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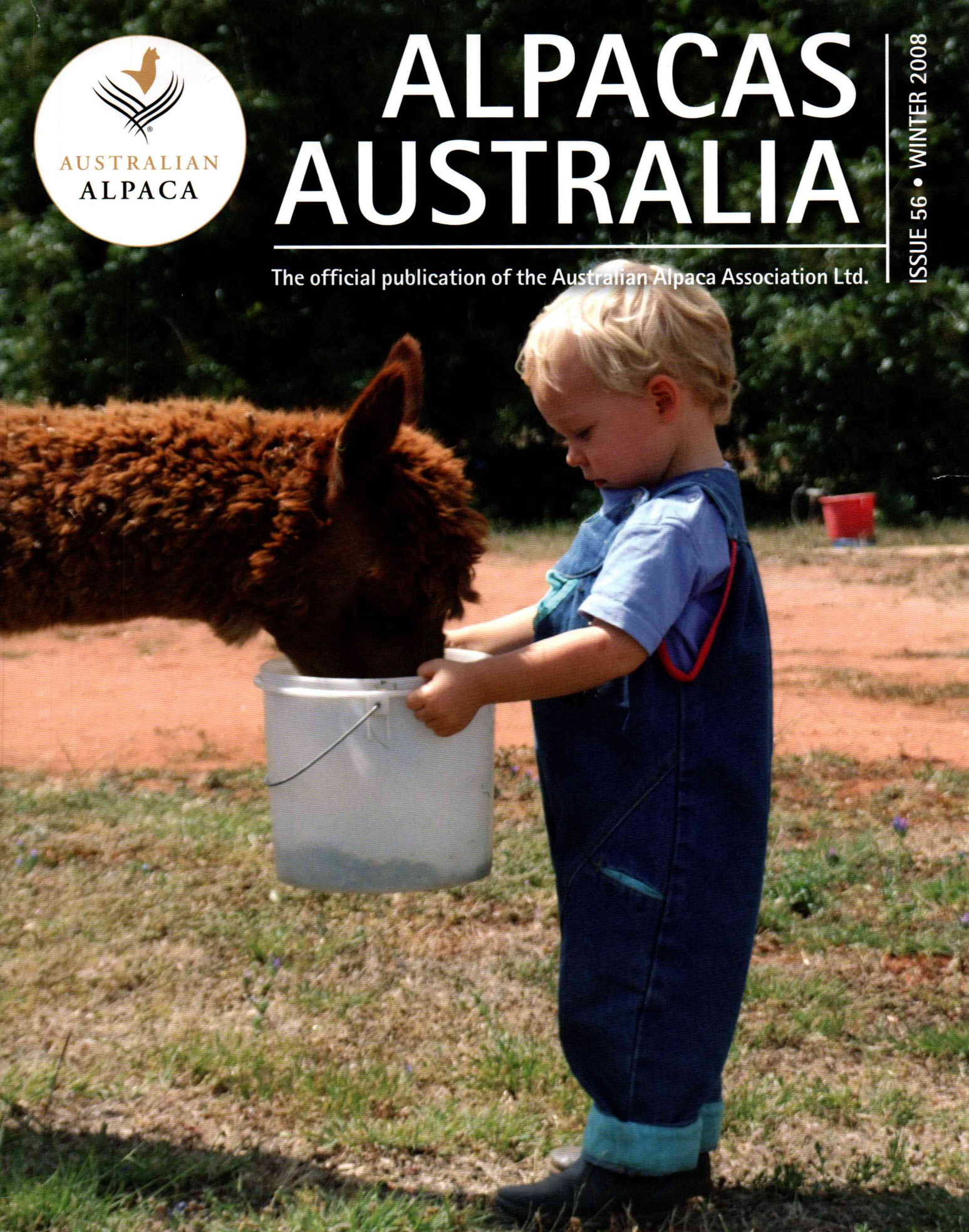

Inside this issue:

Health and Welfare Focus on Cria • Camelid Geneticists • SRS® • Alpaca Fleece

Camelot Tor is a certified stud male recommended for use in an SRS® Breeding Program. See www.srsalpaca.com

Lee Carrow Seventh Heaven, a stunning daughter of the champion Camelot Tor. She won Junior Champion Female, Wodonga 2008. Seventh Heaven features as one of the stars of the 2008 AAA National Auction.

Another daughter, Jigaru Moonlight Serenade, won Supreme Champion Red Hill 2008.

Camelot Tor, champion sire of champion progeny. Details at www.flowerdalealpacas.net Ph 03 9827 8255.

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RESEARCH AND DEVELOPMENT

ANIMAL HEALTH AND WELFARE

FLEECE

FASHION

INDUSTRY

COVER
Photograph of Caleb feeding Wendy by Denise Tiyce-Mathews Shalom Alpacas, NSW

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ADVERTISERS

A Message from the President

It will have escaped the observation of precious few breeders that times are changing for the Australian alpaca industry. Sales have become harder to secure, and that prices for even quality stock have softened. Your Board, individually, have made the same observations, and it was the source of much discussion and navel gazing at their meeting held over a recent July weekend.

In popular parlance, it has been "the elephant in the room", obvious to all, but mentioned by none for fear of frightening the natives.

Our constitution mandates that the AAA should *promote and advance the breed and husbandry of alpacas as an agricultural resource of Australia.* The 20/20 Vision Report charges it with, *inter alia,* developing *an effective and efficient industry structure, corporate governance and leadership.*

It is with this in mind that the Board re-examined its role and goals on the weekend in the context of a tougher marketplace, and diminishing returns for its members. What leadership should it provide?

There are those who would have us expend the giant share of the members' resources in marketing our industry unchanged and harder, and to more of the same people who have sustained us for the past 20 years: lifestylers, retirees, small farm operators, and tree changers. There can be no doubt that they will continue to be a target for one part of our industry, but times are changing and industry must adapt accordingly. Whatever the final number of breeders and alpaca farms in Australia, we must eventually reach a steady state, when the number of new entrants equals the number leaving the industry. In the meantime, the number of alpacas is destined to keep growing. When that time arrives, it is inevitable that prices will reflect this new reality, and the average holding will increase in size to accommodate these numbers. The focus will change, as we have always predicted, from an industry based on the sale of a single product, which is simply more alpacas, to one which is based on a range of products: stud stock, fleece, meat, hides, herd guardians, and lifestyle companions. That change recognises the maturation of our industry from a sunrise speculative industry to a mature, comprehensive agricultural industry. Whilst that time is fast approaching, there is likely to be an interim period when we are neither one nor the other, and the industry must hold the line and stay focussed on the goals which we have striven for over the past 20 years.

The AAA must prepare for this evolution, as must its members. The AAA has to increase the value of its offering to the membership, and breeders must develop a greater clarity and focus on what constitutes quality of product, be it fleece, meat, genetics or temperament, and a keener appreciation of value for money. No amount of advertising or marketing can sustain an industry contrary to the laws of supply and demand.

Increasingly, the market for much of Australia's alpaca product will be found overseas, and we must prepare for that. As breeders, we must refocus on those qualities which make our product more desirable and valuable to our customers. The AGE is a tool designed pre-emptively for that very purpose. Our exhortation to judges to ensure that their decisions reward excellence in those qualities valued by the market is another. Negotiations with government to facilitate exports is yet another. Marketing our industry to an international audience is still another.

A reduction in the costs of membership, and a rationalisation of the services offered by the AAA to its members, are commercial imperatives, which the Board acknowledges. We must do things better and more efficiently than we have done. Accordingly, the Board has agreed to pay the costs of all new AGE enrolments for the next 12 months, beginning with the next data collection, in order to increase its uptake and utilisation. The Board is in the process of examining the fee structure for IAR registrations, and is hopeful that it may be able to announce some reductions during the course of the next financial year. Similarly, we expect to announce a substantial reduction in the cost of DNA testing when negotiations have been completed. The good news is that the Association remains in a financially sound position, and therefore able to offer these reduced charges without a reduction in services to the members.

Increased utilisation of the web for communication, information, distribution of point-of-sale material, advertising, sales and administrative transactions will all lead to further savings which we can pass on to the membership in time.

With changing times, there come also opportunities. The opportunity to attract younger people and families to the industry as set-up costs fall; the opportunity to sell into traditional sheep farming and other diversified agricultural enterprises as production costs fall; and the opportunity to commence broadscale farming of wethers as numbers increase. But make no mistake, times are changing, and the Board and members of the AAA will need to change their thinking accordingly. Your Board has already acknowledged the need for those changes. Our recently negotiated Memoranda of Understanding with AAFL and AANZ recognise the importance of negotiated positions with partner organisations to strengthen the commercial basis for our industry. Breeders also need to refocus on commercial fleece characteristics, particularly, to prepare for the reality that the 20/20 Vision report has accurately predicted.

We live in interesting times. Embrace the challenge, seize the opportunity ... ■

Dr Ian Davison, President

Briefly Speaking

Messages from the AAA Ltd. Board

National Livestock Identification System

The Federal Government has approved AAA Ltd. funding for the implementation of NLIS for alpaca.

The Federal Government had determined that the NLIS for alpaca was always going to be realised, and the benefit of the project being driven by AAA Ltd. provides our industry the control and facility to design a programme that may be adopted by alpaca breeders with ease and cost efficiency.

The AAA Ltd. NLIS Project Team, Chaired by Neil Daniell and overseen by AAA Ltd. Board member, Libby Garner-Paulin is currently working on achieving the first milestone of the NLIS implementation programme, the formation of the National Consultative Committee, comprising representation of industry stakeholders.

More information about NLIS will be published in *Alpacas Australia* as it becomes available.

Libby Garner-Paulin, *Director, Animal Health, Husbandry and Welfare*

Biosecurity Measures in the Show Ring

The following is effective from 21 July 2008.

Full inspections by the Stewards is to be re-established in the pens with handlers/exhibitors being responsible for the opening of the alpaca's mouth both in the pen and in the show ring.

This enables the Stewards the opportunity to show an exhibitor/handler how to effectively open the mouth before they enter the show ring if required.

If an exhibitor proves incapable of successfully opening the mouth in the pen or show ring the Steward in the pen, or Judge in the show ring can assist but must ensure that they clean their hands immediately with antibacterial wipes.

All Chief Stewards, as part of their role, are to have a supply of antibacterial wipes on hand so that they can be used if required.

Jenny McAuliffe, *Director, Membership Services Showing and Judging*

Camelid Geneticists Chart Course for Future Research

RESEARCH AND DEVELOPMENT ARTICLE by **Dr Murray E. Fowler**, DVM

An historic event in the camelid world took place on 22-24 February 2008, as the first international workshop on Camelid Genetics convened in Scottsdale, Arizona, USA.

The purpose of the meeting was to bring together genomic scientists from the National Institutes of Health, academic geneticists, clinical veterinarians, veterinary pathologists, and organizational administrators to share thoughts and opinions on camelid genetics. The workshop was truly international in scope with attendees from Australia, Canada, Peru, and the United States. Among the disciplines represented were geneticists, molecular biologists, genomic researchers, clinical veterinarians, pathologists, academicians, and fibre specialists.

Hosted by the Alpaca Research Foundation (ARF) and the Alpaca Registry Inc. (ARI) with financial underwriting by ARI, the timing of the meeting was apropos because the alpaca genome has just been sequenced and will be completed in early 2008. The alpaca joins a short list of other species such as yeast, several plants, mice, rats, dogs, cats, horses, cattle, and recently humans for which genomes have been sequenced.

The workshop began with an overview of genetics and its rise to prominence since the structure of DNA was reported by James Watson and Francis Crick in the scientific journal, *Nature* in 1953. Molecular biologists have a language all their own, but slowly, all were brought to a basic understanding. Several attendees (myself included) had a hard time with the terminology initially.

The most significant factor in the success of the meeting was that everyone listened to each other. No egos burst forth. Did differences of opinion crop up? Yes indeed, but courtesy prevailed and both formal and informal discussions were highly fruitful. Genetic research has progressed from the laborious counting of a given trait resulting from a selected mating to the sophisticated chemical and physical technology and instrumentation that can analyze for proteins and other sub-molecular entities. Evaluation of the data collected (bioinformatics) could not be done without computer technology and the expertise of scientists who are able to interpret the data. Such computer specialists were present at the conference to answer questions.

Photo by Dave Belt

The veterinary clinicians in attendance sought answers for questions such as, "How can we identify the heritability of congenital defects?"; "Can we determine if the parent is a carrier of a hereditary defect?"; "After the alpaca genome is completed will we be able to manufacture vaccines that are safe and effective against infectious diseases of camelids?". The answers were qualified yeses! Does more research need to be done? Yes! Will it cost money? Yes! Will it take time to solve the clinical problems? Yes, indeed!

In general, congenital defects are more common in camelids than in other livestock species. Although over 100 such defects have been reported in camelids, none have been subjected to enough scientific scrutiny to be certain that they are inherited. Many of these defects are known to be inherited in two or more other species of animals and may be presumed to be inherited in alpacas and llamas, but we don't know this for sure. Management of camelids requires knowledge of which defects may be inherited and how the process works. Is it important for the camelid industry to know if a trait is inherited and how it is inherited? Absolutely!! It is economically important to the camelid industries and may obviate the heartache that goes with waiting for eleven months only to see a deformed, non-functioning cria.

After the basic principles of genetics were presented, attendees heard how the tools that are already known and used in cattle may be applied to alpacas and other camelids.

Reproductive anatomic and physiological traits are known to be controlled by genetics. Unfortunately, there are several anatomic and physiologic (hormonal) defects that interfere with the reproductive process and prevent optimal birthing of healthy crias. Many of these traits were described and the discussions which followed indicated genomic research may be useful to identify and solve these problems.

A special congenital defect called choanal atresia was brought to the fore as a priority for genetic problem solving. Prior genetic research has been unsuccessful. The genomic era may enlighten us. At least one of the traits possessed by camelids may have relevance to human medicine. Camelids have a 'normal' blood sugar level that in humans and other animals would be considered to be diabetic. Yet alpacas and llamas suffer no apparent ill-effects of this hyperglycemia. It might be important for researchers investigating human diabetes to know how camelids remain healthy while maintaining such high levels and why? Genetic technology is helping to solve these kinds of problems in other species and there is every reason to believe that it will do so in camelids.

Some of the research reports presented at the meeting were preliminary, such as suri genetics using microsatellite markers, pedigree mapping, and parentage validation for pedigree studies. The completed alpaca genome will add more sophisticated tools for studying these practical challenges.

Genetic studies have been conducted for decades. It would be unwise and incorrect to suggest that such things as Mendelian genetics will be completely superseded by genomic studies. For instance, color inheritance may be studied by simple inheritance as reported at this meeting. Likewise, Mendelian principles have been utilized in camelids for selecting breeding animals and herd management.

Early in the development of the camelid industry in the private sector it was deemed necessary to develop a method of validating the parentage of a cria. In 1987, such a test was developed using the variation of proteins in the blood of each individual. For several years, serologic blood type testing was mandated for animals to be registered in either the llama or alpaca registries. In 1998, advances in DNA technology made it possible to validate parentage by that means.

Fibre is one of the easiest conformation traits that can be improved upon by genetic selection. Presentations were made on qualities that can be measured. Fibre color is important and we were informed as to the state of current knowledge of color genetics, and how the genome project may help in the future. There is still much to be learned about fibre and knowing the location of genes on the chromosomes will further the industry's ability to produce a still higher quality of fibre. Suri genetics were also discussed.

Infectious diseases are an ever-present threat to all animals. While alpacas and llamas have few unique diseases, they seem to be somewhat susceptible to diseases that generally affect only cattle, sheep, or horses. Some of these diseases are transmitted by insects and ticks.

Camelids may develop a titer to these organisms and may or may not develop clinical disease. Only in rare situations may a camelid become a source of infection for other livestock species. It would be important to know why camelids allow these infectious agents into their bodies and why they react immunologically to the antigen and produce antibodies or develop the clinical disease.

Likewise, it would be desirable to show genetically that camelids are resistant to many of the diseases that are listed by regulatory agencies. It would make camelid owners' lives less complicated for going to shows and sales if camelids were not treated in the same category as ruminants. We still do not have the ability to determine scientifically whether or not an individual is a hybrid. That may change when the genome project is completed.

It is not necessary for camelid owner/breeders to know all the chemistry and physics associated with camelid genetics that has brought us to such a high state of the art. Hundreds of genetic scientists have devoted their entire careers to sorting out the most detailed secrets of DNA. The camelid industries are in a position to benefit from those studies and camelid owners should be grateful that the alpaca was chosen as worthy of study. Much of the information obtained will have direct application to all camelids.

It became evident during this meeting that teamwork is essential for solving problems. Researchers in the camelid community need to work closely with geneticists to identify conditions that need attention. Genetic research is expensive. For example, the human genome project cost about three billion dollars and was heralded as one of the great feats of modern science. The human genome project took 16 years to complete from the time it was first proposed until the first draft was reported in 2001. The development of automated systems has cut the time and expense of such research to a fraction of that necessary just a few years ago. As a result, the alpaca genome project will be finished in less than two years.

