepared under a recognised industry quality assured system, which the classer registration and industry Codes of Practice demonstrate. The sales can be through a wool broker where they will be tested for micron, C of V etc by the Australian Wool Testing Authority (AWTA) that will issue a certified alpaca test certificate recognised on the world fibre market. Growers will also be able to sell direct to private alpaca buyers.

For the small breeder it is likely that depot sheds will be set up for breeders in a given area to accept fleece which has been prepared up to the skirting stage. At this point it can be "lot built" with other breeders' fibre to make larger lines that will be sold to an agreed purchaser, whether by auction or to a private buyer. The principle of the depot sheds has been long used in the other fibre industries.

Some breeders may choose to class their fibre directly for a processor using the processor's classing specifications as the criteria. If these specifications do not follow the recommended code of practice, the alpaca classer will not be able to apply their registered number to the bales.

Setting Industry Standards

As far back as the late 1990s Australia was facing problems with venues for the sale of alpaca fibre. There were a number of small private buyers, one main classing company (Australian Alpaca Coop Limited), but no formal structure to help growers "get the fibre out of the shed."

Although a number of training programs were carried out in fleece preparation, it was still ad hoc. In the mid 1990s there was a defacto shearing shed preparation "code of recommended procedures" that was contained in the courses run by Cameron Holt for the Australian Alpaca Association.

These procedures were formulated through discussion with breeders but it was not until 2005 that Cameron was asked to present a Code of Practice for the Australian Alpaca Association for standards to be carried out in the shearing shed. Growers needed guidelines in the sorting of the "off sorts" and correct skirting for uniformity throughout Australia. The first COP was published in 2006 with associated examples of documentation.

While there were still no official classing standards, each buyer had their own requirements and specifications, and if classed to those specifications, they ran the risk of not being suitable to other buyers who had different specification requirements. Alpaca industry leaders saw the need for a standard to be created following an "Industry Hearing" with the AAA by Austrade.

An industry advisory group led by Graeme Dickson attended a meeting hosted by the Australian Wool Exchange (AWEX) with the purpose of establishing future standards for the preparation of alpaca fleece.

This meeting included growers (both suri and huacaya), fibre processors, alpaca experts, fleece buyers, members of tertiary/teaching organisations, an AAA board member plus representatives from AWEX.

From this meeting it was decided to take the minimalist approach to the number of colours, micron groups, lengths and styles so as to achieve the ability to create saleable lots, ie. full bales. In other words, fibres cannot be blended any more than the standards laid down, but they can, if quantities allow, be split for colour and micron etc.

The meeting also decided that registered alpaca fleece classers were needed to guarantee quality control. AWEX agreed to provide formal monitoring of the standard of preparation, packaging, documentation and bale description etc. and would create a classer registration scheme similar to the system they monitor for the Australian Wool Industry.

A subcommittee of Graeme Dickson, Geoff Redelman, Cameron Holt and David Williams would formulate a Code of Practice for alpaca fleece classing and present it to the industry advisory group as well as the Australian Alpaca Association Limited board.

Front Row L-R: Dean Ford (Vic), Paddy McCarthy (Vic), Desley Pidgeon (Qld), Graeme Dickson (AAA), Cameron Holt (AAA).
Back Row L-R: David Williams (AAA), Norman Tozer (Vic), Greg Bush (NSW), Stuart Macpherson (Vic).

The next step was to train alpaca classers, so the need was to conduct the first training program that was for professional teachers of wool classing who, on successful completion of the program, could be registered to upskill professional registered wool classers and others in alpaca fleece classing… and so the next challenge begins.

Growers now have the opportunity to have their annual output of fleece professionally classed, tested, and branded in accordance with a worldwide recognised standard. The standards have been set, training will now be available, classers will be registered and an audit system is in place.

We look forward to seeing Quality Assured Australian Alpaca being sold at auction throughout Australia in the near future.

Desley Pidgeon completing her branding exercise

Participants estimating micron & style

Courses Required For Eligible Registration

a) A **Professional Classer Registration** requires successful completion of the following course:

AHC41310 **Certificate 1V in Wool Classing** – 12 Core subjects plus two additional units:

AHCWOL204A **Undertake Basic Skirting of Alpaca Fleece**

AHCWOL313A **Class Alpaca Fleece**

b) A **Owner Classer Registration** requires successful completion of the following courses:

AHC33010 **Certificate 111 in Wool Clip Preparation** – 12 Core subjects, plus two additional units:

AHCWOL204A **Undertake Basic Skirting of Alpaca Fleece**

AHCWOL313A **Class Alpaca Fleece**

OR

AHC30110 **Certificate 111 in Agriculture** – 2 Core subjects & 14 electives

Of the 14 electives the following (6) must be completed:

AHCWOL203A Carry out wool pressing

AHCWOL204A Undertake basic skirting of alpaca fleece

AHCWRK207A Collect and record production data

AHCLSK308A Identify and draft livestock

AHCSHG307A Plan and prepare for alpaca shearing

AHCWOL313A Class alpaca fleece

RICKETS:
The silent killer

Elizabeth Paul, B App Sci (App Biol)
Erehwon Alpacas, Vic
January 2013

Introduction

Alpacas, like all animals, require vitamin D for proper calcium and phosphate absorption and utilisation of these essential minerals into bone. Without sufficient minerals and/or vitamin D, the bones become weaker and bend or break more easily. The effects on bones are more obvious, and in most cases more easily treated, in younger animals. However it has become clear over time that the effects, particularly in breeding age females, are more devastating.

What is Rickets?

In its simplest form, rickets is a painful bone condition caused by a lack of the bone minerals, calcium and phosphate. A deficiency of either of these in the diet will impact on bone formation. Their proper uptake and utilisation also depends on the presence, and sufficient amounts of, vitamin D in the body. Rickets is not a communicable disease, but if one alpaca in the herd has rickets, there are probably several others that have it as well.

Calcium and Phosphate

These are the two major minerals found in the body, mostly stored in the skeleton. There is a small amount of calcium, called serum calcium, circulating in the blood stream. Calcium is also involved with muscle contraction, and the muscle that contracts all the time is the heart. For this reason the level of serum calcium is tightly controlled by the homeostatic mechanisms of the body.

Phosphate is also vital for a number of other processes in the body. It is a major component of ATP, the cellular energy source. It assists with fat and carbohydrate metabolism, and is an essential component of cell membranes. Circulating or serum phosphate also helps prevent the breakdown or lysis of red blood cells. Most of the phosphate absorption takes place in the kidneys.

Vitamin D

Vitamins are complex, essential biochemical compounds that humans have to take in their diet. Grazing animals like alpacas get most of their vitamins from the microbial activity in their rumens. The one exception to this is vitamin D, which is produced within the skin in response to UV light.

The major role of vitamin D is to increase the active absorption of calcium through the gut wall. Vitamin D is stored in the liver, and is activated by parathyroid hormone or PTH.

The Role of the Parathyroid Gland

Bone formation also depends on the parathyroid gland to run the whole system. The parathyroid gland is situated near the larger thyroid gland in the neck. It produces parathyroid hormone or PTH in response to falling serum calcium levels. PTH activates vitamin D, which then improves calcium uptake from the gut. It also starts breaking down bone to help supply extra calcium and blocks the re-absorption of phosphate through the kidney. This results in a massive outflow of phosphate in the urine.

PTH production automatically slows down as the serum calcium level rises, and this happens in a diurnal cycle.

Crias and Juveniles

Younger, growing animals obviously require more calcium and phosphate than mature animals that have finished their growth phase. Crias of both sexes and all fleece types, and all colours can have rickets. Crias can be born with rickets or even with rickets fractures.

Leg Problems – See Fig 1.

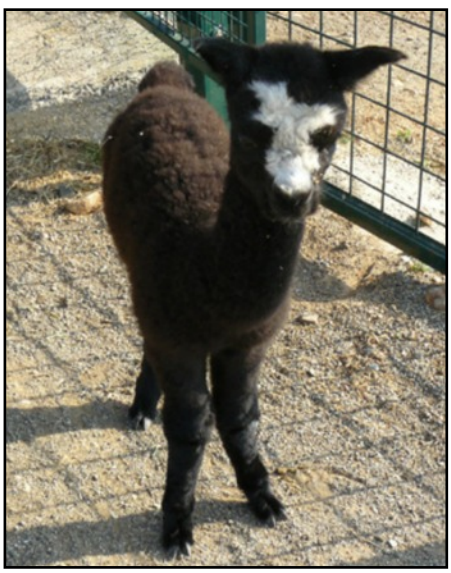


Fig 1. 1 month old black cria with crooked legs

The most common visual sign of rickets in crias is crooked legs, usually in the front. Both legs may be evenly bent in, or one may be bent more than the other. The black cria in Fig 1 has front deviation but also back deviation, where the rear foot can be seen pointing outwards. The hocks are coming together, and this may become so severe that the back legs are locked together. This gives rise to the "bunny hop" movement, where the cria walks forward on separate front feet but picks up both back feet together in a hop motion. A cria locked up like this may eventually be unable to walk forward at all, but goes around in a circle.

Humped Back – See Fig 2.

The next most common sign is the humped back, where the neck drops and the feet may come under the belly. Associated with this is the formation of a pot belly, often attributed to a worm infestation, which this 10 month old suri cria had as well.

Fig 2. 10 month old suri cria with humped back.

Anaemia And Worms

Anaemia is the loss of red blood cells, for which there could be any number of reasons, but which is most often attributed to worms.

A wormy animal is flagging that it has another problem already, which is overwhelming its immune system, and worms are taking advantage of the situation. Certainly worms don't help, and in a highly stressed animal they may well deliver the knockout blow.

Constantly wormy and/or anaemic crias should be considered as rickets candidates, and treated for both conditions at the same time.

Stunted Growth – See Figs 3 & 4.

Sometimes, instead of exhibiting the above signs, the body just decides to "make do" with what it has, and the cria's growth stops altogether. Crias over 12 months old, and about the size of Labrador dog, are not 'cute minis', but crias whose normal growth patterns have been restricted, usually by vitamin D deficiency.

Fig 3 shows one of three rescued black males, possibly 2-3 years old, from SE Victoria. Note the knock knees (which are not as severe as some) and weak back legs tucked under the belly. In this case the back is not humped, because it has not grown out. The head looks unnaturally large, the legs are extremely skinny and the proportions are generally unbalanced. The fleece has been trimmed with scissors, as the alpaca's condition was too skeletal for proper shearing.

Fig 4 shows the same male two years later, filled out and with far more normal proportions. He still has the same stance, which is now unlikely to change, given his age.

Fig 3. A 2 yr old black male with chronic rickets.

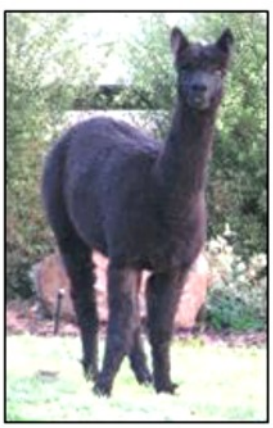


Fig 4. The same male at 4 years old.

Depraved/Deprived Appetite

A particular characteristic of phosphorus deficiency is abnormal or depraved appetite, as the animal desperately searches for the mineral that it can't easily find. Cattle and wild camels, and no doubt other grazing animals, are known to seek out and eat bones during severe drought. In that situation any dried plant material would still have some calcium, but only animal bones or dung have a large amount of readily available phosphorus.

Sometimes the alpaca starts gobbling food much faster than normal, and yet its condition falls rapidly. Sometimes it gets depressed and gives up eating altogether, as in deprived appetite.

Loss Of Body Condition

Alpacas can get to skeletal body condition very rapidly. As the animal goes further down, the appetite may decrease, and the immune system becomes less effective. This allows opportunistic pathogens like worms or coccidia increase, and pneumonia becomes a possibility as well.

Signs In Females – See Figs 5 & 6.

Adult alpacas are less likely to show the severely crooked legs, or noticeably humped backs often seen in crias. They may be noted to be slightly lame, hanging back or sitting down more often, but especially in a larger group these things take time to observe. Body score and anaemia levels, via the eye membranes, of breeding females need to be regularly checked, and they also need a vitamin D and phosphate program in place.

The female shown in Fig 5 is about 3 years old with her first cria at foot, and also pregnant. From the front there does not appear to be anything wrong. Viewed from the side in Fig 6 the back is slightly humped, the neck is slightly dropped, and she is starting to hollow out a bit at the withers (top of the shoulder). She was found to be quite anaemic and was started on a phosphate drenching program, with extra vitamin D until the cria was old enough to be weaned.

Fig 5. (left) Nursing female with rickets - straight legs.

Fig 6. (right) Nursing female with rickets - note slight hump, dropped neck.

Note that mothers with crias should be treated as two parts of one unit. If one of them has rickets, the other one needs to be checked at the same time.

Rickets females do not get better on their own. They can lose condition rapidly, and go chalkwhite in the membranes overnight. Furthermore any extra stress, particularly moving, can precipitate a crisis. Late pregnant rickets females are likely to abort the fetus, and may even die themselves afterwards. If a female is already down with rickets in the paddock, it is much better to take the first treatment out to her than to try and haul her into the van or trailer, even if possible to do so (and anyone who has ever tried to move a sitting adult female will know already that this is a mission almost impossible to achieve on their own.)

Colour Makes a Difference

Blacks of any age and either sex simply cannot make as much vitamin D as their lighter cousins, no matter how long they stay out in the sun. Blacks and light coloured alpacas in the same herd cannot be treated the same in a vitamin D program, as blacks will always need more.

Prevention

A vitamin D maintenance program will vary between localities/season, mix of herd colours and lifestage groups. It is not a "one size fits all" situation. Even treating a herd on a regular basis with vitamin D will not prevent an emergency situation from arising, particularly in the breeding female group.

The most useful injectable vitamin D preparations are either pure vitamin D, at 1 million IU/ml, or high dose ADE solutions with 400,000 – 500,000 IU/ml of vitamin D. Low dose ADE preparations containing anywhere between 25,000 – 75,000 IU/ml of vitamin D are too low for alpacas, and they also contain very high levels of vitamin A, which is unnecessary.

Oral vitamin D, available as human grade capsules or drops, can be used in an emergency, but the effects only last for a day.

Treatment

The treatment for rickets is giving sufficient vitamin D and phosphate.

Having said that, the fastest treatment for an emergency rickets case i.e. a chalkwhite, down alpaca, is giving phosphate, either by oral drench or by some form of injectable solution. Phosphate is absorbed instantly, and has an almost miraculous effect on a down alpaca. With sufficient amount the alpaca will almost always get up on its own within a short space of time. It can then be gently moved to shelter, to continue treatment. Even if it doesn't get up, the phosphate will help protect it from further

Stress while arrangements are made to move it. The golden rule is, phosphate first, move afterwards.

Note that a vitamin D injection alone may not save the emergency rickets alpaca. The reason is that vitamin D works on the gut, and it will take time to get around the body to operate there. Even when it does, vitamin D is involved in calcium transport. What the alpaca really needs at this moment is phosphate and lots of it.

Vitamin D can be given at the same time or in the shed, but phosphate will keep the alpaca alive until it gets there. After that vitamin D must be given, because without it the phosphate will not be fully utilised, and the alpaca will go down again. Note also that giving calcium alone or even with vitamin D is not likely to save the rickets alpaca, unless the phosphate is also replaced. To summarise, phosphate will get it up but vitamin D will keep it going.

Testing For Rickets

The only blood results that can show whether an alpaca actually has rickets are serum vitamin D and serum phosphate tests. These are not routinely performed, however serum P levels may be included on a standard blood sample sheet. The phosphate test is cheaper and easier to perform than a vitamin D test.

There are problems with interpretation however, particularly if the sample has been kept too long or mishandled before testing. Red blood cells tend to break down outside the body, and spill their own cellular phosphate into the serum, thus often giving a false high reading. A second sample, spun down to collect the serum only at the same time, would avoid this problem.

Another problem is the standard reference level, which for serum phosphate is taken to be about 1.3 – 3.3 mmol/L. This is the sheep standard level and it works fairly well for adult alpacas, although a better lower level would be closer to 1.5 mmol/L. Because the reference levels are an average of the samples tested, if the samples are themselves low, then the lower reference level may be set too low. This will mean that a new low sample will not necessarily be flagged as a problem, when it should be.

Serum phosphate levels are also age dependent, and crias under the age of 6 months, i.e. crias still nursing should have serum P levels between 2 – 4 mmol/L.

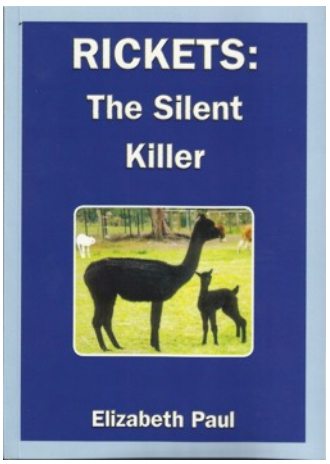
The serum P levels of weanling crias drop off rapidly as they move from milk to a grazing diet.