Part of the expense of completing the alpaca genome project and applying it to practical day to day problems must be supported by the industries that will benefit from the research. Furthermore, associations must become knowledgeable about what has been done, what is being done, and what needs to be done in the future. To that end, I have appended the titles of two books I recommend for serious owner/breeders and clinical veterinarians. It may also be necessary for some politicking to help raise funds to support this vital research.

The industries should support the alpaca genome project philosophically and financially. In order to do that, individuals should be conversant with basic principles. We don't need to be geneticists, but we do need to be able to talk to them. We need to understand some of their terms. I have included a glossary of some terms that may be encountered when reading about genetic articles in our journals. ➤

What of the future? Those in attendance agreed to prepare some documents that will outline the need for investigation. Task forces were assigned to people with an interest in camelids and who are willing to devote time and effort on their behalf. The first international workshop on camelid genetics must be followed by similar gatherings to hammer out specifics and to communicate with others who have similar goals, ideals, experience, and expertise.

Together, we can make a difference in the exciting world of camelid genetics. ■

Suggestions for further reading

For camelid owners and others wishing to obtain a further understanding of genetics, I recommend the following books:

> O'Brien, Stephen J. 2003. *Tears of the Cheetah – The Genetic Secrets of our Animal Ancestors.* St. Martins Press, 175 Fifth Ave, New York NY 10010. ISBN 0-312-27286-3 (hard cover), ISBN 0-312-33900-3 (paper back).

> Robinson, Tara Rodden. 2005. *Genetics for Dummies.* Wiley Publishing, 111 River St., Hoboken NJ 07030 5774. ISBN 13:978-0-7645 9554-7.

Both of these books may be ordered through most book stores using the ISBN number. *Amazon.com* may also be a source.

About the author: *Dr Murray Fowler, DVM graduated from Iowa State University Veterinary School in 1955 and taught for many years at the University of California, Davis. He is the author of 18 books, including Medicine and Surgery of South American Camelids, Restraint and Handling of Wild and Domestic Animals, and an autobiography, Murray – From Hummingbirds to Elephants and other Tales. Dr Fowler is a diplomate of three specialty boards: The American College of Zoological Medicine (ACZM), The American College of Veterinary Internal Medicine (ACVIM), and the American Board of Veterinary Toxicology. Now Professor Emeritus of the University of California, he devotes his time to writing and speaking at conferences and workshops around the world.*

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Glossary Of Selected Genetics Terms

Allele: One of several different forms of a gene. Slight differences may produce changes in the end product of gene function (eye color, hereditary diseases, resistance to a microorganism).

Antibody: Specialized serum proteins produced when the body is exposed to specific antigens (infectious agents).

Antigen: Any substance that is capable of inducing a specific immune response that produces antibodies when ingested or injected into the body.

Biodiversity: The sum total of all life on earth.

Bioinformatics: The process of using a computer to search through massive biological data bases.

Choanal atresia: A membranous or bony partition in the nasal cavity. It may occur on one side only or both sides, and be complete or incomplete. If complete, the cria is unable to breathe and eat at the same time, because a camelid must breathe through its nose.

Chromosome: A linear or circular strand of DNA that contains genes. Each animal has a specific number of paired chromosomes. In the case of camelids, there are 36 pairs of chromosomes plus one pair of sex chromosomes, or as usually written 2n=74>.

Congenital defect: Abnormalities of structure or function which are present at birth. Not all of these are genetic defects as other physical, chemical, and infectious agents may affect the foetus.

DNA: An acronym for deoxyribonucleic acid. It is the genetic material that comprises the genes, chromosomes, and the genome. DNA is in the form of a double helix (spiral) as reported by Watson and Crick in 1953.

DNA fingerprinting: Much like the fingerprint used in human identification, but done with the unique DNA characters for each individual animal. Commonly used in forensic medicine (crime solving).

DNA sequencing: Establishing the anatomy of DNA by chemical analysis.

Gene: The fundamental unit of heredity. A specific section of DNA within a chromosome. The unit of information in DNA that specifies the translation of a particular protein. Mammals have 20,000 to 35,000 distinct genes in their genome.

Genetic defect: Sometimes called a hereditary defect, certain genetic disorders may cause serious defects in a single individual, but the disorders will not be passed on to subsequent generations.

Genetic diversity (variation): Variation that occurs in a group of interbreeding organisms (camelids) by the frequency of alleles appearing in a population or the frequency of genotypes.

Genetic engineering: The direct manipulation of genes to alter the physical appearance of an animal.

Genotype: The entire genetic makeup of an individual.

Genome: A full-length copy of an individual's genetic endowment. A genome is the sum total of all the genes, DNA, and genetic information, neatly compiled in two distinct copies (one from each parent) in every cell of the body.

Hereditary defect – A defect that is passed from one generation to the next by the parents.

Hyperglycemia: An excess of glucose (blood sugar) in the blood.

Immunological: Pertaining to immunology, the study of all aspects of immunity.

Karyotype: A microscopic picture of the chromosomes.

Microsatellite: A stretch of DNA that is repeated several times in a row. All mammals examined so far have 100,000 to 200,000 such repeats. These are located at random throughout a chromosome. The variation in these markers between individuals allows for parentage verification and is a tool in the forensic community for matching blood and semen left at a crime scene. These microsatellite markers are given names and numbers.

Mendelian genetics: Simple inheritance based on dominant and recessive traits that segregate according to mathematical ratios. Gregor Mendel was an Austrian monk who used plant breeding and direct observation to establish the ratios. He is considered the father of modern genetics.

Molecular biology – The study of the biochemical and biophysical aspects of the structure and function of genes and other sub-cellular entities.

Phenotype – The observable expression of the genotype of an individual (structure, color).

Recombinant DNA technology – A process of finding a gene on a chromosome, snipping it out of its original location, and inserting it into a new location (another organism). Currently used in the production of safe and efficient vaccines for animals and humans.

Titer (*British spelling* **titre**) – The degree of reaction of an antibody when exposed to an antigen. Usually expressed as a dilution 1/50, 1/250 etc.

Positive Moves at Australian Alpaca Fleece Ltd.

FLEECE ARTICLE from **Australian Alpaca Fleece Ltd.,** VIC

AAFL is pleased to announce several initiatives that will expand the AAFL business and provide future growth opportunities for the Australian alpaca industry.

Acquisition of Neilson-Ide Business

Customers of Australian Alpaca Fleece Limited (AAFL) will now be serviced by a base in Sydney as well as the Head Office and warehouse in Melbourne. Effective from 1 April 2008 AAFL acquired the business of Neilson-Ide Pty Ltd and took over the premises at Carlotta St., Artarmon, NSW. Monica Polar, Eduardo Casapia and Helen Audsley will join the staff of AAFL.

The acquisition was effected by the issue of new shares in AAFL. Neilson-Ide will hold approximately 28% of the issued shares in AAFL. Subsequent to the acquisition, Mr. German Freyre, Managing Director of Grupo Inca, the world's largest alpaca fibre manufacturer, based in Arequipa, Peru, has joined the Board of AAFL. The *"Kuna"* fashion range of alpaca garments and accessories will be sold throughout Australia by the combined sales team.

l-r: Ian Winlaw, Eduardo Casapia, Michael Talbot, Monica Polar, Lidia Paszka at the settlement of the NIDE business acquisition

New General Manager

AAFL announces the appointment of Kaye Sutherland as General Manager to work with Michael Talbot on the expanded business. Kaye has a farming background, followed by textile and marketing studies at RMIT. She has worked in textile marketing positions in Australia and the USA and is passionate about the need for quality fleece for quality product. Kaye will commence on 18 August 2008, and will report to Michael Talbot, the Managing Director.

Expansion into China

Indicating the importance of the Chinese market for our Australian alpaca products, Ian Johnston, currently National Sales and Export Manager will relocate to Shenzen, China, later this year. Ian's role will be to open up sales opportunities for Australian alpaca product and develop new markets. He will be responsible for servicing AAFL agents in Korea, Japan and Hong Kong.

His Australian duties will be taken over by Jenn Worland and Monica Polar.

Any enquiries about these AAFL initiatives should be directed to Ian Winlaw, Director, 0418 116 655 or Jeffry Farman, Director, 0419 549 666. ■

Layla's Leap

ANIMAL HEALTH AND WELFARE ARTICLE by **Mark & Irene Garner** > Alpacapeña, NSW

This is a story of caution to never take for granted things and activities that we normally do with these delightful animals, alpacas... *like unloading them.*

At the conclusion of the show, at which we had enjoyed some modest success, we loaded our small show team of four animals into the van and commenced the tedious and uneventful Saturday night's drive home. On arrival, we prepared to follow exactly the same procedure we had done countless times before during our 12 years in the industry – drive into the shed, unload the animals, put them back in their respective paddocks and empty the van of all of the detritus one requires to attend a one day event.

But on this occasion things worked out differently.

Having unloaded three of the alpacas, each elegantly hopping out and down from the van, as they had been trained to do, the fourth and our favourite, Layla, for some reason was hesitant. She propped momentarily, then upon verbal encouragement, she decided to make her exit from the van by way of a swan dive. As spectacular as the leap appeared, the landing was significantly less so, in that as she landed, her front legs slipped forward on the concrete and her hind legs spread-eagled behind her.

It quickly became apparent that her hind legs were immobilised when, in the stoic manner of these animals, her attempt to move resulted in her dragging herself along the ground on her elbows.

Fearing the worst, we immediately put her into a cush position and comforted her whilst at the same time preventing her from moving any part of her body that might cause further damage. Our emergency (after hours) veterinarian service was instantly contacted and we were fortunate that the on-duty vet managed to arrive within about half an hour of the accident.

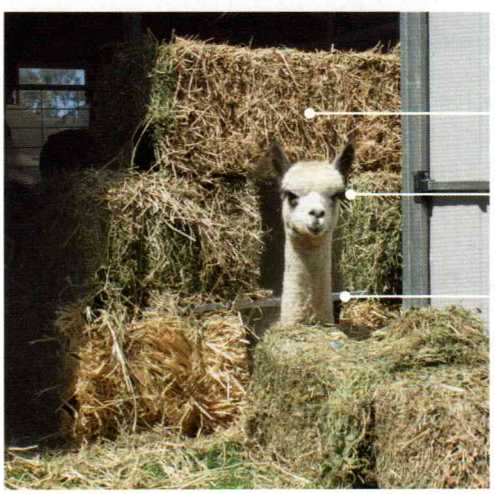
After testing her limbs and lower body for reflexes, of which there were none, the initial diagnosis was not good – "A possible ruptured disc or a break in her spinal column". Worryingly the prognosis was even worse. The vet was genuine in his belief that there was a high probability Layla may never be able to walk again, resulting in the likelihood of having to have her euthanased. The notion of an X-ray was discussed but we were cautioned that the technique may not be as conclusive as a Mylar gram or an MRI scan, both of which are extremely expensive and logistically a very difficult exercise.

With spinal injuries, often the most significant improvement will be gained within the first 24 hours post injury. Because Layla was not showing any obvious signs of pain or distress, the decision was made not to euthanase her immediately but institute full nursing care and take a wait and see approach. The on-call vet prescribed four massive (cattle sized) anti-inflammatory corticosteroid (cortisone) injections, two daily for the following two days, until the veterinary practice opened two days hence and when Layla's condition would be further evaluated. As part of the nursing regimen, Layla was to be kept confined in such a way that she had no ability to move her limbs or body.

Confining her proved to be more difficult than we would have imagined, but we managed a temporary enclosure by using a couple of bales of hay to squeeze her into a corner of the pen. For food we simply placed handfuls of hay in front of her and water was administered by way of a syringe, though at this stage, neither were really on Layla's agenda.

Having put her best friend, Keira, with whom Layla grew up, in the pen with her for company, we then waited (sleeplessly) throughout the night with regular checks to ensure that she was 'comfortable' yet constrained.

Figure 1: The 'Immobilising Edible Crush' (Refer to Day 2)



Day 2 (Sunday)

At dawn, she was still with us and was alert. The problem now was how to prevent pressure sores developing on her legs and body and to keep blood flowing through her limbs.

By this time Layla was showing interest in taking a little water and some hay from us - but not much.

But it was clear to us that we should improve her 'crush' to offer her better comfort and easier access to her feed. We also noticed that she preferred to pick at the packed bales of lucerne, rather than the handfuls of loose hay and chaff we had offered for her. So, with a combination of minds, we developed the 'Immobilising Edible Crush' *(patent pending) (Figure 1)* by placing one bale of clover hay in front of her, a bale of lucerne hay on either side and a bale of straw behind her, all of which was covered by a (weighed down) pen panel to prevent her attempting to lift herself on her elbows.

This would enable her to:

> stay immobilised and reduce any further injury by attempting to 'drag' herself around

> ensure her constant feed and allow her the 'picking' satisfaction aligned with her normal grazing nature

> encourage her friend, Keira, to feed with her on the packed hay bales.

Again with a combination of minds and the fantastic assistance of two of our 'alpaca support team', Kim Pisaruk and Elizabeth Garner-Paulin, we dismantled the 'Immobilising Edible Crush' and whilst keeping her spine straight, very gently lifted Layla over and onto two bales of straw, both on edge, in such a way that her body was supported and her front and hind legs were dangling *(Figure 2)*. We then proceeded to massage her limbs, whilst at the same time, Kim administered 'reiki' [1] to further encourage blood flow and hopefully, to hasten healing.

As mentioned earlier, Layla was prepared to take some water which we continued to offer her as a cocktail by syringe, every two hours, because we wanted to see and record how much fluid she was taking, as opposed to her mate drinking it or tipping it over. The cocktail comprised 1 litre of water with 4 drops of Arnica (for muscular relief), 10 drops of Rescue Remedy (for stress and wellbeing) and 4 grams of Protexin Soluble (for gut flora) diluted in it.

That evening we gave her another massage and at the same time we concentrated on gently flexing her limbs – in effect, we were performing physiotherapy. There was no response or resistance to this movement but we had the impression, or hope, that she was feeling it.

Day 3 (Monday)

As recommended by the relief vet on Saturday night, we took Layla (cushed on a stretcher) into the surgery for possible X-rays and a more comprehensive diagnosis by the senior veterinarian. Again the vet advised that an X-ray would probably not show much and again he tested the reflexes in her hind quarters by pinching, with a pair of

Figure 2: Twice daily physiotherapy

forceps, the flesh between her toes and on her legs and buttocks. But this time, pleasingly, there was a response, even to the point of Layla turning her head to spit at the vet! Never before has a spit been greeted with cheer and smiles and at last we had some hope that she might not be a paraplegic. There WAS a ray of light.

During his appraisal the vet demonstrated a method of gently lifting and moving Layla by using just two people, each with a towel under her 'armpits' and flanks, however during the demonstration she showed no ability, or desire, to put any of her four feet to the ground *(Figure 3)*. An injection of a non steroidal anti-inflammatory was administered along with an explanation that the continued use of a steroidal anti-inflammatory can sometimes have a deleterious effect on alpacas (as they can on humans). Nevertheless he left us with instructions to administer one injection daily of the prescribed anti-inflammatory for the next three days. The vet also emphasised the importance of continuing the massage and physiotherapy we had been giving her twice daily.

The notion of constructing a sling to permanently support Layla off her feet was discussed with the vet. Whilst he felt the idea had some merit, he did have some reservations as he had experienced animals wriggling in the sling to a point where the sling had moved or slipped up and under the animal's forelegs thus putting excessive pressure under the 'armpits' as well as the hind quarters as they collapsed to the ground. ➤

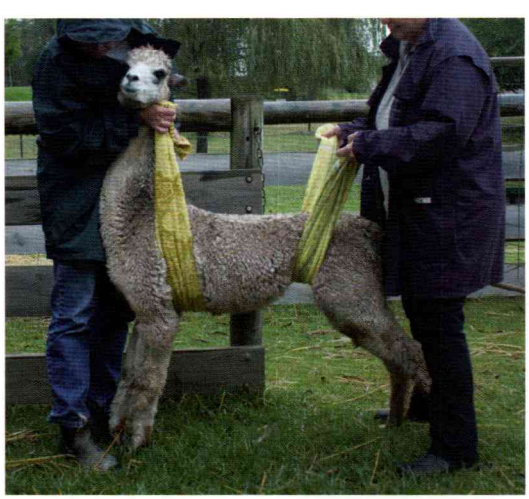


Figure 3: The towel harness used to start putting weight on her legs

Day 4-6 (Tuesday-Thursday)

Her 'physiotherapy' treatment continued morning and night, along with 'reiki',[1] but as she was not showing any attempt at moving (except to scramble away from us on her elbows), we moved her outside into our small nursery paddock (yard) during the day with minimal bale restraint and back into the shed at night again with minimal and no pen panel, restraint.

At least this allowed her to adjust herself slightly, so we knew she was regaining some feeling.

Also by now we were able to offer her the water 'cocktail' in a flat bottomed bowl, thus relieving us of the two hourly syringe. The only problem of course was that Keira liked it also!

But we were now presented with a new concern; Layla was showing clear signs of depression (not eating, drinking or defecating). On consultation, the vet felt that this was probably owing to the anti-inflammatory drugs wearing off and Layla starting to feel pain in her legs. Unfortunately Layla had run the full course of anti-inflammatory pain relief, with further injections possibly compromising her health. We administered VAM (vitamins & minerals) and Coforta (phosphorous & Vitamin B12), the objective being to 'pep her up'.