Environmental Problems

Most of Australia appears to be bathed in sunlight most of the time, but anything which reduces or interrupts the amount of sunlight will have an impact on vitamin D production.

Currently of course there are swathes of bushfire smoke, but it could just as easily be ordinary rain clouds, dust clouds, seasonal variation of day length, volcanic ash drift, late or no shearing or shedding for too long.

The impact of these events may be delayed for up to 6-8 weeks, as this is the length of time required for the body to make its own vitamin D from day 1 of sun exposure.



Footnote:

Elizabeth has been collecting information and anecdotes on the problem of rickets in alpacas for many years, and these notes are drawn from her seminar and book titled Rickets: *The Silent Killer*
Limited copies are available only from Elizabeth.

Camelid Biting Louse

Jane Vaughan BVSc PhD MACVSc
www.criagenesis.cc

Control of the camelid biting louse, Bovicola breviceps, in Australia.

Background

Lice infestation of alpacas is widespread in Australia, albeit at low levels, and its presence is usually detected in herds at shearing time. Lice are species specific, meaning that camelid lice only infect camelids, cattle lice only infect cattle and sheep lice only infect sheep.

There are two genuses of camelid lice, namely the biting or chewing louse, *Bovicola* spp. (Figure 1), and the sucking louse, *Microthoracius* spp. The former genus of lice feed superficially on the skin, the latter penetrate the skin and feed on tissue fluids. The former genus was brought into Australia on imported alpacas, the latter species was eradicated prior to importation as injectable parasitacides were administered in pre-export quarantine thus removing *Microthoracius* spp., however topical parasitacides were not administered, thus allowing entry of *Bovicola* spp. into Australia. *Bovicola breviceps* was first diagnosed in South Australia in 1996 (I Carmichael, personal communication) and has subsequently been diagnosed in camelids in Western Australia, Victoria, New South Wales, Queensland and Tasmania.

Figure 1. Bovicola spp lice (source: www.agric.wa.gov.au)

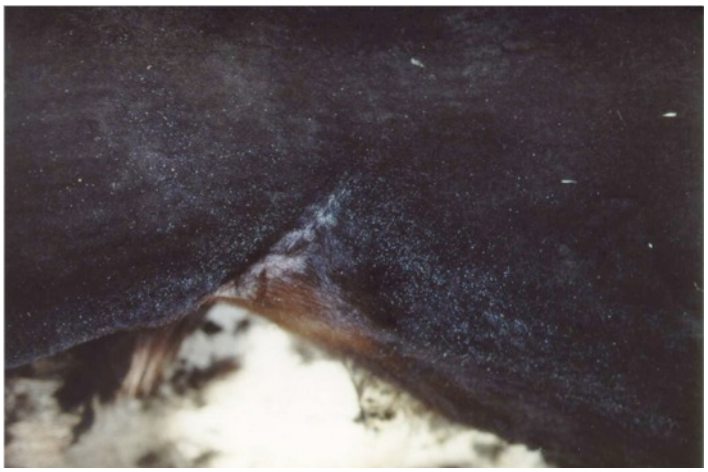


Figure 2. Lice eggs are most easily seen in the flank area and on the lateral thorax behind the elbow of brown and black alpacas at shearing time.

The Parasite

Bovicola breviceps is a biting (chewing) louse, which has been recorded from the alpaca, llama and guanaco. As already stated, lice are very host specific parasites. Those found on the alpaca or llama are different from those found on cattle, sheep or goats. There has been no recorded transmission of lice to or from camelids and ruminant livestock.

Biting lice are found at the base of hair shafts, close to or on the surface of the skin. On alpacas they may be found on any part of the body but are more common around the base of the tail, along the sides of the thorax and abdomen, on the upper part of the limbs, and in the flank. Shearers tend to initially find lice and their white eggs, particularly in brown and black animals, when shearing around the flank and lateral thorax behind the elbow (Figure 2).

Biting lice do not in fact bite their host or directly damage the skin. They feed by chewing on scurf which is sloughed off from the skin, hence the alternative name "chewing lice".

Life Cycle And Survival

As with other *Bovicola* species, the life cycle of *B. breviceps* is simple (Figure 3) and may be completed on a single animal. The life cycle details given by Fowler (2010) and extrapolated from local and overseas data referring to related

louse species provides some general lifecycle details which might be expected in the Australian environment. Adult lice copulate, then the female deposits fertilised eggs onto hair fibres. The eggs hatch within 1-2 weeks to give rise to a first stage nymph. The nymph undergoes 3 moults as it matures to adult size. Maturation takes 2-3 weeks. The life cycle can be completed in as little as 3-5 weeks. Adults may live on average for 30-50 days.

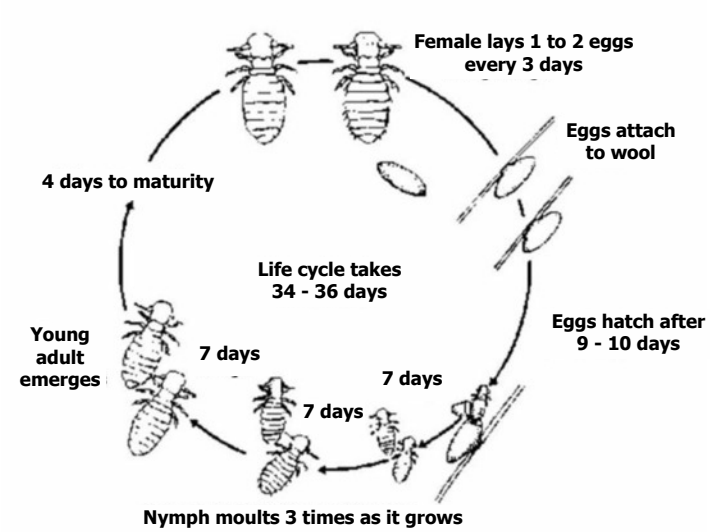


Figure 3. Bovicola spp. Life cycle (source: http://informedfarmers.com/sheep-lice-facts).

In most associations of lice with their host there is a seasonality in the natural levels of infestation, with lice numbers increasing over winter and declining in hot weather. The earlier reports of *B. breviceps* on alpacas in Australia were in winter, but most current reports are of lice detected at shearing in late spring or early summer. This is probably due to a build up in lice numbers in the cooler months preceding shearing. The infestations would probably have been even heavier a few months earlier, whereas lice may not have been detectable on the same animals in summer after shearing.

It is generally thought that lice do not survive for more than a few days off the host, however, Dr Chris Mayberry (WA Department of Agriculture) has observed live camelid biting lice in alpaca fibre that had been removed from alpacas two weeks previously (R Dixon, personal communication). Dr Peter James (SARDI, South Australia) confirms that sheep lice can also persist for a similar time in shorn fleece.

The survival of lice, which are freed from their host on inanimate objects or shed into the environment, and thereby starved, is another matter. Longevity of starved arthropods is governed to a large degree by their metabolic rate and this is, in turn, dependent upon temperature. Over a limited range, metabolic rate is directly proportional to environmental temperature, which means that lice off the animal will live longer at lower temperatures, but they cannot survive for extended periods. Studies in New Zealand (Heath, 1973) on cattle and goat lice showed that at least half of the adult female lice were dead within 2½ days of being removed from their host and all were dead within 5 days. Nymphs survived for 4 - 6 days. Some eggs hatched in 8 - 12 days, but the unfed newly emerged first stage nymphs lived no longer than 12 hours.

Transmission

On the basis of these findings the chance of transfer of lice via inanimate objects such as common grooming utensils, shearing gear, blankets or harnesses which are in constant use may be quite high and owners and shearers should be aware of this and disinfect them accordingly. In the case of housing, bedding or pasture, a 14 day period based on the incubation of the egg, or 7 days if only adult or nymphal lice are considered, would be sufficient to ensure absolute protection in the absence of any additional control by chemical or physical means.

Louse eggs are firmly attached to whole hair fibres. Alpacas are unlikely to shed whole hairs when rolling and even if they happen to do so and a small percentage of attached eggs survive and hatch, the newly emerged nymphs are likely to perish within hours. Spread of lice amongst alpacas via communal rolling areas is one of the least likely mechanisms of transmission.

The major source of transmission of lice from animal to animal is most probably associated with situations where close body contact occurs. There are numerous such occasions, which owners will readily recognise (e.g. mating, lactating hembra with cria at foot, communal transport, shows or shared stables). In addition, as mentioned above, the use of contaminated shearing, grooming and harness equipment on multiple animals could be very important.

Diagnosis

Adult *B. breviceps* are 1-1.5 mm long, white or light tan (Fowler 2010; I Carmichael, personal communication). They are smaller than adult sheep or cattle lice, and are thus harder to see with the naked eye. Alpacas should be examined for lice in good light, preferably outdoors in sunlight. A hand lens may be useful to differentiate lice from detritus in the fleece. The base of the hair fibres in several of the favoured sites (see above) should be carefully observed for lice or attached eggs (Figure 4). Lice tend to move away from the light as the fleece is opened so it is necessary to make numerous partings in the favoured sites. Some individuals are much more adept at detecting lice than others, hence it is unwise to assume that a single negative examination of a herd or a few animals in a herd guarantees that they are completely free from lice. Another factor is that lice numbers are likely to be at their lowest, perhaps even undetectable levels, in summer; failure to find lice at that time of the year is not conclusive evidence that all animals are negative. Because

of the direct animal to animal transmission of lice, the variation in susceptibility of individuals and the difficulty in detecting very low numbers of lice on animals, a single infected animal on a property suggests that all animals on that property are potentially exposed.

Figure 4. Lice eggs attached to the base of recently-shorn alpaca fleece.

Adverse Effects On Camelids

In most animal hosts, heavy infestations of biting lice cause irritation, which leads to rubbing and scratching. In sheep and goats this can lead to severe fleece derangement with loss in fleece value. Fowler (2010) reports that in heavy infestations in llamas the coat lacks lustre and has a ragged appearance and the animal may bite and rub itself. This has been observed in some but not all alpacas infested with biting lice in Australia (Figure 5). Some heavily infested alpacas have been detected only at shearing and had given no indication through extra rolling, rubbing or scratching that they were irritated by the infestation. Furthermore, obvious detrimental effects were not present in the fleeces of these infested animals.

Figure 5. Australian alpaca showing areas of damaged fleece secondary to self-mutilation from lice infestation.

Owners need to be aware, therefore, that infestations of lice in alpacas may or may not cause clinical signs or noticeable fleece damage and may only be detected at shearing or during a specific search for them. Moreover, only certain stressed animals in the herd (e.g. debilitated animals or those with concurrent disease, lactating hembras, working machos), or genetically susceptible or immuno-compromised individuals are likely to develop heavy infestations; the remaining animals may harbour only small residual infestations (e.g. at the base of the neck), or no detectable infestation at all.

Control And Eradication

Alpaca and llama owners and breeders need to understand the following:

- Lice are host-specific, therefore infected animals could only have caught lice from other alpacas or llamas.
- Lice are eradicable. If the herd is treated correctly, the louse population can be removed permanently.
- Fleece quality in heavily infested alpacas could be compromised.

The major reasons why louse eradication fails in sheep are:

- Mismustering – This is less of a problem in alpaca and llama herds as numbers within herds are much lower than sheep flocks.
- Recontamination by wandering stock – Alpacas and llamas rarely have an opportunity to wander and most camelid farms are non-adjacent.
- Poor boundary fencing – Again, most camelid farms do not share common boundary fences. In cases that do, it is important to communicate with the neighbouring camelid farm about lice infestation and control measures being undertaken.
- Incorrect application of lousicide.

Eradication on a property is achievable given a determined approach, but is a waste of effort unless *steps to prevent reinfestation are instituted*. Alpacas and llamas have easy access to other camelid herds through mobile matings, shows, sales and agistment. Because of the mobility of animals, owners must be aware of possible re-infestation at outside sites or from visiting animals, even after initial eradication on their property.

Mobile matings in particular provide an excellent means of reinfection of camelids by lice because of their prolonged close contact whilst mating.

Treatment

Bovicola breviceps is a biting or chewing louse and is not affected by injectable parasiticides, so topical treatment must be applied to remove lice infestations. Liquid preparations are recommended over powdered products. There are many topical lousicidal preparations registered for use in sheep, cattle, goats, horses and small animals in Australia, however, alpaca farmers must remember that no chemicals are registered for use in alpacas and as such any use is off-label and should be performed with caution (Table 1).

Pesticide residues in wool and meat are a major issue in the Australian sheep and cattle industries. Cattle and sheep lousicides list meat and wool withholding periods (WHP), which must also be considered by alpaca farmers as they are also produced for their fleece and meat in Australia. Withholding periods shown for sheep and cattle may not be the appropriate withholding period for camelids as testing of residues in camelid wool and meat has not been performed by pharmaceutical companies that make these products. Note that products registered for use in cattle only do not take into account wool withholding periods.

Synthetic Pyrethroids such as deltamethrin (eg Clout-S ®) need to be applied within 24 hours of shearing to cleanly shorn sheep unless explicitly a long-wool product. Alpacas and llamas do not usually have their head or lower legs cleanly shorn, and often have more fibre left along the dorsal midline to prevent sunburn. The distribution of synthetic pyrethroids following backline treatment is very uneven. Synthetic pyrethroids are therefore unsuitable for lice eradication in camelids.

Pour-on Organophosphates such as fenthion (e.g. Tiguvon Spot-On Cattle Lice Insecticide®), although used successfully to treat the first infested alpaca in Western Australia, involve risk of overdosing. There have been two anecdotal reports that alpaca fibre is stained/becomes greasy at the point of application, and is only removed at shearing time (R Dixon, G Jackson, personal communication). Pour-on applications are easy to use but they will not kill all lice, hence are unsuited for a concentrated attempt at lice eradication on a property. Pour-on and dipping organophosphates may be toxic in stressed or overheated animals. Treat only on a cool day and avoid stirring up animals when mustering and handling them in yards. It is recommended that alpacas are observed for 8-12 hours after organophosphate treatment and your veterinarian contacted immediately if any animals appear ill (e.g. staggery, excessive salivation).

Insect growth regulators such as triflumuron (e.g. Command®, Exilice® and Zapp Pour-On®) and diflubenzuron (e.g. Fleececare® and Strike®) work by inhibiting chitin synthesis, thus killing nymphs which need to synthesise chitin to moult successfully. These products do not kill adult lice, but rely on them dying naturally over several weeks. The period of persistence of these products in alpaca fleece has not been determined and it should not be assumed that it is similar to that in sheep wool.

Although these products are possibly suitable for lice control in camelids they do not necessarily guarantee eradication and are therefore not recommended for this purpose.

Treatment Of Choice

Use of **spinosad** (Extinosad Lice and Fly Eliminator®) in a plunge or shower dip, with two applications 2-3 weeks apart, has been shown to eradicate lice from an alpaca herd (Vaughan 2004).

Alpaca farmers must ensure that the alpacas are thoroughly wetted to the skin all over so the active ingredient reaches the lice; this is achieved by *adding a wetting agent (such as alcohol alkoxylate) to the dipping solution*. Dilute spinosad in water according to the on-label recommended rate for sheep.

No lousicide products are registered for use in camelids and owners using these chemicals need to be aware that use in camelids is off-label. However, this treatment has already been used on many alpacas across Australia without adverse effects.

Spinosad will kill adult lice and nymphs but not unhatched eggs. Two weeks should be allowed to pass after shearing (to allow shearing cuts to heal) and animals should be treated as soon as possible thereafter. Because alpacas and llamas have little lanolin on their fibre, residual concentrations of spinosad are unknown and may be inadequate to kill nymphs emerging from eggs present on the hair fibres at the time of the initial treatment.

Therefore, a second application of spinosad should be applied 14-21 days after the first application, before these nymphs can develop to become mature egg-laying adult lice. Under most circumstances all lice eggs from the initial infestation should have hatched by the time that the second treatment is given and all nymphs from them will be killed by this treatment.

Treat all alpacas on the same day, including visiting or sick animals and new born crias. It is vitally important that the entire animal is wet to the skin. Mechanical and chemical stripping of spinosad from recycled dipping/jetting fluid is minimal in alpacas (Vaughan 2004), possibly because of the lower lanolin content of camelid fibre, so top up dip levels using the same dilution rate as the original solution.

Spinosad breaks down in ultraviolet light so applications on wool leave no residues on wool or in meat of slaughtered sheep. Consequently there are nil withholding periods for this product in sheep and it is not a scheduled poison.