Day 7 - (Friday)

We greeted the day with Layla showing much improvement in her mood and she seemed to have 'the colour back in her cheeks', moreover when being massaged, she now objected to certain movement of her legs.

We were now using the towel harness technique to regularly encourage her to put weight on her legs, while we still supported the majority of her weight *(Figure 3)*. That night we allowed her to stay outside without any restraining bales.

Day 8 - (Saturday)

On rising we noticed that she had moved herself around during the night, but we weren't sure how she did it!

Then as we were preparing the two bales for her morning massage she made, to our joy and amazement, an attempt to stand!

Very quietly we stood back and observed. Her attempt was just as a newborn cria, wonky and with splayed legs, but for some 10 seconds she managed to stand and then cush again! A few tears were shed with lots of encouraging expressions like "good girl" and "well done!!!"

Day 9–23

We kept Layla in the small, flat, nursery paddock, to slowly regain her weight and balance, and daily we were seeing significant improvement in both of these areas. However on those occasions when she became excited or endeavoured to run or move beyond her capacity she would often tumble as her limbs were still clearly very weak.

Layla now

On day 24, once she was demonstrating confidence in walking, we allowed Layla along with her friend Keira, to rejoin the herd.

At the time of writing Layla has fully regained her balance and will 'run' with the herd, however it would seem that her showing career has come to an end, for she now walks with an imperceptive but unusual gait. ■

If this, or something like this, happens to you:

- Keep your alpaca comfortable, quiet and relaxed
- Introduce a quiet mate to feed with him/her and keep your animal company
- Confine your animal to a small area to monitor food/fluid intake and bodily functions and minimise his/her movement.
- Maintain physiotherapy and
- DON'T GIVE UP!!

Notes

1 Reiki is a non-invasive, gentle, yet powerful method of healing. Reiki energy, (described as 'universal life energy' or 'spiritual energy') which is accessed by the practitioner during a treatment, enhances the body's natural healing ability and promotes wellbeing. *(Reiki Australia)*

> Corticosteroid & NSAID (Anti-inflammatory drugs)

There are two different types of anti-inflammatory drugs available; Corticosteroid and NSAID (Non Steroid Anti-inflammatory Drugs). Their value to human and veterinary medicine is profound, however prolonged use of either of these types of drugs can carry certain risks which includes predisposing the patient to gastric ulceration, amongst other side effects. With alpaca's known propensity for gastric ulceration, anti-inflammatory drugs should be used judiciously.

The Commercial Viability of Alpaca Fleece Production Explained

FLEECE ARTICLE by **Matt McAninly**, Fleece Division Manager > Australian Alpaca Fleece Ltd., VIC

There is often a big difference between a good quality alpaca and a good fleece. Many animals have a high value because of their use in breeding programs or their future genetic potential however these animals may in some cases produce a fleece that is worth very little.

There are many reasons why this is the case:

> it could be that the animal is older and now only produces a very short fleece;

> the fleece is from a pregnant female that has put all her energy into producing a cria and because of this the fleece is very short;

> it could be that the fleece has become quite coarse as the animal has aged;

> it is a suri show animal and the fleece has been allowed to grow for more than 12 months and is now overgrown;

> or the fleece could have excessive broad guard hair present.

Other reasons for a fleece not reaching its maximum possible value may be due to how the animal was managed over the fleece growth period. The most common issue here is the presence of significant vegetable matter (VM), the term used to describe contamination by grasses and seeds. Over the past few years, with much of Australia in drought, we have seen an increase in the number of good fleeces downgraded due to excessive VM. Unfortunately many of these have been the better, finer fleeces and cria fleece because these tend to pick up the most VM. This reduces a potentially high value fleece to a much lower value grade.

The reason why there is such a difference between main fleece grades and the VM grade is that in order to remove VM the fibre has to be put through an extra process called combing. This is not only an extra cost to the manufacturer but it also results in a loss of fibre as, when the VM is removed it also takes with it bits of fibre.

A regular comment from growers is that they felt they did not receive enough money for their fleece or that what they got barely covered the cost of shearing. It's important for all growers to be aware that the world price of alpaca fibre, like all products traded internationally, continually fluctuates.

Moreover, AAFL's downstream customers will not pay more for Australian fleece than they can buy it for from elsewhere, and there is a ready supply of fleece of nearly all grades available, especially from Peru. This leaves no option for AAFL except to offer fleece prices close to or slightly above prevailing world prices.

However, availability of the highest quality fleece grades is quite limited internationally, and thus there are clear opportunities for high prices to be paid for these over the longer term.

Currently, in most cases, alpacas are not commercially viable on fleece production alone due to the limited selective breeding that has occurred. Low fleece weights, large variations in micron within one fleece, high level of guard/medulated fibre and micron blow out from year to year are the main reasons for this.

Also, with the average number of alpacas owned per breeder at around 12 it cannot be expected that every grower will achieve a viable income from fleece production alone – ***you only have to look at other livestock industries and more specifically the wool industry to see that a grower must be running many thousands of animals to make a living, otherwise the cost of production is greater than the returns.***

There are however many positive examples to look upon as we go forward. Other fibre industries have also started from a similar base.

For example, the original Merino sheep brought into Australia were much different to the sheep of today. Now, an average 18 micron Merino would produce between 4 and 5 kg of wool annually and a 23 micron Merino would produce 7-8kg of wool with some producing up to 12kg. ➤

Importantly in all of these cases only 10-15% of the wool would be considered outsorts or lower value fibre (skirtings and bellies).

Merinos have also been bred to suit every environment in Australia from the harsh, dry outback to high rainfall areas of Southern Australia, each adapted to suit its particular environment.

It would appear that alpacas must reach similar levels also to become commercially viable, always keeping in mind however that we do not want the negative issues that the wool industry has faced, namely the need for mulesing.

Although much more improvement is needed we have seen in just two decades remarkably impressive improvement in the quality of Australian alpaca fibre produced. In the last three years alone AAFL has received an increase of around 290% in the amount of the top H1 grade from growers, an increase of 117% of H2 grade and actually a decrease in the lower quality H4 grade of about 8%. These figures alone show that real advancement can be made in short periods of time especially where advantage is taken of programs involving careful recording and measurement of progress such as embryo transplant and AGE for example.

The Australian alpaca industry, which currently produces approximately 120,000kg of fleece per year, is still in its relative infancy compared to the Australian wool industry which for the 2006/2007 year produced over 400 million kilograms (interestingly this still only makes up around 2% of the world textile production).

Because of these volumes the wool industry is able to utilise just about all the wool that is produced.

The biggest problem for the alpaca fleece industry currently is that it doesn't have enough volume and it can be very hard to attract potential customers when volumes are low, especially in the lower grades of fibre.

An example of this is the H9 MXD PK grade which has very limited use due to the fibre being short, mixed for colour, generally quite coarse (containing a large percentage of medulated fibre) and, as we only have relatively small quantities of it, it is not an attractive proposition for potential manufacturers.

Another problem of low volumes is the impact on fleece processing costs.

Fleece scouring is a critical issue as all fibre must be scoured before it can be further processed. At present, AAFL only has access to small scale scouring (washing) plants such as the CSIRO in Geelong (now planned to close in 2009) and AgResearch in New Zealand. Both of these have a daily throughput of around 600-800kg. On the other hand a commercial wool scour can process 20-30,000kg a day. But for even these commercial scours to remain viable in today's world they need to be running almost 24 hours a day, 7 days a week, as any down-time for repairs or cleaning in preparation for a new batch is very costly.

These huge throughput requirements mean that we are unable to have alpaca fleece treated in a fully commercial scour because our annual production is less than a week's work for them. There are also potential risks of coloured fibre and medullated fibre contamination during processing. These are very serious issues in the wool industry and have been virtually eliminated so alpaca, as well as other rare fibres, poses a real contamination threat in both of these areas.

For manufacturers to produce good quality products regardless of the specific product it is critical that they receive fibre that is even and consistent for not only micron but also length and colour.

All fibre processing machinery has been set to handle fibre within a range – this range depends on the type of product being made, the higher the quality product the tighter the range. Fibre that does not fit within this range, especially fibre of varying length, can cause major problems. If there are fibres that are longer than the set range there can be problems of tangling around machinery and if the fibre is shorter than the set range the manufacturer will have a high loss as these short fibres fall through the machinery and are unable to be processed.

Because the opportunities to process natural fibres in Australia are steadily reducing each year AAFL felt it needed to be prepared for the future as the volumes of fleece increase and our markets become established.

A critical issue has been the need to process raw Australian fleece in Peru because of likely lack of local capability. However, until recently Peruvian government authorities would not allow alpaca fleece from Australia into Peru. After much lobbying with the help of Austrade and the Australian quarantine authority AQIS, AAFL has recently been granted approval to send greasy (un-scoured) alpaca to Peru. This is a major industry breakthrough, as we are now able to have Australian alpaca fleece processed by people with the world's greatest experience in processing alpaca and with processing plants that are dedicated to handling this unique material.

Overall, AAFL believes it is critical to the future of our industry for our best quality fleece to be made into garments of the highest possible standard. Our vision is to aim toward top end markets directly competing with the best cashmere and other rare natural fibre products – the optimum path for growers to receive a premium for their fleece production in the longer term.

It's important for all growers entering or involved in Australian alpacas today to understand that this industry is still very much in its infancy. We are dealing with an animal that has seen little selective breeding for positive traits prior to the last 20 years. The long-term successful development of the Australian industry requires individual breeders to establish the level they wish to fit into the overall industry.

Some breeders see themselves as top level stud stock producers; others may see their future in running large numbers of commercial stock. Many are primarily interested in the competitive and friendly social aspects of showing and judging. Then there are breeders who wish to own alpacas as pets or for producing their own handcrafts. There is of course a legitimate place in the industry for all of these, but the first two breeder groups rely entirely on the establishment of a viable commercial fibre industry, while the existence of a growing market for fleece fundamentally underpins stud alpaca values.

A fleece industry can only succeed if a high proportion of fibre production finds its way as quickly as practicable into the processing system. This in turn will enable markets to be built up in preparation for the foreseeable future when Australia is home to over 1 million alpacas producing 3-4 million kilograms of fibre annually.

AAFL, commercial processors and most growers all have a common aim: to establish an industry with a viable long-term future. There is no doubt about the potential bright future for the alpaca industry in Australia, because of the continually increasing customer demand for environmentally friendly natural products. There is a growing international belief that Australia leads the world in animal genetic breeding advancement. We all need to promote and back this belief to ensure it becomes a reality. ■

Condoms for Crias... Dealing with Bladder Obstruction

ANIMAL HEALTH AND WELFARE ARTICLE by **Nancy Carr**, M.D.

For a few weeks after birth, Toby seemed fine, he gained weight and was a great little runner... but all was not well...

Toby was born uneventfully on 7 June last year. I dipped his umbilical cord in Hibitane [1]; he stood within an hour and was nursing soon after. While watching him a few hours later, I saw clear liquid dripping from his umbilical cord. This meant he had a patent (open) urachus (the urachus is the tube that goes from the bladder out through the umbilical cord; it usually closes off before or at birth). I dipped the cord for at least a minute in some 7% iodine, hoping that strength of iodine was enough of an irritant to close off the urachus. I didn't see any more dripping and used iodine on the cord that evening and the next morning; the cord seemed fine. He gained weight well from his birth weight of 22 pounds – up to 28.5 pounds on 15 June – and was a great little runner.

On 19 June, during my before-bedtime check of the alpacas, I noticed Toby standing at the poo pile for a very prolonged length of time with no urine or faeces coming out. I had not seen any problems with urinating or defecating before this. Not knowing if it was bladder or bowel that was not working properly now, I gave him a small enema of warm soapy water, with no results. I used a thermometer to see if there was anything in his rectum. It was empty. So I decided he must have a bladder obstruction, and also decided that no vet would do anything about it at such a late hour. I read up on bladder obstructions and waited for the morning.

The next day Toby was still spending most of his time standing and straining with no urine coming out. The vet came; his portable ultrasound confirmed a large distended bladder. Unfortunately, it is impossible to catheterize a male alpaca. I had attended a lecture by Dr David Anderson in which he discussed bladder obstruction in adult male alpacas, usually caused by stones. (Note that in humans, 'stones' usually refers to kidney stones and the pain they cause as they travel in the ureter from the kidney to the bladder. Stones causing bladder obstruction in animals are in the urethra, between the bladder and the 'outside'.) Dr Anderson had said that if the pain, inflammation and swelling were settled down by draining the bladder with a catheter put through the abdominal wall, the stone might pass on its own, and the obstruction would be resolved.

The vet and I both assumed Toby had stones, although this would be odd in such a young alpaca. The vet suggested the typical operation for steers or small ruminants with a bladder obstruction – make an incision in the perineum (the rear end near the anus) and bring the urethra out shortly after its exit from the bladder to drain the bladder that way permanently. This means the male will never be a breeder; also I had read of a 50% complication rate. I opted for the operation of the catheter through the abdominal wall.

My husband, Paul was away on business, so I phoned up Paul Moorby who works on our farm several mornings a week, and asked if he could come in his van and take Toby and me to the vet clinic for surgery. I would phone him when the surgery was over and he could come to take us home. While Toby was being shaved for surgery, I noted that his umbilical stump was a leathery consistency, instead of being really dry and brittle. Toby came through the surgery fine. He had had an abdominal incision in order to visualize the bladder; the catheter from the bladder exited the abdominal wall through another incision and was then sutured to the abdominal wall in several spots to hold it in place. (The inflated bulb around the tip of the catheter inside the bladder would also help to keep it in place).

In a person, the end of the catheter would be connected to a tube that would go to a bag, but this was not an option with a farm animal. An open-ended catheter sounded like a sure way to get an infection. One of the vets suggested using a condom – securing it around the catheter with an elastic band, and then cutting a small hole in the end of the condom for urine to drain out; the condom would keep the catheter clean. I then had to phone up Paul Moorby and tell him Toby and I were ready to be picked up; but could he stop at the drug store on the way to the vet clinic and pick up some condoms! Paul likes to add that I said we'd need at least a dozen; and that we discussed there was no need for the flavoured ones and definitely not the lubricated ones. My husband, Paul is eternally grateful that he was away and wasn't the one stuck with condom shopping.

Toby was prescribed the antibiotic, Septra [2]; he was put on his back every day and had his condom changed, and starting on 22 June I irrigated his catheter twice a day with a solution of sterile saline, gentamycin (an antibiotic) and a small amount of vinegar (the acidity would discourage bacterial growth). At the end of each irrigation session, I left some solution in the bladder, and clamped the catheter

Toby was a happy, healthy cria on the day he was born.

Toby about three weeks after surgery - you can see the shaved area on his abdomen.

After shearing this year, I could not find the scars on his abdomen through the stubble of his fleece.

for an hour to encourage urine to come out the penis. By 26 June there was urine dripping from the penis, and by the next day there was an actual stream of urine.

That evening, while I was flushing the catheter, a big stream of irrigation solution came out the penis and almost hit me in the eye. It seemed the theory that relieving the inflammation and swelling would resolve the obstruction was true.

Even though the catheter was draining fine, and now he was urinating too, Toby spent a lot of time in the 'pee stance,' sometimes for an hour at a time. The vet and I both assumed it was from the catheter, with its inflated bulb, irritating his little bladder. Then, on the 28 June, I could see a few drops of urine coming out of the umbilical stump while he was straining. This meant the urachus was still patent.

I switched antibiotics to Excenel [3] and put silver nitrate on the cord to cauterize it. I worried that the urachus would never close over while he was spending so much time straining to pee and discussed with the vet on 30 June about removing the catheter. He said to leave it in longer, but when I went back out after the phone call, the decision had been made for me – the catheter had come out on its own. Now Toby was passing urine through his penis, his umbilical stump, and the hole in his abdomen where the catheter had been. The natural history of a hole where a catheter has been is that it closes over on its own, usually with no complications. Toby was put on his back twice a day to have the dressing over the hole changed and his cord treated.

Despite having no catheter irritating his bladder, and being able to urinate, he still spent a lot of time in the 'pee stance.' Finally, I decided Toby must still have a bladder infection, despite being on antibiotics, and it was the inflamed bladder that gave him the sensation that he had to urinate. I realized he never had had stones – the obstructed bladder had been from inflammation and swelling from a bladder infection that in turn had been from a patent urachus that had allowed bacteria in. This all made sense, and was the explanation for the leathery umbilical stump noted at the time of surgery – the urachus had never completely closed.

I switched his antibiotic to Baytril [4] on 1 July and the improvement was remarkable. By 3 July there were hardly any times in the prolonged 'pee stance', and by 4 July urination was normal. He would urinate and then walk away. The umbilical stump dried up by 7 July and the hole in his abdomen was dry and healed by 9 July.

After the catheter had fallen out I was wishing there was some way of encouraging him to drink water – i.e. the 'pushing fluids' you would tell a human to do if you wanted to help clear up or prevent a bladder infection. By some miracle, he started eating a lot of free-choice salt and minerals, and drinking water from the water tank – something I have seldom seen a cria that young do. The other interesting thing was that he was a great patient while he needed treatment. It was never a problem catching him for his various procedures and he was remarkably calm while lying on his back having things done to his abdomen.