Active ingredient	Commercial name	Species registered	Method of application	WHP for registered species*
Synthetic pyrethroids				
Deltamethrin	Arrest Easy-Dose® Bombard Pour-On® Coopers Easy-Dose®	cattle	pour-on	meat: nil
Deltamethrin	Clout-S®	sheep	pour-on < 24 h off shears	meat: 3 days
a-Cypermethrin	Vanquish Long Wool®	sheep	pour-on < 10 months off shears	meat: nil; wool: 2 months
Organophosphates				
Diazinon	Diazinon® Eureka Gold®	sheep, cattle	dip, jetting fluid or dressing < 24 h off shears	meat: 14-21 days
Temephos	Assassin Sheep Dip®	sheep	plunge or shower dip 14-42 d off shears	meat: 14 days; wool: 6 months
Fenthion	Tiguvon Spot-On Cattle Lice Insecticide®	cattle	spot-on	meat: 10 days
Insect growth regulators & other chemicals				
Dicylcanil/diflubenzuron	CLiK Spray-On Fly/Lice®	sheep	spray-on	meat: 21 days; wool: 6 months
Diflubenzuron	Fleececare® Strike®	sheep	dipping and jetting 10-42 d off shears	meat: nil; wool: 6 months
Diflubenzuron	Magnum IGR Pour-On® Stampede Pour-On®	sheep	pour-on < 24 h off shears	meat: 0-7 days; wool: 6 months
Triflumuron	Command® Exilice® Zapp Pour-On®	sheep	pour-on < 7 d off shears	meat: 14 days; wool: 2 months
Imidacloprid	Avenge Pour-On®	sheep	pour-on < 24 h off shears	meat: 21 days; wool: 6 months
Spinosad	Extinosad Lice & Fly Eliminator®	sheep	plunge or shower dip, short or long wool	meat: nil; wool: nil
Spinosad	Extinosad Pour-On®	sheep	pour-on off shears or long wool	meat off shears: 14 days; wool: nil
Ivermectin	Coopers Blowfly & Lice Jetting Fluid®	sheep	hand jetting in long wool only	meat: 7 days

Table 1. Sheep and cattle lousacides available in Australia. None are registered for use in alpacas or llamas.

* Products registered for use in cattle do not take into account wool withholding periods (WHP). Withholding periods shown for sheep and cattle may not be applicable to camelids.

Procedures and cautions

Eradication of lice is a labour intensive and costly exercise, but continued use of more convenient pour-on treatments may be a less effective means of control and may cause a build-up of pesticide residues in the fibre and place the alpaca fleece industry at risk. Eradication is preferable, but may prove difficult if the herd cannot remain "closed" and separated from all other camelids that could act as a source of re-infestation. Use of pour-on treatments applied only to visibly infested animals may be the only treatment option for farmers who cannot maintain a closed herd because of show attendance and/or has a reliance on mobile matings.

It is essential that alpaca and llama farmers read instructions for use and handling of pesticides carefully before use. None of the above-mentioned chemicals are registered for use in camelids. It is recommended that breeders consider hiring a sheep-contractor with a high-pressure hand-spray unit or mobile plunge dip to treat their animals correctly when attempting lice eradication. Alpacas may aspirate the dipping fluid into their lungs, leading to pneumonia and death.

After dipping, place the animals on paddocks that have not had stock on them for at least seven days. Any sheds or shelters should be rested from animal contact for at least 7 days prior to dipping the animals.

This paper has been modified from the paper "Control of the camelid biting louse in Australia" that appeared in the winter edition of Alpacas Australia in 1999. The author does not specifically endorse any commercial product mentioned in this article.

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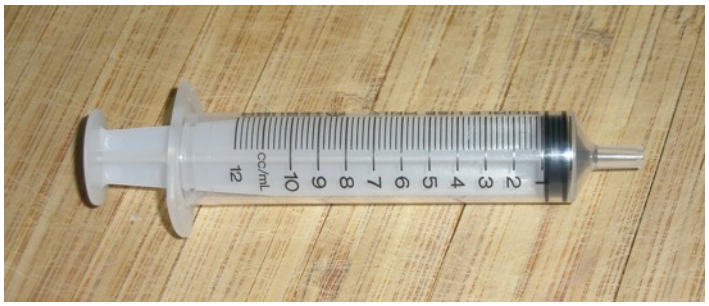
Handy Hints

This is a handy hint for **milking an alpaca** when you get stuck with a cria that refuses/can't suck and you need colstrum/milk from mum.

1.Take one 10 ml syringe



2.Remove the plunger and slice off the end with the needle holder on it

3.Reverse the plunger poking it into the newly cut end

4.Place the flat end of the plunger over the teat so that it is sealed – paw paw ointment over the end helps with this - and GENTLY using light fluttering tweaks - draw down on the plunger

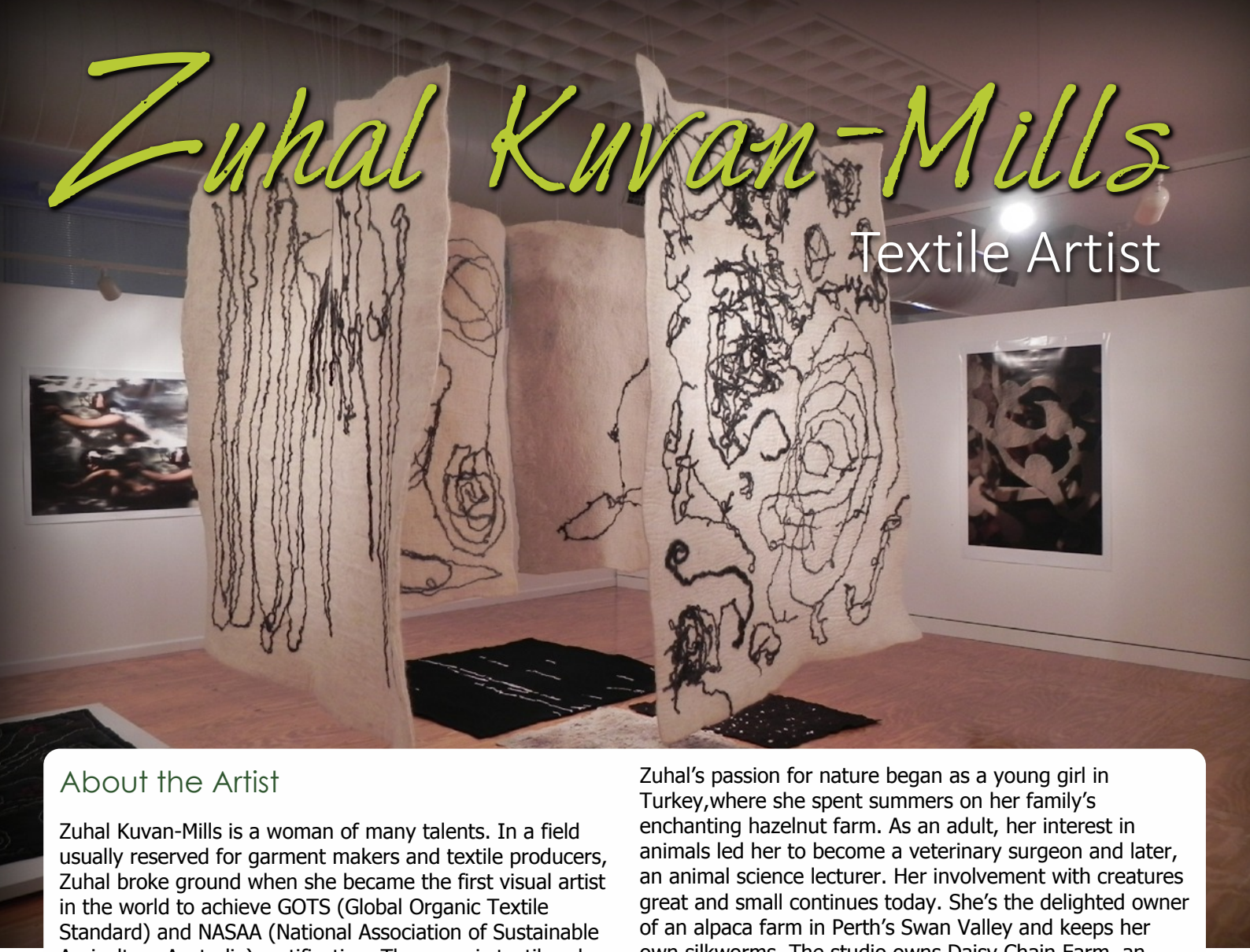
A light coating of paw paw ointment afterwards will help soothe the tats and prevent them from cracking. It will not harm the cria and I have found it encourages them to suck and is said to also aid digestion.
Thank you to Maureen Carey and Jennie Menzies for reminding us of this trick!

Cria Identification

1. Join a hook and loop pair of Velcro together.
2. Cut into 22cm strips.
3. I use blue for boys and pink for girls to help with quick identification.
4. Using a permanent marker pen write the dam's name on both sides of the collar.
5. Pull both parts apart and rejoin – overlapping about 4 cm.