Once everything had healed I still wanted to look at his incisions and dab on a little antiseptic solution or antibiotic cream. Now he put up a lot of resistance. It seemed he was willing to have things done when they needed to be done, and now he was telling me he was fine, so quit meddling – and I did. Toby has been completely normal since this episode – normal urination, normal activity, and excellent weight gain. By 10 months of age, he weighed 105 pounds. At shearing this year I could not find the scars on his abdomen through the stubble of his dark fleece. Needless to say I keep a close eye now on all crias for any umbilical stumps that don't stay bone dry. ■

Notes

1 Hibitane – (trade name for the disinfectant, chlorhexidine)

2 Septra (trade name for the combination of the two drugs, trimethoprim and sulfamethozaxole)

3 Excenel (trade name for the drug, ceftiofur)

4 Baytril (trade name for the drug, enrofloxacin)

About the author: *Nancy Carr, M.D. has been raising alpacas since 1998 on her farm, Silver Cloud Alpacas (www.silvercloudalpacas.com), in eastern Ontario, Canada.*

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Breeding Advice that Takes the Cake

FLEECE ARTICLE compiled by **Jeffry Farman** > Flowerdale Estate Alpacas, VIC
Photography by **Greg Kelson**

I remember some years ago my wife won a cooking prize at an agricultural show for entering a lovely cake. At the time I thought there must be a few secrets to this success. The right ingredients, a good recipe, know-how attained from a mentor (perhaps her mother), consistent practice and a little flair.

And so it is with alpaca breeding.

Few of us are experts. The know-how was in short supply when these animals first came into the country, as complete strangers to our agricultural experience and practice, a little over 20 years ago. They weren't cattle and they weren't sheep. Breeders had to be prepared to learn about these fascinating animals and adopt new methods. Then there are few of us breeders who can say we have a farming background. So, again the know how was in short supply.

Good advice and help with our breeding programs are vital if we are to advance in a direction that continues to steer the genetic improvement in the desired direction of a sustainable alpaca future.

I have found it useful to compare the attributes required to win a show prize for cooking a cake to the skills required to achieve our alpaca breeding goals.

First, know what success is

A prize winning cake is probably one that stands above the rest for its taste and texture and of course the accolades of the judge. Most alpaca breeders want to breed alpaca that are continually improving their fleece quality and fibre productivity. That is if we want to be successful at setting a standard on the world market for superior Australian animals and fibre.

Buyers from the world market for alpaca fibre seek out greater softness, fineness and weight. That is what they want. Finer, softer fibre and more of it. Quite simple really.

So if that's what success is, how do we go about it?

It helps to have a goal

Have a picture in your mind's eye of the cake you want to finish up with. There's a good chance that if you can't see the completed cake you will finish up with something different. The same applies to an alpaca. Without an idea of what a superior alpaca will be like, we can say that there's little chance of breeding one. So carefully define the attributes you require and write them down. Let this be your recipe.

Carefully choose the inputs

To bake a lovely cake you need the best ingredients. To breed a superior animal that can provide softer, finer fibre from a heavy cutting fleece we need a form of measurement that identifies genetically superior stud stock so we have the best ingredients to begin with. A great deal has been written about the AGE and SRS® as two methods of benchmarking genetically superior breeding stock. So I will take it as read that many people will understand how these tools can identify elite animals. For those who wish to further pursue these technologies the AAA and SRS® Alpacas International websites have the details.

Once we have identified the ingredients for breeding a better alpaca we need to know how to pair these ingredients successfully for the desired result.

The benefits of mentoring

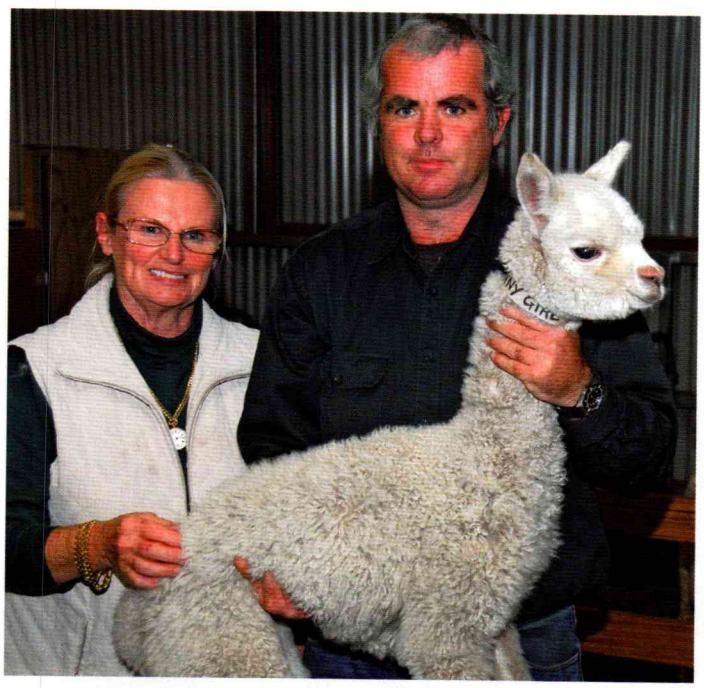
It is unlikely that one could expect to be a brilliant success as a champion cake maker without having the benefit of some guidance and mentoring. So, should we expect to make progress in our breeding programs without mentoring?

Particularly when, for most of us, the skill of breeding animals is a somewhat foreign area of expertise. Most new breeders are able to align themselves with an experienced breeder to act as a kind of mentor. However, that is not a particularly impartial way to proceed because the established breeder will probably want to sell matings to these customers, to his or her males. This may or may not be the best outcome for genetic advancement.

At the recent SRS® Alpaca Conference in Wagga, we heard of the experiences of a few breeders who were able to pass on their results of mentoring in their alpaca breeding programs. This is what Pat Bova, of Bova Alpacas had to say...

"Since buying my first alpaca in 1995 and concentrating on breeding white alpacas since 1999, I have always been disappointed with my results. Although producing super and ultra fine fleece they lacked density and length of fibre. After talking to Neil Parker, an SRS® Breeding Advisor, at the National in 2006 I joined the SRS® breeding program. Neil subsequently classed my herd of 120 alpacas and advised on the use of stud males recommended for use in an SRS® breeding program. This year my first drop of cria, after Neil's classing, has to be seen to be believed. These cria will need shearing by five months of age. Lustre, length and the density of the cria fleeces is beyond what I could have imagined possible in one generation. These great results I attribute to Jim Watts' scientific approach and to Neil Parker's great classing ability. These excellent results have been at less financial outlay than I have invested in various stud males in previous years".

Obviously Pat is only at the beginning of the journey towards meeting her goals. There's a long way to go on an exciting new pathway. However she is not alone. Pat has learned the value of having a breeding advisor to guide her future direction and decision making.



Pat Bova and Neil Parker with one of the first crop of cria following the SRS® assessment of her herd and the consequent breeding advice that resulted in a significant improvement in fleece length and density.

SRS® Alpaca Conference workshop, Wagga

Different breeder, similar experience

John and Julie Lawrie of Bonnie Vale Alpacas have been breeders since the early days. They also turned to SRS® for breeding advice. Here's what Julie had to say about her experience...

"After nearly 15 years we found as breeders that we had reached a plateau. No longer were we seeing an annual improvement in the fleece quality despite having used some of the acclaimed champion stud sires in Australia. However we had a herd of over 60 well conformed and genetically similar females. Both John and I felt we needed a scientific basis to progress our breeding further to reach a higher level of production of commercial fibre. After subscribing to the SRS® breeding system in 2005 and following the advice of Jim Watts we have used scientific measurement to acquire new stud sires and have matched our females accordingly rather than the previous ad hoc system.The results have been extremely pleasing and we are once again seeing a huge improvement in the progeny and their fleeces. SRS® has helped us set our goals, and with sound breeding advice and using scientific measurement, we are extremely confident in the future". ➤

John and Julie Lawrie are genuinely excited about the improvements they are seeing in their herd since tapping into the services of an SRS® Breeding Advisor.

The proof is in the pudding

Ian Braithwaite and Cathi McMullen at Patagonia Alpacas have been applying SRS® principles in their huacaya breeding program since 1997. Drawing on the knowledge gained from attending many seminars conducted by Dr Jim Watts, the founder of the SRS® breeding technique, Ian and Cathi have been able to refine their breeding objectives. They currently breed for:

1 Silky soft, deeply crimped fawn and white fleece that exhibits both superior length and density

2 Strong conformation and early maturity

3 Minimal 'micron blowout' when run on improved pastures.

Further selection criteria include matchstick size bundles, lustre, and loose and thin skins.

Alpacas have populations of primary and secondary follicles in their skin. The aim of the SRS® breeding system is to increase follicle density by increasing the number of secondary fibres while improving fibre length. This combination results in higher fleece weights at lower average micron. The ultimate aim is elimination of guard hair.

The progress that can be made by selecting for increased density and reduced primary fibre diameter can be seen in Table 1. The offspring shown below exhibits higher follicle density than either his sire or dam as well as a significant reduction in the average fibre diameter of primary and secondary follicles. Medullation rates have been reduced in primary fibres and there is zero medullation in the secondary fibres. Ian and Cathi say...

"this means that alpaca can be bred to compete with cashmere."

Independent breeding advice is desirable

SRS® Alpacas International Pty Ltd has certified five advisors under the guidance of Dr Jim Watts (above right). These advisors, including Neil Parker (mentioned earlier), have completed extensive training and field work and are currently available for classing and herd improvement advice in all states of Australia and New Zealand. None of these consultants are alpaca breeders. They have mostly gained their experience as wool classers or managers of large alpaca studs, such as Justin Weaver who managed Halcyon Alpacas for a number of years. Their advice is quite impartial.

These breeding advisors will be available for discussion at the SRS® trade stand at the National Show weekend in Canberra this month. There is also a considerable amount of useful information and advice on the SRS® Breeding Service on the website at *www.srsalpacas.com*

The benefits of sound advice won't make breeding "a piece of cake" but it will help to take you towards achieving your goals more quickly. ■

About the author: *Jeffry Farman is a principal of Flowerdale Estate Alpacas in central Victoria. He is also one of the founding subscribers to the SRS® Breeding Service and a director of SRS® Alpacas International Pty Ltd.*

	S/P	Follicle /mm²	Mean µ	SD µ	Min µ	Max µ	Medull-ation (%)	Growth mm/day	Fibre Extension ratio	Skin (mm)
Sire										
Primary follicles	9.9	53.8	32.3	6.2	24	56	100	0.41	1.38	1.98
Secondary follicles			21.6	2.9	16	32	6			
Dam										
Primary follicles	10.5	43.7	37.9	5.1	31	54	100	0.23	1.10	2.25
Secondary follicles			24.7	3.5	18	32	81			
Offspring										
Primary follicles	10.3	**69.8**	21.1	7.0	16	44	**27**	0.37	1.17	1.03
Secondary follicles			13.6	2.0	10	20	**0**			

Table 1: Skin tests reflecting progress through selection for density and length.

Alpacas in Spain... *ole!*

INDUSTRY ARTICLE by **Nigel and Ginny Cobb** > Alpacas de Andalucia, Spain

We succumbed to the alpaca bug in 2003 when we had some land in Somerset, in England. Alpacas ticked more boxes for us, rather than other farm animals, so we ventured to buy the best we could and ended up with five from Alpacas of Wessex, who in turn sourced some of the animals from their contacts in Australia.

However, our real journey started when we decided to move to Spain in 2005 and breed alpacas full time. We felt that the alpaca market in Spain was well behind that of the rest of Europe and could see no real reason why that should be so.

Lots of research, looking at houses, frequent trips and looking into the animal market convinced us that the best location for us was Andalucia in Southern Spain. So, in September 2005 we packed up the farm in the UK and moved it lock, stock and barrel (including mother-in-law) to Ronda, a wonderful mountain town. We bought a ruin, rented a house nearby and then proceeded to rebuild the ruin and tell the Spanish world about alpacas. "Sheep with long necks" was the most often heard phrase about these remarkable animals. But they did understand llamas, so that made the explanation slightly easier, as the Spanish word for a bale of hay is much the same as 'alpaca'. "Why are these people breeding bales of hay?"

We exhibited the alpacas at the local farm fair, the Ronda Feria in May 2006 and got a lot of publicity and interest. It wasn't long before four new breeders took the plunge and now have alpacas, with lots of interest from others.

Since our initial move into Spain we developed the farm, then sold it and have now bought a lovely house, *Las Piedras*, with sufficient land that we are gradually turning into a farm – another exciting project to keep us busy.

2008 Ronda Feria Alpaca Show

Our really big story has been the first ever alpaca competition to find the **Spanish Supreme Champion**. We formed the Spanish Alpaca Society (*www.seda.org.es*) and asked Dr Monyka Portocarrero, from Lima in Peru and Tim Hey from Inca Alpaca in the UK to come to judge this first show. They were delighted to do this and we were fortunate to have the support of all the owners in Spain for the Ronda Feria this last May.

Our vision of keeping to quality animals paid off as we won Supreme Champion with *Godswell Ella*, a lovely solid white 2-year old who was our first cria born here in Spain – very fitting that she should win.

Godswell Ella with Nigel and Ginny Cobb

As a *Rural Alianza Wiracocha* progeny, together with a plantel female, *Esther*, one should not be surprised. She has now produced a lovely male cria so she is a star in more ways than one. We also won best junior and senior alpacas, were runners up in all the age categories and won twelve 1sts, five 2nds and one 3rd place. Not bad!

We need now to go the next step and for that we need someone to invest in bringing in a larger number of good quality animals in various colours and ages. This will help to kick start the market here, so any breeder in Australia looking to expand and to help develop the market in Spain might consider this. There are no more than about 400 animals here, compared with 20,000 in the UK, 3,000 or so in Germany and 1,500 in France. So Spain is lagging well behind, but it needs someone who would share our vision and be prepared to relocate animals here. Are there entrepreneurs still in Australia? Make yourselves known!

For more information visit: *www.alpacasdeandalucia.com* ■

Shearing Cria

FLEECE ARTICLE by **Carolyn Austin** > Lillyfield Alpacas, NSW

The following is a pros and cons / do and don't approach to shearing cria from one breeder's experience spanning more than 12 years with alpacas. It is not a definitive nor complete list of all possibilities but it has been put together to help those new to alpaca to have a more stress-free shearing day.

As the time approaches those that have not had alpacas for long begin to ask if there are any special requirements when shearing cria and should they be shorn at all.

How old should a cria be before it is shorn?

We apply a rule of thumb here that if you are two weeks old you are old enough to be shorn. There are exceptions to this – if the cria is frail or has had a recent trauma we probably wouldn't bother.

What are the benefits of shearing cria (especially when the fleece is short)?

For those of us in the hotter, drier parts of the country shearing cria enables that sticky tip of the fleece to be removed, preventing contamination and hopefully increasing the value of the next shearing. It also reduces the possibility of heat stress, enabling the cria to be more comfortable and allowing the fleece to grow out better in the coming summer months. As well it enables the herd to have a consistent shearing date, qualifies those better animals for short fleece shows in the early part of the following year and prepares those even better cria to be at their optimum at National Show time.

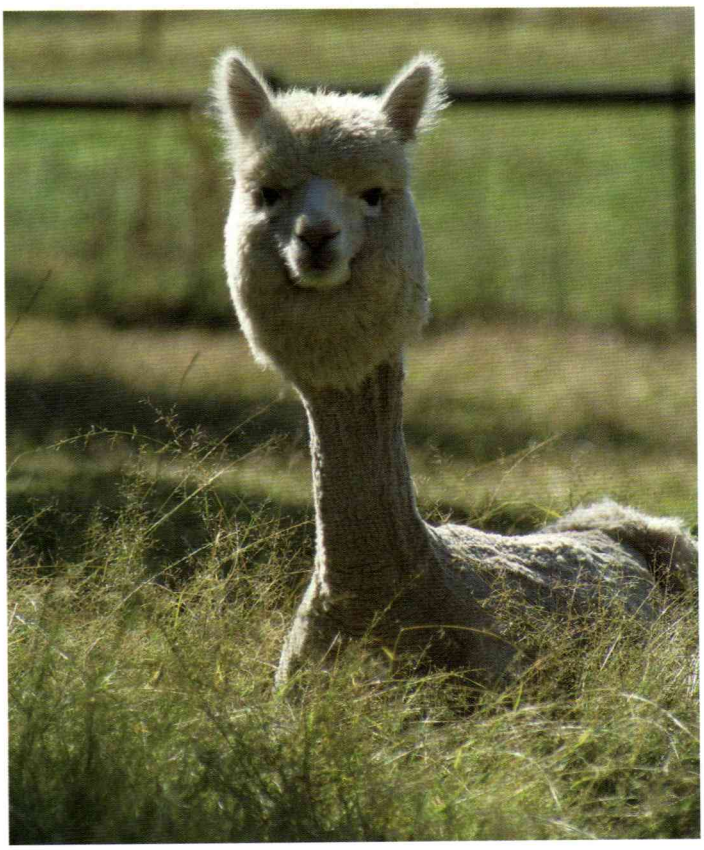
Hints on reducing cria shearing distress for alpaca and owners

- Try to shear mothers and crias together

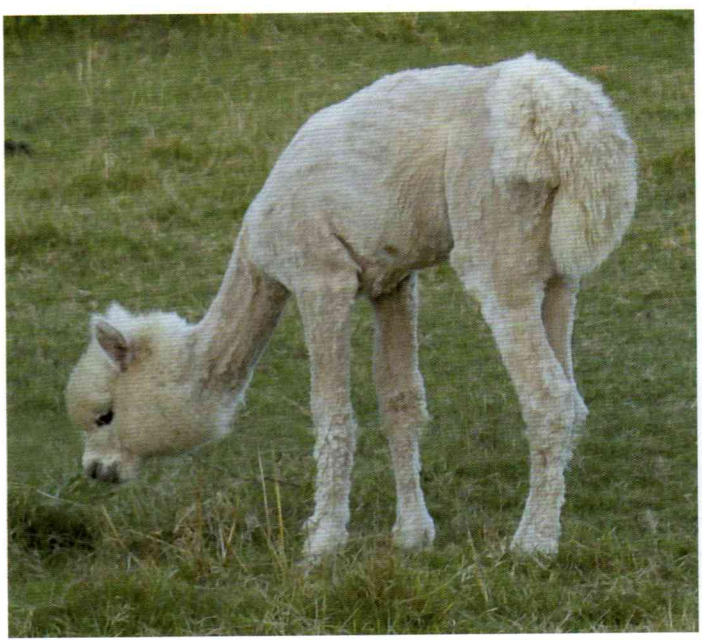
  Hopefully at the start of the day, before it is too hot or they have spent too much time waiting around. Shearing them early in the day also gives you plenty of time in daylight hours to make sure that mother and cria have re-bonded. Shearing their cria is quite disturbing for many dams; they need time to get re-acquainted before being run back out into a large paddock. We have experienced less mis-mothering if dam and cria are shorn together and put out of the shearing shed together.

- Do not shear the bonnets or tails of cria

  The dam smells her cria's bottom and recognises her cria's head by sight – she does this to make sure she has the right one before she will allow that cria to feed.



4 month-old cria shorn with the bonnet and tail intact

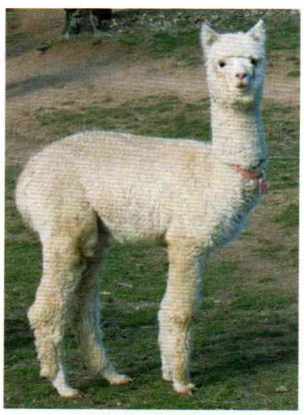


If we have obscured that perfect cria perfume with our smelly shearing oil then we have created the possibility of rejection by the mother.

The cria do look strange – slightly poodle-like, but possibly more akin to an Ewok or outer space creature – big head, big bottom and nothing in the middle. But believe me the body fleece will grow and over time you can reduce the head fleece to be more in line with the body without upsetting the dam.

- **If you have lots of cria, identify them**

It is useful to tag them with some kind of identifier prior to shearing, possibly a neck or ear tag.[1] It is particularly helpful when you have a number of cria that all look the same and you can't decide who is who. It is even more important when it is obvious that one is lost and you don't know who it belongs to.



- **If the weather turns bad what do I do?**

Shorn alpaca, particularly cria, are highly susceptible to stress from weather changes. Be prepared to do something about it. For the first few days make sure they have a sheltered paddock with lots of feed. If necessary and your numbers are small, shedding dams and crias for the first few nights is a good idea. If your numbers are larger the smaller/younger ones may benefit from a cria coat and the most important thing is to make sure they have re-bonded with their dam and have a warm, full belly.

- **What do I do if the dam won't let the cria feed?**

Although not as frequent as you might think, it does happen and particular females are more prone than others to rejecting their cria. The trick is to identify the issue as soon as possible, hence early morning shearing for nursing dams and crias is preferable. The pairs need to be confined to smaller areas. We have a set of sheltered working yards that can accommodate about ten pairs of animals – we put in feed, water and literally don't let them out till all is well.

Occasionally you may have to give a cria a bottle of formula, but not too much as they need to be hungry and the mother needs to be uncomfortable enough to let the cria back on. If you have more problem pairs than pens, start with the younger, more vulnerable animals first and gradually rotate the pairs through the pen or pens till all are happily back with mum.

So, be prepared for bad weather and fussy mothers and seeing your lovely little crias look decidedly silly, but it's all for the best. ■

1 Refer *Alpacas Australia* magazine (2008) issue 55, p 26

Establishing or Improving: Finding the Information

INDUSTRY ARTICLE by **Alistair Smedley** > Robinwood Alpacas, NSW

Just over four years ago we moved from Sydney to a property on the Mid North Coast. We had no idea what we were going to do with our run down twenty five acres, only that we did not want to be in the city. That first weekend we saw a story in the local paper about alpacas. We decided almost immediately that was our answer and arranged a visit. By a strange coincidence the article was about Michael and Lesley Langer of Touchdowns Alpacas; the only property we can see from our house. At this point we needed more information...

Advice

Our first source was Michael and Lesley Langer. They spent considerable time providing us with invaluable help on setting up our new property to run alpacas. The process of establishing a business for us was:

> Register Robinwood Alpacas as a business name

> Register for G.S.T.

> Write a business plan

> Rewrite the business plan several times

> Apply to the Australian Tax Office for a Private Ruling

In addition they gave us several important contacts such as an accountant experienced in agricultural issues, the ATO, other alpaca breeders and a good vet.

Part of the process of writing the business plan is to decide where you want to be in three to five years time. Our first six animals were a mix of huacaya and suri but we have now decided to specialise in coloured suri. Had we made that decision earlier our breeding program would be further advanced. However the experience of owning both has been of great value. The sooner you can make the decision to focus on a particular sector (if that is what you want to do) the better. But it is important that you have enough information first.

Once the business was established and we had taken delivery of our first animals the next stage was to learn about farming. By farm standards our property is little more than a big back yard but the Department of Primary Industries and Landcare were more than happy to help and have been instrumental in our progress.

Prograze at Robinwood Alpacas, with Sanchavel and Lilydale Alpacas also present.

The DPI run a series of one day workshops called Prograze. Although aimed at cattle and sheep production, they provide education on the fundamentals of farming; soil, pasture and livestock management. It also provides an opportunity to visit local farms to see first-hand how their systems are working and how they may be improved.

A visit from the DPI's extension agronomist is a great way to get free professional advice about your own property.

Cash Flow

As Robinwood Alpacas was now a business we needed to make sure we didn't run out of money.

With help from our 'sources of information' we took a number of steps to improve our cash flow:

> Set up a Business Account. Ours is with a Credit Union because the fees are lower and we find the staff easier to deal with.

- Opened a trade account with an Agricultural Supplier. This means only one credit card payment a month for feed, medicines, equipment and chemicals. It also provides a certain amount of interest free credit which is particularly useful when purchasing expensive items like fencing.
- A vet that gives a discount for prompt payment.
- More recently a Local Area Network has been established for Northern NSW. We have been able to bulk buy items like lucerne and tick collars at considerable savings.

However, the greatest benefit for us has been the reduction in tax.

We applied for a Private Ruling for a Commissioner's Discretion allowing us to offset on-farm losses against off-farm income. This is not for everyone as it largely depends on personal circumstances and your willingness to do a lot of paperwork and negotiate with the ATO. It may be possible to claim this relief without a Commissioner's Discretion, please check with your accountant or tax adviser.

It took us four rewrites of the business plan before we were successful. The timing is very important, so expert guidance should be taken before making your application. If you already have alpacas on your property you may only get one chance to get it right.

Moving Forward

As the effects of climate change appear to be becoming a reality, sustainable farming will play a more significant role in the future.

Optimum use of rainfall, reduction of erosion, improvement of soil structure and protection of waterways are all important aspects of protecting and improving ecosystems. They also form the basis of good farm practice.

For anyone intending to follow this philosophy there is lots of information and even grants available to help. We were lucky enough to receive a Voluntary Stream Care grant which assisted us in erecting over 600m of fencing to protect a creek and remnant rainforest, installing a water tank to supply troughs and plant 400 native trees.

More recently we have received a grant from our NRCMA (Northern Rivers Catchment Management Authority) and Landcare to continue this work. This grant was only available to people who had completed one of the DPI courses (in our case, Prograze). We are now able to further protect the rainforest gully and divide up an area to facilitate different management of native and introduced pasture. The paperwork for the second grant had to be completed quickly as there was a very short application period. We were only in a position to do this because the plans and estimates had already been prepared as part of a farm management plan.

The fencing we have done has not only protected the creek and forest but also created four new paddocks and a series of laneways. The construction of the laneways has provided double fencing around the property which has improved our biosecurity. One person can now move animals on their own and the extra paddocks allow much more efficient use of the pasture.

This was all work we intended to do but the grants are a most welcome bonus. The grants will often require the recipient to match the amount with cash or payment in kind, through use of your time and equipment.

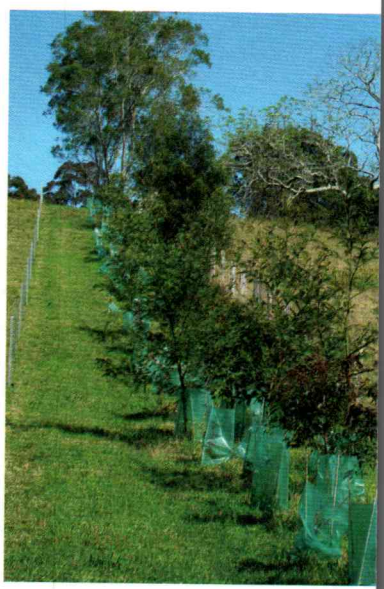
Sources of grants are many and varied depending on your plans and location. Firstly, join your local Landcare group. Not only will you meet like-minded people but there is a constant source of information available. Newsletters, field days, workshops and courses are all available to members as well as constant updates on the availability of grants. The helpful staff will even guide you through them!

Some of the organisations that provide information and grants from time to time are:

- Local Catchment Management Authorities (in your state) for example: *www.cma.nsw.gov.au*
- Local Landcare groups (in your state) for example: *www.landcarensw.org*
- Water Smart Australia *www.nwc.gov.au*
- Dept. of Agriculture Fisheries & Forestry *www.farmbis.gov.au*
- Dept. of Primary Industries (in your state) for example: *www.dpi.nsw.gov.au*

Robinwood Alpacas now has 26 animals with five cria due in the next few months. Our focus is to produce quality coloured suri in a sustainable environment. We have only been able to get to this point with the help and guidance of breeders and other professionals. We are looking forward to growing the business and continuing the learning process. ■

My Dad on holiday from the UK planting one of the 400 trees



Trees one year on

What's it's Name?

INDUSTRY ARTICLE by **Rudy Balde** > Jannarie Alpacas, VIC

Before you read any further please understand that now that my wife, Di no longer works full time, this bloke gives her every opportunity to enjoy all aspects of our alpacas, as I have done full time Monday to Friday, and I stand back at every event. Also, we hobby farmers don't have it bred into us to be totally practical.

So when a newborn came along, emotions took over from our otherwise logical brains to find a name. We paused our brain momentarily to do all the necessary checks whilst our inner urges raced to be first with an extraordinarily clever name for this little guy. Oops, this time it was a girl! Forgot to bring my glasses, you see.

Over the years we have adopted a system to name the offspring in such a way that we can identify the parents without having to race inside and check the records. Also, over the years, I have learnt that rather than waste that energy, all I have to do is ask my wife next to me... family trees are, after all, indelibly imprinted in the human female brain.

So, whilst Di was lifting the dam's tail to check the integrity of the exit point, I'm quietly thinking of an outstandingly astute name. Not that I'm not observing animal welfare as a priority; I can multi-task, you see!

... Mum's name was Jannarie ROMA
... Dad's name was Jannarie ELI
... Roma's mum's name was Jannarie RUBY
... Instantly *RUBELLA* falls out of my mouth. How clever is that! Without drawing breath, the words "NO WAY" echo across the valley.

"No need to shout dear, I am only three feet away", says I.

I speedily extract my size 11 from my mouth as I attentively suggest the iodine spray is at the ready. The glare subsides.

Now, this little tacker... wrong again, this sweet, cute wonder of Nature is already cushing. Ten minutes later it is on its feet, 15 minutes later it's off exploring. Before an hour has expired I'm off down the paddock to retrieve the little @#*%, correction, the sweet and cute wonder of Nature. As I traipse up the hill with nameless cutie in my arms, I wonder why it is that I run faster than Di. She knows, but I don't ask.

Still a name eludes us. ***Cathy Freeman*** comes to mind, as does ***Rebel***. ***Carl Lewis*** would be appropriate if it were a boy, as we've just done 100 metres.

At last little madam decides to go looking for a drink. Yes, ***Busy Lizzie*** succumbed to the basic requirement of nourishment. Despite the little, sweet and cute wonder hitting the ground running and exploring an area of 2,000 square metres, mum stayed glued to the birthing spot. A good feed of rye clover hay helped of course.

Off we go again! This time ***Rocket*** discovers that I've closed a gate, thus restricting her to a mere 400 square metres. Good move that one!

Mum decides it's time to expel the afterbirth and little cutie comes up for another go at having a drink. All of this on the coldest April day ever recorded. This, folks, ain't no ordinary alpaca. This is one 'tuff chick'!

Back up to the house we go to have a coffee. We try to spot ***Tuffy*** from the lounge room window. There she is inside a disused concrete water trough.

Only had to jump 18 inches... nothing to it!

Di went down to take a photo and got a happy snap just in time, when ***Steeple-chaser*** decided to jump out, this time landing rather awkwardly. Nothing to that either! Stand yourself up, dust yourself down and start all over again is the obvious philosophy on life.

Only two hours have passed and the task of naming ***Sticky-beaky*** will have to go on hold for some time. We'll see what adventures ***Harrison Ford*** will bring us tomorrow. All these boy names... must remember AGAIN, it's a girl. Meanwhile we'll contact the authors of alpaca birthing books to write an addendum. The phrase "up-to 4 hours" is redundant up here in the Dandenong Ranges. ■

A Very Bad Day

Uterine Torsion, Dystocia and Prolapse *All in One Pregnancy*

ANIMAL HEALTH AND WELFARE ARTICLE by **Mary Blowers** > Aussie Hill Alpacas, Inc., New York, USA

As I write this, less than forty-eight hours have passed since the improbable happened on our farm. As I have had time to sleep and to clear my mind and reflect on what has transpired, I felt the need to share our story with fellow breeders in the hope that if you are ever faced with any of these incidents, you will be able to remember hearing our story and glean from it.

We had a female due to have her second cria in January. She had no problems with her first cria so we certainly weren't expecting anything different. In the middle of December we noticed that she was at times uncomfortable and seemed slightly colicky. We mentioned it to the vet when he was here, but of course the female acted perfectly normally while he examined her. He said she seemed fine, that possibly the cria was pressing on something to make her uncomfortable at times and that it was probably nothing to worry about but to continue to monitor her closely. She showed this behavior several times a week but then would seem fine in between bouts.

One week before she went into labor (on a Sunday of course), she was very uncomfortable and rolling so I put on the OB gloves, sterilized, lubed up and went in to discover what I thought was a uterine torsion. I felt almost like my arm corkscrewed as I went in and then I felt twisting of tissues on the top of the uterus and a twist on the bottom also. The vet came out that day and verified that it was indeed a uterine torsion. We are assuming that the torsion had been there for those several weeks she showed discomfort but it got to the point that it was damaging the uterus and she showed continual discomfort. Our vet un-torsed her easily by having my husband and I roll her slowly clockwise while the vet held the cria in place externally. Whew! We thought our problems were over. We took a deep breath and felt an overwhelming sense of relief since we had had another uterine torsion in our first year of business with a different outcome, with the mom dying a week after an emergency c-section.

The next day she showed the same symptoms so I donned the gloves and went in again. I didn't feel a torsion but felt that the cria was mal-positioned. I called the vet to give him my thoughts after examining her and he felt he should come right over based on my report. The vet came out on an emergency call again and did an internal examination and said no, she was not torsed again. His thoughts were that she was just sore from the previous day's events. She settled down the next couple of days but was very swollen and stretched the whole week.

The following Saturday morning she appeared to be in labor, we thought that we were in store for a regular delivery. I layered on the barn clothes so that I could watch her closely. After a couple of hours of really struggling, I knew something was wrong so I gloved up and went in again to find a mal-positioned cria just like I had thought I felt the week before. We had a head back position, which can only be solved by a vet or someone who has had a lot of dystocia and correction experience. What I felt was two legs but no head. I could tell it wasn't breach so I deduced it was a head back position. While checking the cria's position, there was a tear so the dam started to bleed. I called the vet right away and asked him to hurry because of the bleeding.