Place on cria so you can get your whole hand under it initially – it won't slip off the head and allows room for the fleece to grow. Place hook on the outside away from the fleece and the loop side (soft) against the neck.

This can stay on the cria until it is tagged at about 6 to 12 weeks of age. As the collar isn't sewn in any way a hefty pull will pull it apart if the cria gets hooked in anything.



Zuhal Kuvan-Mills

Textile Artist

About the Artist

Zuhal Kuvan-Mills is a woman of many talents. In a field usually reserved for garment makers and textile producers, Zuhal broke ground when she became the first visual artist in the world to achieve GOTS (Global Organic Textile Standard) and NASAA (National Association of Sustainable Agriculture Australia) certification. The organic textiles she manipulates into canvases and weaving materials are just one piece in a long chain of responsible art practice that begins with the soil and ends in something truly beautiful.

Zuhal Kuvan-Mills' deep love for the Australian bush, animals and her native land of Turkey is infused in every fibre of her handmade textiles.

Using certified organic Western Australian merino & alpaca material, the Atelier Zuhal founder creates highly specialised textile pieces which double as extraordinary pieces of art.

Each textile is a fascinating blend of her many passions. The Perth-based professional artist & designer is inspired by Turkey's cultural appreciation of rugs and adopts the country's traditional felt making techniques for her exotic works.

Her Passion

She lives on a sprawling bush property in Perth's outer fringes. The vast blue skies, distinct Australian light and the region's landscapes all inspire her work.

Zuhal's passion for nature began as a young girl in Turkey,where she spent summers on her family's enchanting hazelnut farm. As an adult, her interest in animals led her to become a veterinary surgeon and later, an animal science lecturer. Her involvement with creatures great and small continues today. She's the delighted owner of an alpaca farm in Perth's Swan Valley and keeps her own silkworms. The studio owns Daisy Chain Farm, an Australian Alpaca Association-registered pedigree alpaca herd of 50 animals in Perth's Swan Valley. The farm has the largest organic alpaca herd to be certified in Western Australia by the National Association of Sustainable Agriculture, Australia (NASAA).

Zuhal reinvented herself as an artist in 2004 when she rediscovered her childhood love of art and began to train professionally in London and Australia. Combining meticulous craftsmanship with rich designs, Zuhal's bespoke textiles are usually based on social justice themes, particularly relating to violence against women.

Ancient Turkish Tradition

The traditional Turkish craft of felt making emerged during the long reign of the Ottoman Empire starting in 1299.

It was taught during workshops regulated by special guilds. During this period, felt was used by the masses, the mystical Sufis and army troops for various purposes: clothing, footwear, hats, turbans, floor coverings and to pad horse saddles and harnesses.

Inspired by Persian designs, the motifs, colours and patterns of felted textiles varied from region to region. Common themes included floral and geometric shapes, symbols, inscriptions and figurative shapes.

Since the 1960s, this exquisite craft has been slowly dying out – thanks to the introduction of electric carding and pressing machines and mass-produced factory-woven carpets.

Atelier Zuhal is honoured to help keep the ancient art of Turkish felt making alive, albeit with a contemporary flavour.

On The Catwalk

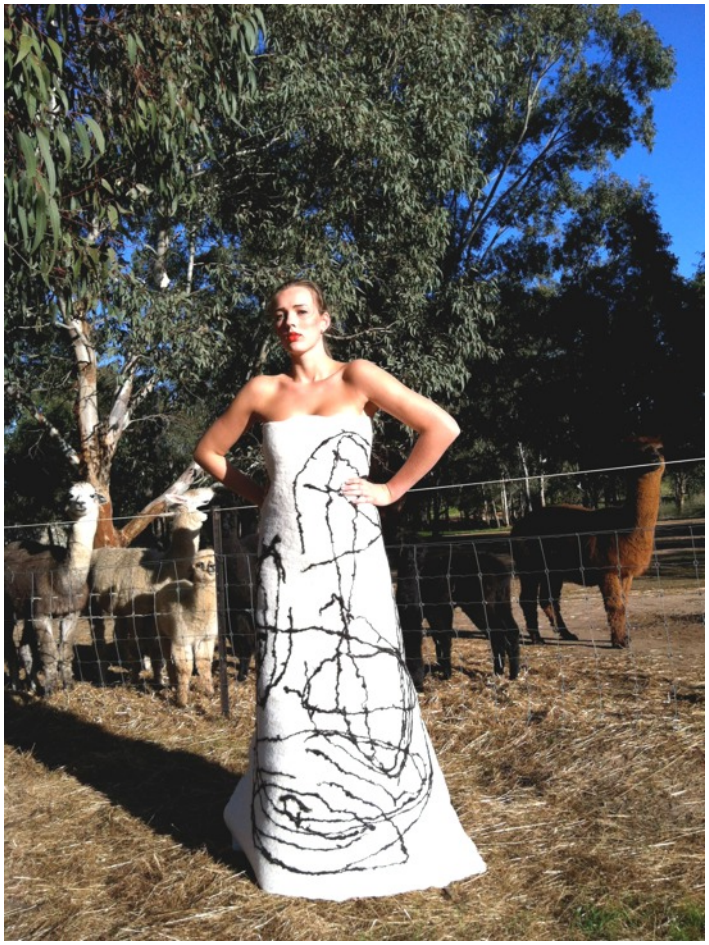
It's not every day that an artist and designer gets invited to take part in a fashion show, so it's exciting when it happens! In October, Zuhal's organic textile art pieces were transformed into wearable art on the catwalk at the TCF Australia Green Fashion Showcase at the Claremont Show Ground.

In case you're wondering, her textiles were 'fitted' to the models with safety pins and styled differently on each model. The Alphamodels Agency's models looked stunning and the crowds loved it. Zuhal feels that the fashion showcase was definitely one of the best exhibitions she has ever been part of, and it certainly inspired her to think about creating more wearable art pieces in the future.

She was also asked to give a presentation on organic certified textiles and her close involvement with GOTS. As this topic is so close to her heart, it was a big chance for her to help educate the public about it.

UPDATE

In 2012 Zuhal received the runner up award in the 2012 Belmont Small Business Awards, which recognise the achievements of small and growing enterprises in WA. She was also represented in the Yinnar Biennial Drawing Prize 2012 in October and "Flowers of Australia" sculpture was among those chosen to exhibit at the Arid Lands Botanic Gardens as part of the Arid Festival.



Coming Up in 2013

Zuhal is in for a very busy 2013.

It has just been announced that she has been selected as one of four West Australian textile and fashion designers to showcase their work at the International Textile Fair at Daegu in South Korea from the 6th-8th March, sponsored by TCF WA & Belmont BEC in conjunction with the Government of Western Australia & the Province of Gyeongsangbuk-do.

Zuhal will be representing Australia in April/May 2013 at the 2nd International Biennial of Arts in Turkey.

Her organic rugs will be exhibited as an installation work "Echoes from the Yurt" consisting of ten panels made from certified alpaca and merino wool.

In July 2013 Zuhal will be participating in the DESIGN:MADE:TRADE show in Melbourne.

This show provides a trade and public platform for innovative Australian designers and bespoke manufacturers from an array of disciplines.

We look forward to a report on her experiences.

Australian Alpaca Fleece Ltd

Australian Alpaca Fleece Limited (AAFL) started its days as the only alpaca fibre buyer. Now we are the largest alpaca apparel wholesaler in Australia. AAFL is still the largest buyer of alpaca fibre in all qualities and colours and the only company who every year offers a complete apparel collection of more than one hundred Alpaca garment styles according to international and domestic fashion trends.

The role given AAFL by the AAA in 2004 remains fundamental: it is still our stated aim, through fleece purchasing, to support not only Australian alpaca fleece growers but the local manufacturing industry as well, and where possible we do produce garments in Australia under our Australian Alpaca Connection label. At AAFL we are dedicated to developing a unique collection of products designed to showcase the finest qualities of alpaca fleece. We incorporate both natural fleece colours and fashion colours to produce a luxurious range of homewares, accessories and apparel.

Our knitwear and apparel is predominantly made from 100% Baby Alpaca. We have over the years also experimented with blends of alpaca and other natural luxury fibres. The rarity of the fibre worldwide has alpaca textiles aimed squarely at the premium end of the market. The weaving demands of alpaca also add to production costs. After initial sorting in Australia, for optimum results, alpaca fleece requires further intensive specialised classing by hand, as well as the use of machinery dedicated to that fibre. This is the only way to maintain the integral properties of the fibre and to not contaminate it with lanolin. Thus alpaca has unique requirements, and skilled handling and state-of-the-art machinery is vital, especially for premium finely woven cloth.

AAFL stands side by side with Australian growers in our joint belief that the alpaca industry in Australia is destined to grow. We believe the best support possible is to use the fibre commercially.

We are market oriented because that is what we believe is needed to propel this industry into the future. Unlike most Australian fashion houses who now produce in Asia we persist in having some of our range produced locally; however, we consistently have difficulty in locating high quality manufacturers willing to adjust and work with 100% alpaca. On top of that, the increased cost of local production is not broadly supported by the buying public at large. Price at checkout governs the retail market.

Australian sourced fibre, manufactured in Australia, does attract a dedicated but very small buying public. That said, those who experience the comfort of high quality alpaca quickly become devotees.

Australian Alpaca Fleece Limited proudly produces accessories and apparel predominantly in 100% Baby Alpaca. From collecting fleece from local growers to producing manufactured fashion collections we see our role as promoting this versatile and unique fibre.

To do justice to this premium, rare product we source the best manufacturing houses. We have our Australian fleece manufactured into a range of products by a premier textile manufacturer specialising in alpaca fibre. In fact, we use the same state-of-the-art manufacturing technology used by fashion houses like Prada.

Through our domestic range Australian Alpaca Connection we have continually tried to source local manufacturers. We are also working with an Australian knitting mill on a small range of garments Made in Australia, developed and styled by our alpaca professionals to meet the needs of the local market. But *high quality* is the key to commercial success in this discerning market.

We are proud that Australian Alpaca Fleece Limited has supported the Australian alpaca industry for so many years, and of our proven track record in this field. Australian Alpaca Fleece Limited is here for the long term, supporting the industry and finding sustainable commercial markets for all of our raw fleece.

AFFL is the only Australian company to have annually changing international and domestic fashion collections dedicated to the use of alpaca fibre. Yes, we do offer exclusive high end fashion wear here, but we also want medium-priced alpaca clothing to become a part of Australians' everyday life. Our Australian Alpaca Connection range of garments are developed and styled by our Australian professionals, in Australia, according to local requirements, with a view to producing a range of practical garments and accessories which are for everyday wear. Our styling reflects current fashion and colour palettes whilst aiming for a more classic wearability.

Our Australian Alpaca Connection Reversible Duffle coat is one of our perennial classics. It is ideally suited to our informal lifestyle. It is light to wear and the double layer provides additional insulation. It is two coats in one. The slim-cut produces a flattering silhouette. In 2013 a newly developed Australian-designed reversible style will be added to the range.

Australian Alpaca Connection's apparel collection is complemented by our wide range of premium quality scarves, shawls and accessories.

We are now proud to announce that in 2013 our accessories range will be entirely produced from fleece grown in Australia; and will be labelled as such.

To keep offering high quality garments at a realistic cost Australian fleece will still be manufactured predominantly in Peru into a range of garments developed and styled by Australians. Our clear goal in the years ahead is to have sufficient supplies of quality Australian-grown alpaca fleece to enable our complete product range to be produced entirely in home-grown fleece.

AAFL is also proud to include in its portfolio the largest and most complete collection of alpaca fashion apparel worldwide: KUNA.

KUNA merges the magical world of textures and colours combining Peru's ancient textile legacy with an avant-garde design vision and state-of-the-art technology to present a complete fashion collection for discerning buyers, together with homewares, in line with the international fashion trends.

Thus, AAFL is the only company in Australia to offer complete fashion collections from socks to headwear and everything in between. That is an enormous range – and an enormous challenge for a small company!

We sincerely hope that our steadfast commitment to finding long term markets for ALL types, grades and colours of Australian alpaca fibre speaks for itself. We also trust that Australian growers will try to ensure that ALL their clean fleeces and pieces are made available to assist the whole developing industry.

An interview with Romano Favari

By Esme Graham

QUALITY ALPACA – FINE WORSTED KNITWEAR – MADE IN AUSTRALIA

A new venture from Romano Favari, who trades as Lang & Duggan Pty Ltd, has just commenced manufacturing in Sydney. This manufacturer has a focus on exporting high quality garments to countries that can afford to purchase prestige garments.

Romano Favari BSc, DipEd, MBA commenced his career as a weaving apprentice and retired as CEO. His career has encompassed many aspects of the textile industry including production and quality control, marketing, textile manufacturing for fashion, furnishing, automotive and other industries. In retirement, as the Principal of Lang & Duggan, he travels the world manufacturing and marketing high quality fashion garments from Australian alpaca.
I asked Romano the following questions:

What started your interest in Alpaca?

I met Geoff & Deb Redelman who were very obviously enamoured with alpacas, apparently this is contagious as I caught the "alpaca bug". Shortly after this I met Graeme Dickson and was very impressed by his relentless drive to achieve fleece excellence. At this point John Zeng (Zenger Australia), who is a very good friend and was already successful with alpaca quilts, showed me that you could build a profitable business with alpaca.

I have often been asked what appealed to me about alpaca fibre. I have stated its softness but the real appeal is its novelty. New fibres, colours, fabrics, rareness, quality and prestige attract the "high roller" customers, but novelty fades unless it is supported by a quality/quantity offer to the buyer.

You have been manufacturing offshore for some time. How did this come about?

During the development stages and ongoing, I sourced fibre locally, sliver from AAFL and yarn from Peru. When your manufacturing cycle is all inclusive i.e. from fibre to shelf, there are many obstacles that need to be overcome at each stage. Alpaca is a very imperfect fibre from a processor's point of view and it will possibly take another twenty years to improve it genetically, so when I started I realised that I needed to overcome the fibre's shortcomings by technology until genetics caught up.

CSIRO stopped scouring alpaca fibre, and there was a delay in Velieris taking over, so I scoured in China and Italy. Dehairing of fibre of <20 microns was another challenge which I solved by going overseas. Up until recently to my knowledge, only the quilters carry out dehairing to prevent fibre migration through the quilt covers. The micron here is 28-32.

Medullated fibres gave me another headache. These fibres do not dye and thus spinners do not risk spinning alpaca followed by cashmere or wool as contamination can cost them dearly. So I solved this problem overseas.

Alpaca fibre is a challenge in itself during carding, gilling, drafting etc. Its surface structure is not conducive to travelling happily along these processes, it needs all the help that a good technologist can provide… and readers, do not believe stories of 100% alpaca yarns off semi-worsted and worsted processes. I could not find a worsted spinner in Australia willing and capable to spin a yarn on the worsted system to counts of 2/45..2/48 nm and the yarn to be so regular to be able to knit it, single jersey, in a solid colour, on a 16 or 18 gauge machine.

There were knitters in Australia capable of knitting my sweaters but they showed no enthusiasm to be subcontractors, which is understandable if you operate with Australia as your market…not enough dollars for too many players!

Therefore, my sweaters started, fibrewise, in Australia and were then scoured dehaired, dyed, spun, knitted and finished in Italy. I then also started some manufacturing in China. The Italians were, and are, a bit flexible with their promised delivery dates but their prices were very competitive.

Were you still using Australian fleece?

Yes, but as the business increased my spinners started sourcing from Peru and Bolivia. There is not enough local alpaca in my desired micron range to warrant investments in manufacturing, I could only supply novelty quantities rather than reasonable LCL container loads. I can pack 1,000 sweaters in 2 cubic metres.

My views are well known in the industry. If you want an alpaca industry you need adequate quantities of fibre available of specified microns and qualities. You can only achieve these quantities if the growers can see a sustainable profit for their investment.

So the Australian industry should not rely solely on Australian supplies, rather it should import alpaca, as it does already by necessity, and aim to be the centre of alpaca control and excellence. We would not be reinventing the wheel, just look at China and its cashmere excellence, most of it imported from Mongolia and classed in similar fashion as the AAA is doing now, with added stringent criteria. Mohair offers a similar scenario and South Africa is the champion.

What made you decide to manufacture in Australia?

I took samples of my sweaters with me to Italy, Japan and China. Through Austrade I met fashion people connected with Prada, Zegna, Ck, Japanese and Chinese buyers.

They liked my sweaters. In Italy they wanted me to manufacture in Italy and sell to Italian companies…but debt collection in that Country can be a major issue. If you want a decent profit margin it is necessary to manufacture in Australia for the Chinese and Japanese markets. Japan also wants absolute traceability of the fibre movement.

My background is weaving rather than knitting yet I bought the machines because I was offered a top brand machine with local back-up service and technical support and my son David is learning the business.

What lines will you be manufacturing here?

The main ingredient is an 18gge product because that is where the money is but I am flexible with my styling/colours to meet export cultures. I will not depart from this narrow path. There are 1.5 billion Chinese, 400 million Europeans and 100 million Japanese.