An hour later while I paced like an expectant first-time dad, the vet arrived and verified we had a head back positioned cria. He got the cria out but it took more effort than I was comfortable with. We have an excellent group of veterinarians that we have complete faith in so I relaxed a bit. He got the cria out – a beautiful female (our much anticipated first female out of our herdsire, Smokey). I worked on the cria, doing the normal stuff and getting her dried while the vet worked on the dam to correct the heavy bleeding. She had torn several more times in the retrieval of the cria. The vet mentioned to us that he tried to pull the placenta out while he was in there. Needless to say, it didn't come out so we started her on Oxytocin to help contractions to aid in getting the placenta to come out. In retrospect, I wish we had not done the Oxytocin because she passed the placenta within an hour and yet kept having contractions. With the bleeding stopped, we thought again our problems were over and took another deep breath to try to shake it off. ➤

We started milking the dam to get colostrum into the cria, since the dam wasn't able to feed the cria yet. Thankfully I managed over the next 12 hours to get over 100ccs of colostrum into the cria.

Within two hours of the vet leaving, I noticed the dam down while viewing her from the camera in the house. I ran to the barn and discovered her uterus had prolapsed. I knew we had a major problem. I immediately called the emergency vet and upon telling him that we had a prolapse, he said, "Oh no," and that he would be there in an hour. After his comments, I knew it was a big problem so while I was waiting I got onto the internet to find out all I could about uterine prolapse in alpacas. There was not much to learn, unfortunately. The only article I found said that they had had success so I wasn't overly concerned at that point.

I now know that a uterine prolapse is extremely rare in alpacas and sometimes correctable. While waiting for the vet, we went to the barn with warm water and Nolvasan and cleaned off the uterus and wrapped it in a plastic bag to keep it clean and moist. My husband and I did this several times since every time she tried to get up we had to re-clean and cover it again. We tried to keep her down until the vet came. It was an hour that felt like 10 hours.

When the vet on call arrived here at 9.30pm, he told us that he had never handled a uterine prolapse in an alpaca but had done hundreds in cows. He talked to our regular vet on the phone during his drive here who told him that he had only done one prolapse before and after pushing it back in four times, he sent the animal to Cornell.[1] Cornell couldn't get the uterus to stay in so they amputated the uterus and unfortunately she then died anyway. He told us all this before we even started, so our confidence was pretty much depleted at this point, but we decided that taking her to Cornell wasn't really an option either.

We tried four times to get the uterus and horns back in their proper position but every time it would just pop back out. At one point we filled the uterus with fluid to weigh it down and help in getting the horns back in place. It is important that the uterus be totally everted to stay. The vet wanted to give up and euthanize her but I said no, I am not willing to give up yet. I said, "Let's get creative and figure this out (damn it!)." We got it back in and sedated her, and then stitched her up hoping that while she was sedated, the uterus would shrink in size and stay in with the help of the stitches. This took a couple of hours. The vet packed up and left and wished us luck but seeing the expression on his face, we knew our chances were slim.

My husband, Terry and I took shifts, mine from 11pm to 3am. During the whole time the mom kept contracting and each time the uterus would squeeze out of the small openings some and then retract again. By 2.45am I knew it was futile, so I came in and told Terry I was going to lie down while he watched and that if it blew out to call the vet ASAP and put her down. At 5.30 Sunday morning, that is exactly what happened. We gave it all we had but there was no hope. After the tears, we pressed on with dealing with an orphan and burying the dam.

With this one, everything that could have gone wrong did. We now have an orphan to feed every few hours, which is partly fun but will tie us down because we are a small operation with no employees.

The reason I share this with you is so you can watch for any of the possible signs in your females' pregnancies.

Here are some 'take aways' for others to learn from our tragedy:

1. **If you see colic in any girl in the last two months of pregnancy, have your vet check early for a torsion.** Most of the books say that the mom will be rolling violently. We have found this not to be true. She rolled back and forth but not so much that we thought she had a torsion (we all know how stoic alpacas can be). The first one we had did not either. I now know how to tell a torsion by feel and between me going in to check and the vet, someone had their arms up her over 10 times in the last week and her muscles were so weak that it played a part in her uterine prolapse.

   Lesson learned: Don't go internally too often because of the damage that can result.

2. **If you haven't taken a neonatal class yet, find one and do it.** Eventually you will have delivery problems. You can only learn what to do by attending a neo-natal wet lab or lots of experience. I am so thankful that I had taken a neonatal clinic at Ohio State and knew what I had and what to do. I was able to diagnose it but knew that it wasn't something I could fix myself, and we were extremely fortunate to have our vet available to right the cria's position and deliver her alive.

3. **If you are having any questions during a delivery and your vet cannot come right away, call someone you know who has had a lot of experience.** Call me if you would like. We have certainly had our share of learning experiences at Aussie Hill. When in doubt, always call the vet, don't wait. I always feel bad about calling them on weekends and holidays, but as my vet told me, "That is what we do."

4. **I have learned since this experience that pulling on the placenta could cause a uterine prolapse.** Please make sure your vets know this, do not assume that they do. Alpacas are different and they can easily prolapse if you pull on the placenta. Our female prolapsed because of the whole week's events and the muscular system was simply too weak after so much happening.

5. **If your dam hasn't delivered within 1 hour of definite labor, call the vet.** They normally will deliver a cria within 20 minutes of starting stage 2 labor. It is probably mal-positioned if it is taking longer. There is a fine line between calling the vet too often or too soon and waiting too long. Unfortunately only numerous experiences and time can make each of us better at this. Again, call on me or someone else that has a lot of experience to ask questions. Don't try to guess at it if you haven't experienced it before. Waiting too long can kill the dam and cria.

6. **Always carry sufficient quantity of colostrum powder and milk formula to last three days.** This will give you time to obtain more if required. If you don't keep plasma in your freezer, know where you can get some quickly. Some breeders will have plasma spun from their own animals and will store it at home or with their vet. It will keep in the freezer for up to 18 months. The value in having your own animals donate blood (usually a healthy wether) to be spun for plasma is that the animals have been exposed to infectious agents on your property and have therefore developed immunity. Failing that, your vet can obtain Camelplas®, however this can be an expensive exercise.

   Feeding fresh milk or colostrum from other species outside your own property is not recommended. If you choose to feed fresh milk from other species, goat's milk is preferable to cow's milk for alpaca, however, and with all unpasteurised milk, there is risk associated with disease such as Bovine Johne's Disease (BJD). Ovine Johne's Disease (OJD) has also been confirmed in goats.

   If you must use fresh milk or colostrum from off farm, ensure you only obtain it from an equivalent or higher status for alpaca herds and MN3 herds in GoatMAP and CattleMAP to provide the highest level of assurance that you are not introducing JD. Keep records of when and where the milk was obtained.[2]

7. **Keep your vet's emergency phone numbers by a phone in your barn or programmed into your cell phone.** Minutes can make a difference. For most of us, a vet could be an hour or more away.

8. **Know how to milk an alpaca in case you ever need it.** It is not like milking a cow and it takes a lot of practice. Practice on your nursing dams before you need to know how in an emergency situation. You should be able to milk at least 10-20ccs out of a female at a time. It is really important to get all the colostrum from the dam down that new cria in case the dam dies. If you know the dam is dying, keep milking her for the sake of the little cria... she will understand.

9. **Don't allow too many internal examinations to be done.** It causes too much stretching and harm. Keep it as limited as possible when they are close to their delivery dates.

I hope something good can come out of our bad news, if it helps to teach something to another breeder who may recall this at a later date.

We will miss our alpaca... I don't think it has hit me just yet. We do have a beautiful female cria from our herdsire, Smokey (with an IGG of over 1000!) and although it will be a big commitment to bottle feed the next several months, I am so thankful the cria has survived. We have her in the garage with a weanling female who is cuddling up nicely to her and will move her into the main area soon and pray that another nursing female will find it in her heart to nurse this beautiful criation.

Post script

Mary is happy to report that the cria continues to do well, is still being bottle fed but also is eating hay and grain, so Kudos to good veterinary care and good herdsmanship in the face of such horrible circumstances! ■

Mary with the surviving cria, Aliena

Notes

1 Cornell University Hospital for Animals, New York, USA

2 Point 6 contributed by Elizabeth Garner-Paulin, AAA Ltd. Director, Animal Health, Husbandry & Welfare in collaboration with the author, in order to comply with Australian biosecurity standards.

This article is reproduced with the kind permission of the author, Mary Blowers. Mary, along with her husband, Terry, owns Aussie Hill Alpacas, Inc., in Canandaigua, New York. She can be reached at info@aussiehillalpacas.com

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DALE ALPACAS

Alpaca Owners' Breeding and Cria Care Practices

RESEARCH AND DEVELOPMENT ARTICLE by **Pauleen Bennett** > Hevnlee Alpacas, VIC

In the last two issues of *Alpacas Australia* I described some of the results from a survey of Australian alpaca owners, conducted by the Animal Welfare Science Centre in 2006. In the third part of the survey alpaca owners were asked about their breeding and cria care practices. The results from this section are summarised below.

General information about breeding practices

Most respondents (96%) owned or managed alpacas that were involved in breeding activities. The number of female animals involved in these activities ranged from 1 to 600: 37% of the sample had mated 5 or fewer animals; 28% had mated between 6 and 10 animals; 19% had mated between 11 and 20 animals and just over 15% had mated over 20 animals in the preceding year. Similarly, 50% of respondents had produced between 1 and 5 cria in the preceding year; 25% had produced between 6 and 10 cria; 13% between 11 and 20 cria and 12% more than 20 cria.

Mating techniques

Respondents were asked to estimate the percentage of animals in their herd that were mated using various techniques. This information is summarized in Table 1. The most commonly used technique was hand mating on site with own male – used for 80-100% of the alpacas cared for by 26.3% of the sample and for 61-80% of alpacas cared for by another 11.7% of the sample. Although popular, this technique was never used by 42.6% of the sample – presumably those alpaca owners who did not own a stud male. Hand mating on site with a visiting male was also popular, as was hand mating off site, although over half the sample reported not engaging in these techniques at all in 2005.

Very few respondents (4.5%) reported using embryo transplant techniques and those who did typically used this method for a relatively small percentage of their herd. Paddock mating either off-site or on-site was also used by only relatively small numbers of alpaca managers, although 8% of the sample reported using on-site paddock mating for between 80 and 100% of their animals.

A second question asked participants how long they normally waited following parturition before re-mating females. The average time between parturition and mating was 32 days, with a minimum of 10 days and a maximum of 365 days. Most people began re-mating females between 21 and 30 days following parturition, with the most common response being 21 days. Very few people typically waited longer than two months.

There was no correlation between how soon after birth participants usually began re-mating female alpacas and either the number of years they had been caring for alpacas or the number of alpacas cared for, but there was a slight negative correlation between this variable and how well-informed participants considered themselves to be about alpaca care. People who considered themselves to be well informed tended to begin re-mating their alpacas sooner.

	% herd mated using this technique					
	0	1-20	21-40	41-60	61-80	80-100
Paddock mated on site	83.5	4.5	1.5	1.6	0.9	8.0
Paddock mated off site	93.5	2.0	0.3	1.0	0.3	2.9
Hand mated on-site with own male	42.6	4.0	7.2	8.2	11.7	26.3
Hand mated on-site with visiting male	53.4	14.3	5.7	4.6	5.5	16.5
Hand mated off-site	65.1	15.4	4.5	2.3	2.2	10.5
Embryo transplant	95.5	3.0	0.2	0.7	0.2	0.2

Table 1. Alpaca mating techniques used by participants

Number of matings required to achieve pregnancy

A potential measure of productivity in alpacas is the number of matings required to achieve pregnancy. We asked respondents to estimate the percentage of animals in their herd that required one, two, three or more than three matings to fall pregnant in 2005, separated according to whether the alpacas were experienced or maiden breeders.

With respect to experienced breeding females:

> the average percentage that required a single mating was 51.5% (SD=34.7)
> the average that required two matings 27.9% (SD=25.3)
> the average that required three matings 7.6% (SD=16.6)
> the average that required more than three matings 3.9% (SD=11.6)

With respect to maiden females:

> the average that required a single mating was 33.3% (SD=38.0)
> the average that required two matings 33.8% (SD=35.3)
> the average that required three matings 13.3% (SD=25.8)
> the average that required more than three matings 10.4% (SD=25.6)

Importantly, however, some breeders appeared to be much more successful than others in achieving pregnancies within one or two matings. Table 2 shows the number of respondents who indicated that they achieved 0, 1-20%, 21-40%, 41-60%, 61-80% and 81-100% of pregnancies in one, two, three, or more than three matings, for experienced and maiden females respectively.

Notable from this table is the observation that 20% of respondents indicated that they had achieved pregnancy in between 81-100% of their experienced breeding females in a single mating, with another 21% achieving pregnancy with a single mating in between 61-80% of their experienced females. In contrast, 22% of respondents had been unable to achieve pregnancy in any experienced female with a single mating.

At the other end of the scale, while most breeders very rarely required three or more matings to achieve pregnancy with experienced females, a few breeders required this level of involvement for ***most*** of their experienced animals. Similarly, while 17% of breeders achieved pregnancy in 81-100% of maiden females with just a single mating, 46% of respondents had not been able to achieve pregnancy in any maiden female with just one mating. While 74% of the sample had not been required to mate any maiden female in their herd more than three times to achieve pregnancy, 13% required more than three matings for between 1-20% of their maiden herd, 4% required this level of involvement for 21-40% and so forth, with a small number of breeders (6%) requiring more than three matings for between 81-100% of their maiden herd.

Because of the potential implications of these data in terms of productivity, the percentage of experienced and maiden females who became pregnant in a single mating and the percentage who required more than three matings were correlated with each other and with a number of additional variables. As might be expected, those breeders who were more successful at obtaining pregnancy with one mating in experienced females were also moderately more successful (0.41) at obtaining pregnancy with one mating in inexperienced females.

Those who required more than three matings for many of their experienced females, however, were only slightly more likely than other participants to require more than three matings for many of their inexperienced females. None of the pregnancy outcome variables was associated with the number of females mated in 2005, the number of cria produced in 2005, the reported typical interval between parturition and re-mating or any of three measures of participant experience, except for a weak negative association (-0.16) between the number of maiden females requiring more than three matings and the number of years a participant had spent caring for alpacas. ➤

		% herd achieving pregnancy with specified number of matings					
		0	1-20	21-40	41-60	61-80	81-100
Experienced Females	Single mating	21.7	4.4	8.5	24.2	21.1	20.1
	Two matings	18.7	31.8	24.0	17.3	3.5	4.7
	Three matings	59.8	30.8	5.5	2.0	0.0	2.0
	More than three matings	74.9	19.6	3.3	1.4	0.3	0.6
Maiden Females	Single Mating	46.0	7.4	6.7	14.4	8.4	17.1
	Two matings	32.7	15.4	15.2	17.2	4.3	15.2
	Three matings	62.2	19.2	6.4	6.1	0.3	5.7
	More than three matings	74.0	12.5	3.7	2.5	1.6	5.7

Table 2. Percentage of experienced and maiden females requiring one or more matings to achieve pregnancy

Similarly, none of the pregnancy outcome variables was associated with whether or not the participants reported engaging in specific husbandry practices, with the exception that the percentage of experienced breeding females achieving pregnancy in a single mating was weakly positively associated with whether or not the participant administered a general mineral supplement (0.16) to their alpacas and whether or not the participant engaged in faecal egg count sampling (0.16).

Antenatal Cria Care

Respondents were provided with a list of activities potentially undertaken immediately following parturition and were asked to indicate how often, on average, they engaged in each activity. The results are presented in Table 3. These data suggest that cria care is a high priority for most alpaca managers. Two thirds of the sample reported always visually and physically inspecting the cria and most other respondents did so often. Many also physically inspected the dam on a regular basis. Nearly all managers observed cria until they were sure they were drinking. Well over half took cria to shelter at least sometimes, with 14% doing so often and 16% doing so always. Many managers weighed the cria initially and then continued to monitor weight gain. Over half the sample always treated the umbilical cord with antiseptic although 22% never did so. Other preventative care treatments were also common although less frequent. While the majority of respondents reported never engaging in the following activities, 2% of the sample often or always treated the cria with antibiotics, 2% often or always administered an enema, 4% often or always treated the cria with alpaca colostrum, 2% often or always treated the cria with colostrum from another species, and 1% often treated the cria with plasma. Dams also received considerable attention, with 4% of the sample often or always treating the dam with oxytocin, 1% often or always treating the dam with a uterine washout, and 2% often or always treating the dam with antibiotics.

Relationship between cria care activities and experience

Cria care activities were correlated with three measures of participant experience: how well informed the person believed themselves to be about alpaca care and husbandry; how many years they had been involved in the industry; and the total number of alpacas cared for over that time. They were also correlated with the number of female alpacas mated and cria produced in 2005, with several interesting findings emerging (Table 4). The degree to which participants believed they were well informed about alpaca care was positively associated with the frequency with which they reported physically inspecting the cria, weighing the cria, continuing to monitor weight gain,

	% of respondents who selected each response option				
	Never	Rarely	Sometimes	Often	Always
Visually inspect the dam and cria from a distance	6.4	1.5	2.6	23.3	66.2
Visually inspect the dam and cria up close	0.3	1.0	4.5	27.5	66.8
Physically (hands on) inspect the cria	0.3	3.0	9.6	21.1	66.0
Physically (hands on) inspect the dam	2.5	13.0	25.0	22.8	36.8
Observe the cria until you are sure it is feeding	0.0	0.0	1.0	12.9	86.1
Take the dam and cria to shelter	6.3	17.0	47.0	13.5	16.3
Weigh the cria	21.1	11.7	14.9	12.7	39.6
Monitor weight gain in the cria	18.0	13.0	16.8	15.8	36.3
Treat the umbilical cord with antiseptic	21.6	10.2	9.2	7.2	51.7
Treat the cria with antibiotics	60.5	31.2	6.8	1.3	0.3
Treat the cria with an enema	71.1	21.4	5.5	1.0	1.0
Treat the dam with oxytocin	49.3	32.3	14.8	2.3	1.5
Treat the dam with a uterine washout	80.4	16.3	2.3	0.8	0.3
Treat the dam with antibiotics	48.9	36.1	13.3	1.5	0.3
Treat the cria with alpaca colostrum	50.0	32.3	13.9	2.3	1.5
Treat the cria with colostrum from another species	64.2	19.9	13.9	1.0	1.0
Treat the cria with plasma	60.1	31.1	7.8	1.0	0.0
Monitor the dam and cria for flystrike	50.1	16.2	10.9	9.1	13.7

Table 3. Frequency with which participants engaged in various cria care activities

	Correlations with variables measuring experience with alpacas				
	How informed person is about alpaca care	Number of years involved in alpaca care	Total number of alpacas cared for	Number of female alpacas mated in 2005	Number of cria produced in 2005
Visually inspect the dam and cria from a distance	0.007	-0.066	0.032	0.018	0.014
Visually inspect the dam and cria up close	0.073	0.076	0.027	0.037	0.044
Physically (hands on) inspect the cria	0.147*	0.157*	0.062	0.064	0.066
Physically (hands on) inspect the dam	0.105	0.106	0.058	0.029	0.054
Observe the cria until you are sure it is feeding	-0.022	-0.075	-0.086	-0.017	-0.082
Take the dam and cria to shelter	-0.081	-0.071	0.020	-0.007	0.015
Weigh the cria	0.145*	-0.043	-0.073	0.145*	-0.043
Monitor weight gain in the cria	0.137*	-0.030	-0.018	0.137*	-0.030
Treat the umbilical cord with antiseptic	0.110	0.090	-0.041	0.110	0.090
Treat the cria with antibiotics	0.015	0.090	0.131	0.015	0.090
Treat the cria with an enema	0.098	0.217*	0.130	0.098	0.217*
Treat the dam with oxytocin	0.163*	0.216*	0.078	0.163*	0.216*
Treat the dam with a uterine washout	0.046	0.133*	0.020	0.046	0.133*
Treat the dam with antibiotics	0.120	0.197*	0.087	0.120	0.197*
Treat the cria with alpaca colostrum	0.098	0.156*	0.067	0.098	0.156*
Treat the cria with colostrum from another species	0.210*	0.237*	0.093	0.210*	0.237*
Treat the cria with plasma	0.206*	0.394*	0.126	0.206*	0.349*
Monitor the dam and cria for flystrike	-0.065	-0.047	-0.044	-0.065	-0.047

* denotes correlation significant at p<.01

Table 4. Correlations between measures of alpaca experience and engagement in specific cria care activities

treating the dam with oxytocin, treating the cria with colostrum from another species, and treating the cria with plasma. In each case, respondents who thought they were well informed about alpaca care were more likely to frequently engage in the stated practice. The number of years spent caring for alpacas was positively associated with physically inspecting the cria and treating the cria with an enema, alpaca colostrum, colostrum from another species or plasma. It was also positively associated with treating the dam with oxytocin, antibiotics and a uterine washout. The total number of alpacas cared for was not significantly associated with any of the cria care procedures. The number of female alpacas mated in 2005 was positively associated with weighing the cria at birth and monitoring weight gain, and with treating the cria with colostrum from another species and plasma, and the dam with oxytocin. Finally, the number of cria produced in 2005 was associated with a range of cria care activities, including treating the cria with an enema, alpaca colostrum, colostrum from another species and plasma, and treating the dam with oxytocin, antibiotics and a uterine washout.

Conclusion

The data described in this report are of interest to all Australian alpaca breeders because they suggest that the industry remains characterized by persons with small numbers of animals who typically breed their animals using traditional techniques. The number of matings required to achieve pregnancy clearly varies across owners and may prove to be an important outcome measure, since time lost during the re-mating process can be significant. Pregnancy outcomes and cria survival is another important outcome measure that we were unable to assess using this retrospective methodology, but this should be examined in future studies. Experience with alpacas, in terms of numbers mated and produced in 2005, number of years involved in alpaca care and the extent to which the person believes they are well informed about alpacas, is associated with some cria-care practices. This knowledge should be particularly useful to industry newcomers, able to benefit from the accumulated wisdom of those with more experience. ■

Spring is in the Air

ANIMAL HEALTH AND WELFARE ARTICLE by **Susan Haese** > Yaringa Alpacas, SA
Edited by **Dr Alan Mills** > Strathalbyn Veterinary Clinic, SA

This is the story of a cria called *Spring*. She was born on 11 January 2008 to a maiden mother. The cria presented head first and as the birth did not progress within 20 minutes I went looking for the feet. The feet were about six inches inside the female, and had been caught back as they were folded over the fetlock joints. I hooked a finger into the fetlock joints and eased them forward and delivered the cria relatively easily, placing her gently on the ground.

As it was almost dark, I moved *Spring* and her mother into the shed for the night. *Spring* was fairly weak and within two hours it became obvious that she did not have the strength to even lift her head from the ground. I started bottle feeding her at 2 hours of age and over the first 24 hours she took about 450 ml of milk and started to gain strength. She mainly lay on her side and could kick quite strongly but did not seem to be able to roll into the cush position.

Day 2: Nothing changed much. I kept bottle feeding her every hour or two and monitored her milk consumption. She lay on her side the whole time and I had to put her into the cush position and hold her head up to feed her. I started standing her on her feet and supporting her but every time her front toes touched the ground her fetlocks would roll over so she stood on the top of her feet rather than on her pads.

Day 3: Still bottle feeding with consumption increasing. Still very weak. When I stood her up she still flipped over onto the tops of her feet and she had to be supported the whole time.

First thing in the morning I took cardboard cylinders from toilet paper, slit them vertically and wrapped one around each front leg and bandaged them lightly onto the legs. I was very concerned to make sure the bandages were not too tight and as a result put them on too loosely. Lying on her side and kicking strongly, *Spring* managed to remove the splints twice before I got them firm enough.

Day 5: Still bottle feeding. In the evening I removed the splints (about 36 hours after they were put on) and stood her up. *Spring* stood on the pads of her feet for the first time. From this point on, she walked on her pads.

Day 6: Still bottle feeding. Over the next few days she learned to roll into the cush position and then stand up by herself. Once we had her on her feet, another problem became more obvious. *Spring* walked with her nose on the ground most of the time and was apparently unable to lift her head above the level of her spine. Her neck was also twisted with a definite kink in it, and as a result she walked with her body twisted. From here not a lot changed over the next few days other than the milk consumption reaching about 1.3 litres per day.

Day 11: *Spring* was at this point feeding well from her bottles and was able to stand supported to drink. Milk consumption still about 1.3 litres.

Spring was more mobile and able to stand for longer periods but was still not able to lift her head even as high as the level of her spine unless she was hanging on to her bottle at the time. It was still very noticeable that she had a definite kink in her neck and would stand so that her body was twisted to compensate for this.

We decided at this point that we really needed to find out what was happening and *Spring* did not seem to be improving yet clearly had the will to live. We felt that if this problem was not able to be rectified it would be better to put her down than to have her grow up as a cripple.

Day 12: *Spring* went to Dr Alan Mills at the Strathalbyn Vet Clinic and was x-rayed. There were two x-rays taken – one with her lying on her side and the other with her lying on her back. The x-rays were sent to a veterinary chiropractor, Dr David Lindsay. The x-rays showed that the joint between the third and fourth cervical (neck) vertebrae was dislocated or sub-luxed. This was causing compression on her spine.

Day 14: The phone call with the report. This is definitely a trauma of some kind and not congenital. We have probably left this too late to rectify. The only suggestion is to put *Spring* under anaesthetic to achieve muscle relaxation, hang her by her head so as to apply traction and see what happens. The risks we were told were that she may not come through the anaesthetic or she may be paralysed as a result of the traction and have to be put down. If we were to try this though it had to be done immediately, as Dr Lindsay was concerned that the longer the displacement existed the less likely traction would correct the problem.

So, our options were:

1. Do nothing and lose any chance we have of fixing this and take our chances, or
2. go for it, whatever the results may be.

We decided that as we believed *Spring* was not a viable animal as she was, we would go for it.

Day 15: Took *Spring* to the vet for the procedure. About 20 minutes later, *Spring* returned to the waiting room under her own steam walking slowly but surely with her neck in a cardboard brace. I brought her home and fed her as she had not been fed for several hours before the anaesthetic.

There were a number of things immediately noticeable:

1. When *Spring* walked, she seemed to walk straighter than before, with both her neck and body straighter.
2. *Spring's* movement was more fluid – less jerky
3. When she urinated, she was able to spread her hind legs much more than before
4. When I came with her bottle she was able to wag her tail really fast – she could only wag slowly before.

Day 16: Still bottle feeding. *Spring* now has a new trick. She can lift up her hind leg to scratch at her neck brace.

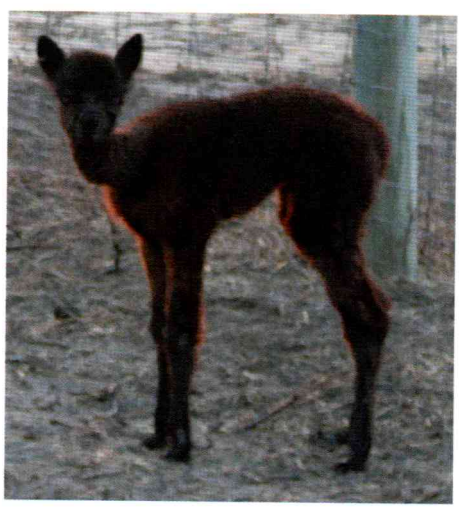
Spring can't hold her head up by herself however if I balance her and hold her head up she is able to take a few quick sucks from her mum – there is still milk there so I decided to do this as often as I can. *Spring* stands with her head noticeably higher than she did prior to the procedure.

Day 17: Now this is what we have been waiting for – a noticeable improvement in the height of her head and neck. *Spring* is now lifting her head above the level of her spine some of the time but gets tired easily and puts it down again.

Spring seems to have similar muscle development to a newborn at this point and I am assuming it will take a few weeks for her to be able to hold her head up and steady.

Spring wants to feed from her mum but the neck brace is getting in her way. Has a couple of sucks but tends to give up because she can't do it.

Day 18: I carefully removed the neck brace. Standing behind her *Spring's* neck is noticeably straighter and she stands with her body straight. Side on she still has a noticeable dip in her neck due to lack of muscle. Still keen to have a suck from mum but getting most of her feed from her bottle.



Day 19: Still bottle feeding but starting to decrease the amount she will drink. Took *Spring* for a second x-ray. Not quite what she had in mind and she put up a bit of a fight. A noticeable difference between this x-ray and the first ones.

Day 20: Still bottle feeding but milk consumption has dropped to less than 1 litre for the day.

Day 22: Much to our delight, *Spring* rejects her bottle. Her stomach feels tight so she must be getting enough milk from mum. From this point she never looked back.

So why is this article called *"Spring is in the Air"?* I started writing this article when *Spring* was about five weeks old. That day I saw *Spring* running fast across the paddock in pursuit of a little friend. She ran up onto the dam bank and I held my breath as she leapt off into space. She landed on the ground some distance below and took off again as fast as she could. Yes, *Spring is in the air!* ■

Spring at 5 months of age

X-rays

Close up
pre procedure

Close up
post procedure

Lateral
pre procedure

Lateral
post procedure

Australian Alpaca Connection

FASHION ARTICLE by **Jenn Worland** > Australian Alpaca Fleece Ltd., VIC

The 2008 *Australian Alpaca Connection* range features a fabulous selection of ladies winter coats and vests.

Tailored to perfection, these classic garments are manufactured by master Peruvian craftsman using the finest Australian baby alpaca blended with super-fine merino wool. Once reserved for Incan and European nobility, alpaca is considered an aristocrat in the world of premium fibres, offering luxury and comfort at affordable prices.

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For more information contact Jenn Worland at AAFL Tel: 03 9311 0933, Fax: 03 9311 0499, Email: *jennw@aafl.com.au* ■

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Alpaca Fibre Testing
Dispelling the Myths

FLEECE ARTICLE by **Paul Vallely** > Australian Alpaca Fibre Testing, NSW

Introduction

In recent years, the Australian alpaca industry has made significant progress towards establishing itself as a key supplier of raw fibre to the global textile and craft markets.

At both the 2006 and 2007 National Alpaca Fibre Seminars, presenters from processing and garment manufacturing firms revealed a growing demand for quality alpaca fibre. Alpaca breeders at the seminars were told that although a range of fibre types would be required for various product ranges, growers needed to focus on 'key market drivers'. In other words, growers needed to produce fleeces that exhibited those traits sought by respective markets in order to reap the rewards.

Objective traits such as average fibre diameter, variation of fibre diameter, incidence of coarse fibres (comfort factor) and staple length provide clear expectations on processing performance and eventual yarn/fabric quality. It is for this reason, objective traits play a key role in sourcing fibre and consequently, the price paid for fleeces. It should be remembered that visual traits such as colour and style may have some influence on price paid, however, they are not the subject of this article.

Monitoring objective fibre traits using fibre measurement, therefore, makes a lot of sense. It allows fleece growers the opportunity to select alpacas that are likely to produce the more valuable fleeces. Further, it also provides an insight into the genetic potential of breeding stock to produce progeny capable of growing these premium fleeces.

Fibre testing, however, can be like an ambush for the unwary. There is much misinformation as to what fibre test results mean and how they should be applied. The following is a short guide to help dispel some of these fibre testing myths.

Micron blow-out

Many growers lose faith in their animals once they receive a fibre test report showing a high micron result. The fact is, the animal might be capable of producing superfine fleeces, however it may have been subject to overfeeding.

In 2007, Australian Alpaca Fibre Testing reviewed 6,000 alpaca fibre tests that it had carried out during the previous year. The average micron for these tests was 25.1 microns. A high percentage of these tests were on samples from first or second fleeces.

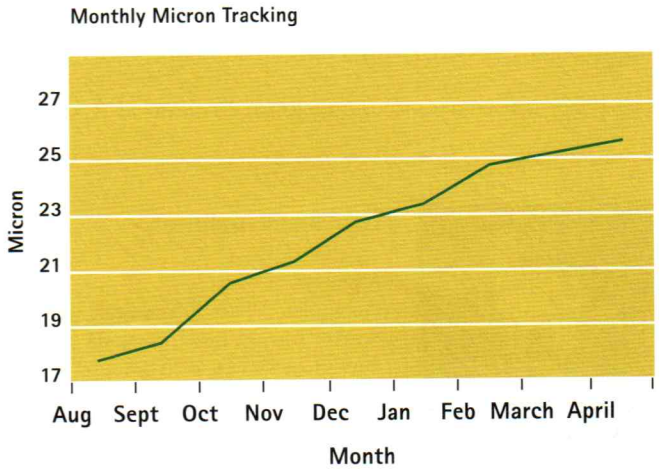
The average range in fibre diameter along the staple was 4.8 microns. This represents how much the fibre changed in diameter over the growing season. This variation is caused mainly by changes in nutritional intake. High nutrition causes the fibre to broaden. Overfeeding high quality hay or grain has often been the cause of much anguish when the fibre test results are revealed.

With many of the alpacas we tested, the fibre diameter blew out by more than 10 microns. In one year, an alpaca blew out by a staggering 19.2 microns – starting at 18.1, and finishing with 37.3 microns at the point of shearing.

A random selection of 100 test results from 2006 showed about 20% of fleeces to be under 20 microns at one point, but finished with an average fibre diameter of over 26 microns. If these fleeces met H1 grade as set by AAFL, then at under 20 microns they could have been valued at $25 per kilo. The same fleeces would have been valued at possibly $4 per kilo with their eventual micron result.

If the fleeces had initially met the Ultrafine bale criteria, they might have enjoyed a price of $60 per kilo. In this scenario, the micron blow-out would have resulted in a drop in price of, say, $54 or almost 90%.

Obviously, feeding regimes for pregnant females or developing crias might require high nutrition irrespective of impact on fibre diameter. Furthermore, I'm not suggesting you keep your alpacas just one step away from needing life-support systems to survive. On the other hand, it should be remembered that having too high a fat score can result in infertility, negative effect on the immune system and reduced life expectancy. The message is to find the right balance.



Micron profile showing blow-out of 7 microns over 8 month period.

CV versus SD – which to use

Measuring variation in fibre diameter is a powerful tool to estimate the processing performance of fleeces. Low variation results in low incidence of coarse fibres, enables mills to better estimate processing outcomes and can result in higher tensile strength. Fleeces with low variation are therefore likely to be more valuable.

The two measurements of variation are Standard Deviation (SD) and Coefficient of Variation (CV).

In simple terms, SD of a fibre sample is the number of microns you need to go either side of the average fibre diameter, to capture 68%, (say two thirds) of the fibres within the sample. For instance, if a sample of alpaca fibre had an average diameter of 20 microns with an SD of 3 microns, then about two thirds of the fibres in the sample were between 17 and 23 microns.