Will you also continue to manufacture offshore?

I would do so in Italy, if the business grows, however buying machines to meet demand always lead to long lead times.

I view my initial investment in Sydney as a pilot plant. If successful it will expand locally.

I understand that in Australia your product is mainly sold at high quality duty free outlets. Do you intend to keep this practice or could you see yourself expanding into boutique stores?

The only Australian 'markets' that I am considering, other than the duty free area, are the major department stores.

Bellatextiles

After more than 25 years hand-weaving the finest Australian wools, silks and natural fibres, alpaca has firmly captured the attention of South Australian weaver Bella Head.

Bella's collection of handwoven garments and home furnishings is meticulously planned and designed to offer an exquisite and welcome alternative to mass produced garments. Her passion for weaving in fine, quality, Australian fibres naturally led her to experiment with alpaca several years ago.

"I had been exploring wool, tencel, soy, and silks for years, but was introduced to the potential of alpaca in my weaving by local producers keen to introduce me to the fibre," Bella said.

"It was not long before I saw that alpaca sat beautifully with the silks I love to work with and could stand up to the full range of weaving and dyeing techniques I like to employ. The results were outstanding. When I was able to obtain *very* fine commercial Australian and New Zealand Alpaca yarn, I could create garments that had a lustre, weight, drape and finish that was superb."

Sold under her **bellatextiles** label, Bella's weaving was seen recently at the National Alpaca Show in her hometown Adelaide, where it was clear that alpaca had found a permanent home in her collection.

Her alpaca-rich garments are being snapped up by consumers who value the tradition, workmanship, and quality of fibre that make each piece remarkable.

Bella's style is unique, reflecting a career in weaving that has spanned two continents and nearly 30 years. From the moment she sat at her first loom while living in the United States three decades ago, she was hooked. She learned the history and skills of traditional North American techniques at workshops, and was soon exhibiting and selling her work throughout Canada and the United States.

On returning to Australia in the late 1980s, Bella worked in industry on power looms, learning valuable methods of working efficiently at weaving. This was also a time that cemented her ideas on mass-production and gave her great insight into the types of weaving that could never be reproduced commercially; the foundations of the style of her **bellatextiles** garments.

"At that time I began working from home on simple floor looms, upright rug looms, and custom built 16 shaft computer dobby looms," said Bella, recalling the early days of her weaving.

"In 1990 I established a business supplying spinners and weavers with advice and tools, and this gave me the shop and studio space to increase my stable of looms and associated techniques.

"Since 2000 I have combined Photoshop and weaving software to explore patterning on hand-operated looms. I am now creating simple structures in woven felt, double weave and collapse weave, with intricate patterning, to produce organic, fluid garments. I currently weave primarily on a 32 shaft Louet and an 8 shaft dobby loom. I use Fiberworks PCW and Photoshop to design and I am fascinated by the potential of these programs to add a new dimension to my weaving."

Bella closed the 'shop' and supply side of her business in 2012. She now solely assists new and existing weavers to purchase looms, by appointment only, freeing her up to explore her passion for weaving even further. It is certain that this exploration will include alpaca, a fibre with unparalleled texture and luxury that lends itself to the timeless, exclusive nature of the quality textiles she is producing.

Bella's handweaving is sold at events like the Bowerbird Design Market in Adelaide, National Alpaca Show, select retail outlets, and she will soon have a limited range available online at **www.bellatextiles.com.au**.

alpaca 2013 WORLD CONFERENCE AND EXPO

Alpaca 2013 World Conference and Expo will be the alpaca industry place to be in 2013. This prestigious event is hosted by Alpaca Association New Zealand Inc (AANZ) and will include the who's who of alpaca personalities from around the globe.

20th to 24th September 2013

The five day event will feature an **Alpaca Expo**, the **International Fleece Show**, the **AANZ National Show**, **trade stands and displays** from around the world, and the **World Alpaca Conference** and **workshops**.

Friday 20th Sept to Sunday 22nd Sept will be the EXPO, and will feature the AANZ National Show, culminating in the prestigious Alpaca Auction held Sunday evening and the Gala Dinner Sunday night. Monday 23rd Sept to Tuesday 24th Sept will be dedicated to the Conference and Workshops where you can learn from experts from around the world.

Through the whole event you will be able to visit the Trade Stands and Displays and the International Fleece Show. There will also be other dinner events to maximise your networking and socialising opportunities.

All of this will be held in one venue.

Claudelands Event Centre, Hamilton

This modern venue is ideally laid out to host Alpaca 2013. Large, well-ventilated halls ideal for housing alpaca are adjacent to the conference facilities allowing the whole event to be housed under one roof.

Claudelands Event Centre is situated in the heart of the New Zealand agricultural city, Hamilton. It is an easy walk from accommodation or a 5 minute drive from the city centre. The closest international airport, Auckland, is just over an hour's drive and the local Hamilton airport has flights from around New Zealand.

Important Dates	
Sponsorships Available	**NOW!**
Early Bird Registrations and Entries Finish	1st July 2013
Show entries close	20th August 2013
Fleece Judging	16th to 18th September 2013
Site Build	19th September 2013
Alpaca 2013 World Alpaca Conference & Expo	20th September to 24th September 2013
Alpaca Auction	22nd September 2013

The AANZ National Show, International Fleece Show, trade stands, and alpaca will all be housed in Halls A & B, with room to overflow into Halls C or D if required.
The Conference will be in the conference rooms adjacent to Hall A.

More venue information can been found at www.claudelands.co.nz

Registrations

Conference registrations along with bookings for the other events and dinners will be available on the website www.alpacaexpo.co.nz or by contacting the AANZ office.

AANZ National Show

Planning is still underway for many of the details of the 2013 AANZ National Show, but at this stage we can confirm…

Judges

Co-judging in the breed ring will be Paul Garland (NZ) and Angela Preuss (Aust).

Dates

The Championship classes will run Friday 20th & Saturday 21st Sept, then Non-Championship classes Sunday 22nd Sept. All Alpacas will remain on site 20th to 22nd Sept.

Some sponsors, as part of their sponsorship package will be able to have alpaca remain on site for 23rd and 24th September. Off site accommodation for alpaca will be available on local farms for the days around the event.

International Fleece Show

In 2013 the fleece section will be run as an international event and alpaca breeders from around the world will be invited to exhibit their fleeces.

The International Fleece show will be run under the rules and regulations of AANZ. These are currently being modified to allow fleece entries from outside NZ at International shows.

Currently negotiations are underway to facilitate the smooth importation of fleeces into NZ as there are strict quarantine rules that must be followed. More information on the process for importing fleeces will be available soon.

Judges

Judging the Suri Fleeces will be Sarah Busby (NZ).
Judging the Huacaya Fleeces will be Lyn Dickson (Aust).

SITE PLAN

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PACA PICS

This Issue's Winner

' Hmm, should I be pretty in pink today? '
Penny Pittard - Currabungla Alpacas NSW

Oops!

Last month's Alpaca Pics winning pic was 'Vertical Integration', but the picture actually belonged to

Anita Neeser
Dandaloo Alpacas, QLD

NOT Paula Leeson as printed.
We apologise for any inconvenience this may have caused & congratulate Anita on a great photo!

' I'm ahead of myself '
Diane Boede - Wattle Grove Alpacas VIC

' Zavier says hello '
Andrea Endacott - Seachange Alpacas WA

' Not happy, Human! '
Julie McClen - Oak Grove Alpacas NSW

Send us your Paca Pics. Please send your paca pics as high resolution .jpg images to the AAA office via email, as an email attachment. Email: sandra@alpaca.asn.au

Not all photos submitted will be used for the current issue, however they may be used in a later edition of Alpacas Australia Magazine. By submitting a photo you are giving the AAA permission to reproduce this image in any of its publications and you confirm you have permission to use the image which is free of any copyright.

millpaca

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In a first for the industry, Millpaca Stud is now offering Vendor Finance for all purchases of stud animals and mating services. This represents a fantastic opportunity to increase the value of your herd without the usual upfront capital outlay. Repayments for genetics can be made over a 24 month period, while mating can be spread over a 12 month term, all at attractive rates.

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Visit our websites at **www.millpaca.com**

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1992: Dr Ian and Harriet Davison base Illawarra breeding selection on meticulous objective measurement for fineness and high fleece weights, evident today in the low primary diameter of their herd

2001: Janie Hicks original research in Peru benchmarks follicular density in alpacas for the first time

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Janie Hicks
(AOBA certified judge, Councilor of Royal Agricultural Society of NSW)
coolaroo@hinet.net.au
Tel: +61 419995553

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