CV is the SD expressed as a percentage of the average diameter. For instance, the same sample as above would have a CV of 15%. (3/20 x 100)

The interesting thing to come out of this is how fibre diameter affects the CV results.

Let's take another alpaca with the same degree of variation of fibres, that is, same shaped histogram. The animal has the SD of 3 microns but has an average fibre diameter of 26 microns. The CV is therefore 11.5%.

You would think a CV of 11.5% is better than 15%. Not so in this case – the variation is the same, only the fibre diameter is different. That's why we use SD as the true indication of variation in diameter.

By the way, CV is used when we compare the degree of variation between two different products. For example, a dealer wants to compare how much the Euro has moved compared to the Australian dollar.

How should SD (or CV) be used when selecting breeding stock?

Measuring variation in fibre diameter normally takes account of two forms of variation. Firstly, there is the variation along the fibres in a given sample. This reflects nutritional intake and is therefore environmentally influenced. Secondly, there is the variation between the fibres within the sample. The variation between the different fibres in the sample is mainly caused by genetics.

This last sentence opens up a Pandora's Box full of heated debate, however we can accept that 'between fibre variation' is mainly caused by genetics.

An overall measurement of variation such as 'SD' is therefore a mixture of environmental and genetic influences. For selection of breeding stock, we only want to track traits that are genetically influenced.

There's no point in selecting stock based on traits that are the result of external or environmental forces as these traits won't (arguably) be passed on to progeny.

The answer lies in differentiating between the two forms of variation.

A program now exists that allows variation of diameter between the fibres and variation along the fibres in a sample to be measured separately. This new measurement provides a far more effective selection tool for breeding programs, although the cost is much more than that of a standard fibre test.

The final note on this point is that a standard test for SD of fibre diameter is quite acceptable for testing fibre diameter variation in the majority of cases. This new program is more for fine tuning selection or, say, selection of expensive or foundation breeding stock.

Should samples be 'scoured' before testing?

It is the writer's observation that some fibre testing services have adopted the practice of testing alpaca samples in their greasy state and deducting an estimate of the diameter of the grease film to arrive at a 'clean' test result. Recent research indicates this practice reduces the accuracy of the test.

In 2006 and 2007 Australian Alpaca Fibre Testing (AAFT) conducted trials to determine how much variation existed with the width of the grease film on fibres between alpacas. It was found that the width of the grease film between alpacas ranged from 0.1 microns to 2.1 microns. Further, the difference between the amounts of grease on alpacas from within the same mob varied significantly.

Our conclusion from the work is that estimating the amount of grease on alpaca fibre had a significant effect on accuracy. For this reason, AAFT scours (cleans) all samples before testing and provides a written assurance to verify this.

Is it OK to put fibre samples in plastic bags?

Alpaca and wool fibre absorbs moisture. If there is high humidity, the fibre absorbs the airborne moisture and consequently, increases in diameter resulting in a blow-out of the micron reading. It is for this reason fibre testing hardware takes account of the surrounding humidity when calculating fibre test results.

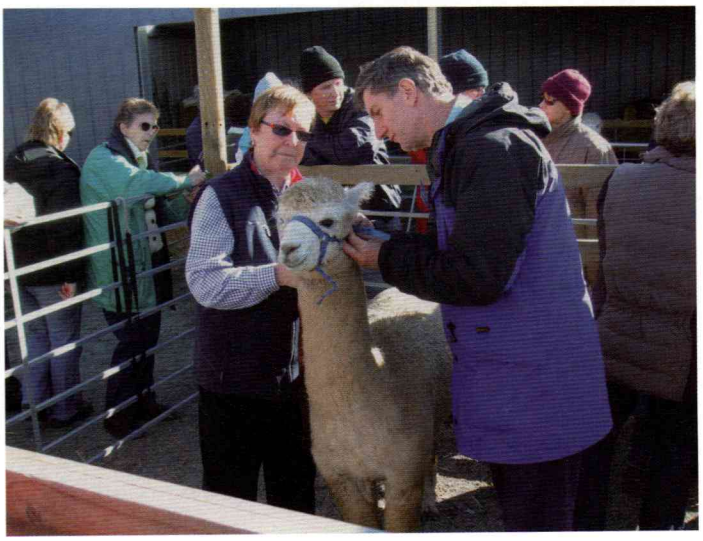
If fibre samples are placed in a plastic bag and sealed, condensation can form in the bag causing the fibre to reach an artificially high diameter. For this reason, if using plastic bags, don't seal them.

Most fibre testing services will provide paper bags for your samples. ■

The article, 'Fibre Testing - Dispelling the Myths' was first published in Town and Country Farmer magazine Vol.23 No.3 Spring 2006 and has been updated by the author for this current publication.

Farming Alpaca Seminar/Workshop

EDUCATION ARTICLE by **Tracy Pratt** > Tallo Alpacas, NSW and **Kim Pisaruk** > Earthwise Alpacas, NSW



The Southern NSW Region conducted another incredibly successful Farming Alpaca Seminar/Workshop on 21-22 June 2008 in Goulburn. Forty plus delegates attended the seminar held at the award winning Trappers Motel / Event Centre and on-farm at Jim and Connie Styles' 117 acre property at Parkesbourne.

Bill Robbins kicked off the weekend explaining the types of alpaca, with presentations on defining your direction and planning your business, followed by practical alpaca sessions, including a basic introduction to genetics. Lyn and Graeme Dickson had everyone with their hands into fleeces and explained what to look for. Paul Vallely of Australian Alpaca Fibre Testing was also on hand to explain how to read fibre test results. The workshop covered alpaca health the conventional way and alpaca health the natural way.

Co-convenors of the 2008 event, Kim Pisaruk and Tracy Pratt said, *"The seminar was driven towards educating those interested in entering the alpaca industry, or new to the industry, on all aspects – the good and the bad. Both days were jam-packed with experienced presenters and as a result we feel confident that delegates who choose to enter the industry will do so with a much higher knowledge base than those who entered the industry 10 or even 5 years ago".*

The enthusiasm from the weekend not only inspired the participants but also those presenting. Graeme and Wendy Caesar of Queensland said, *"... the many presenters opened our eyes to the wonderful world of alpacas".* June and Christopher Magarey of Oatley said, *"... a brilliant and inspiring weekend for new alpaca breeders".*

As a result of that weekend and to answer the repeated request, "How can I learn how to ...?" *www.farmingalpaca.com.au* has been created by Tracy and Kim to help share the knowledge of existing breeders and specialists outside of the industry. *Farming Alpaca* provides workshops aimed at education of all in the industry with a focus on sustainable alpaca farming into the future. ■

Alpacas at the Melbourne Zoo

INDUSTRY ARTICLE by **Raelene Strong** > Mariah Hill Alpacas, VIC

Next time you visit the Melbourne Zoo look out for the newest residents... alpacas

Weanlings *Aztec Xocoloti* (dark brown), *Great Expectations* (light fawn), *Scandolous* (white) and *Tsunami* (medium fawn) were delivered to the Melbourne Zoo on 26 June 2008, where they started their 30 day quarantine period before entering the public arena at the zoo. Melbourne Zoo is the oldest zoo in Australia, and the third oldest zoo in the world. It is considered to be the best zoo in the Southern Hemisphere and is one of Australia's leading tourist attractions for local and international visitors.

Melbourne Zoo is now offering interactive learning experiences for visitors of all ages to:

> Connect with wildlife

> Better understand the natural world

> Be inspired to act to create a future where humans live in balance with nature

To meet these aims, the Melbourne Zoo was looking for an animal that can be walked amongst the visitors, where the animal is on display, approximately three times per day and the zoo keepers will educate the public about that particular animal. The animal that they saw as most suited to this experience was the alpaca.

We were approached by Melbourne Zoo management, asking our opinion on how the alpaca would cope with a supervised walk amongst the general public. They brought their head trainer out to assess the personality traits of the alpaca, and how he would train them. I assured him that the alpaca would be a dream to train. Within five minutes of being amongst the alpacas he could see what I was talking about.

We presented some of our show alpacas for the zoo to choose from as I wanted to make sure that quality alpacas were selected if alpacas were going to be on display to the world. It was decided to have a selection of colours, and it was also decided to select weanlings, which had just been taken off their mother.

We had tight timing, as the zoo quarantine area is booked solid. The seal was moving out, and we had to fit in before a new monkey was coming to the zoo. While the alpacas are in quarantine, which is situated just to the side of the zoo, they will adapt to all the zoo sounds.

The area designed for the alpacas ultimately is within 100 metres of the main gate, just off to the right, where a parkland area with beautiful shade trees will be redesigned,

Alpacas in quarantine at Melbourne Zoo

landscaped, and fenced to hold the alpaca display. While renovations take place, as they are also redesigning new areas around the alpaca enclosure, the guys will be near the tapir enclosure.

The big day came, halters were fitted and the alpacas looked really good. We loaded them up and contacted the zoo to let them know that we were on our way.

On arrival the word got out, and all the handlers and vets were there to greet us all. Armed with a collection of information on feeding, maintenance and the history of alpaca, most common questions and answers, the zoo was really impressed with the wealth of knowledge out there about the alpaca.

When the alpacas were unloaded they were weighed and placed in their temporary quarantine area. While they are there, the handlers and trainers will get to know them and learn how to handle them so that they will cope well with the general public.

It was an honour to supply the Melbourne Zoo with the alpacas, as we are told that this is the very first time that the zoo has purchased any animal from a private breeder. The zoos usually buy from other zoos. Although this was the first experience to buy privately, the zoo was very impressed with the professionalism of the alpaca industry.

The Zoo's new learning experience program is designed to educate people about the alpacas and how they are farmed in their homeland, and how they are farmed here in Australia. Under supervision, the general public will be able to touch the alpacas, and enjoy their beautiful personality.

So... when you visit Melbourne Zoo next, say hello to *Xocoloti, Great Expectations, Scandalous* and *Tsunami.* ■

A Timeless Classic...

INDUSTRY ARTICLE by **Alex Harrington-Smith** > EP Cambridge Alpacas, SA

There are those old black and white films that evoke the Hollywood magic and stand firm as the classics of the silver screen, some would say. Their stars radiate with an unblemished aura of fame and fortune, the enduring Hollywood icons. They have timeless themes and a certain charm that ensures their place in the Hollywood hall of fame for ever. For every alpaca breeder there will be certain herd sires that have a similar place in their hearts and their herds – they are Cary Grant or Humphrey Bogart of alpaca pedigrees. Mine I only met a few years ago but I am as avid a fan as can be. His name is *Ruffo.*

Having been the number one pick in the elite Accoyo sale in Michigan in 1994, *NWA Ltd Ruffo G4574* became part of the Northwest Alpaca herd in America, from where he was then purchased by EP Cambridge to come to Australia in 1995. At EP Cambridge he would become the fabric upon which a tapestry of success would be woven.

First and perhaps foremost, *Jolimont Rosalina* and *Ruffo* produced *Cambridge Aquaveta* and *Cambridge Trinity* both of whom are headline acts in the core herd. *Trinity* produced a beautiful *Jolimont Commisario* boy through embryo transfer called *Cambridge Escalabar ET* who was Supreme Champion of Royal Adelaide last year.

Catherine and Matthew Lloyd pictured with Ruffo

Fleece of Ruffo daughter, Cambridge Show Stopper

Shortly after the picture (above) was taken *Ruffo* buried his head in Matt's jacket looking for security and comfort and in that moment a bond was formed. In 1996 *Ruffo* suffered a small setback, trapping his foot in a fence and coming close to losing it. Thanks to some veterinary expertise and time and patience in his rehabilitation the tenacious male overcame the drama and recovered from the injury.

In the EP Cambridge herd *Ruffo* has been instrumental in creating a number of the defining families. The heavyweights of the core breeding herd inevitably have him in their backgrounds as sire, grandsire or even great grandsire.

Then *Jolimont Nicoletta* came along with yet another match made in heaven. The pairing resulted first in *Cambridge Show Stopper,* then *Cambridge Show Topper. Show Stopper* is a name known by most breeders I have come across – an achievement not many females can be credited with. *Show Stopper* has given us an elite and impressive line up of *Commisario* progeny including *Cambridge The Boss* and *Cambridge The Chairman.*

It is the formidable *Jolimont Martana* who has been the architect of his most recent successes. *Martana* and *Ruffo* have produced two daughters of such a high calibre it is a feat simply to imagine where they can go next... How can they get better?

Yet with *Ruffo's* blood in their veins the beauty of it is that they do. They are simply, quietly unstoppable. *Martana* and *Ruffo* make near perfection almost effortless and the result is nothing if not timeless. Their most recent daughter *EP Cambridge Illustrious* was National Adult Champion Female at the 2007 National Show and Alpacafest 2008. Her sister, *EP Cambridge Ruffo's Time* has produced a *Commisario* daughter who is ready to set the show ring ablaze this season.

Even now that time has been called on the magical *Ruffo* he had such an intrinsic part to play in our herd, indeed most herds, that he will never fail to be a fundamental part of alpaca breeding and showing world wide. His son *Cambridge Cajamarca* was exported to the UK and his first progeny were the clear and undisputed winners of Europe's largest progeny class at the UK National. It is easy to see how *Ruffo* came to inspire the EP Cambridge maxim, *"Where breeding is everything..."*

As Ruffo wound down his working days his sons come more and more in to play. In particular *EP Cambridge Lypheor* is stepping up to the plate as a worthy successor with his first cria born recently. A beautiful daughter, the rough edges of the dam smoothed over in the same manner as his father would have done. They worked side by side for a time in the mating shed, one with youthful exuberance the other with serenity brought by age.
I hope that in 10 years from now EP Cambridge's next generation of alpaca breeders will know the enchantment and mystery of a stud male like *Ruffo*. Perhaps they will know it through his son *Lypheor*, with *Ruffo* behind him the chances are high.

Ruffo Granddaughter, Cambridge Top Class

As *Ruffo* entered his 16th year everyone at EP Cambridge had been forced to acknowledge that retirement was on the cards. *Ruffo* slowly became lord and master when it came to deciding on work, his take it or leave it attitude indicative of his wisdom, his life's work was reaching a conclusion that he was happy to accept.

Ruffo lived out his life in a paddock adjacent to Matthew's front lawn with what we affectionately call the Brat Pack, the Sinatras and Sammy Davis Juniors of alpaca breeding to come. Perhaps as they contemplated the virtues of oaten hay over meadow, *Ruffo* quietly imparted to them some of the secrets of his magical legacy.

We will never know...

Ruffo (foreground) & Lypheor (background)

Ruffo died peacefully in his sleep on 16 April 2008, with his favourite and most expensive food lightly grazed by his side and his winter rug warming his ageing bones he never even left the cush position.

It was a dignified end for this dignified male. Special as he was to Matthew and Catherine it was important that his final resting place was at the heart of EP Cambridge, as his name will always be. Matt chose the side of a hill in one of the most stunning paddocks with superb vistas across the property. A few trees cast a serene shade across his plot and tagasaste (tree lucerne, of which he was more than a little partial!) grows nearby. And most importantly he can still see it all below him – the product of his unequivocal greatness. ■

Quechua Benefit: A New Beginning

INDUSTRY ARTICLE by **Mike Safley** > Northwest Alpacas, USA

The midday sun in the high sierra of Peru is blinding. I close my eyes and consider the evolution of Quechua Benefit, which began in 1996 with a simple request. Don Julio Barreda asked if we could help the children of Macusani, and Dr. Mario Pedroza responded, "Could I give them dental care?" "Bueno," said Don Julio. In 2007, during the Quechua Benefit trip to Peru, Dr. Wayne Jarvis shared with the dental team members a New Testament verse that perfectly defines the moral imperative at the soul of the charity.

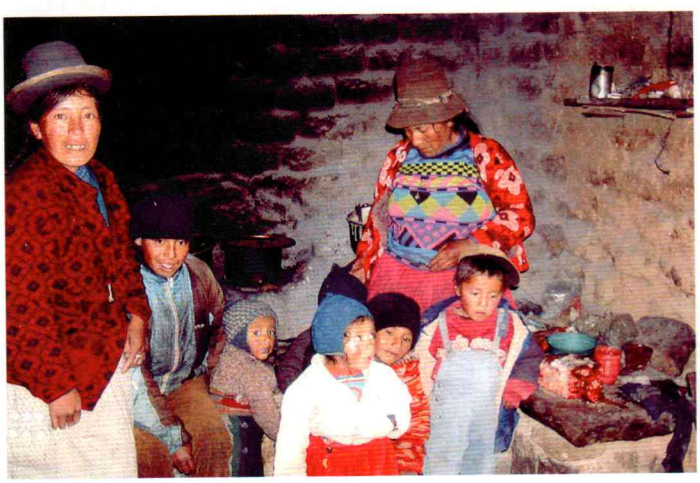
"But whoever has this world's goods, and sees his brother in need, and shuts up his heart from him, how does the love of God abide in him?"

1 John 3:17

These words, our past trips, the lessons learned, and the people served have become the beacon that lights our way to the future and to a new beginning.

For the past twelve years, alpaca breeders far more fortunate than the Quechua of Peru have opened their hearts and given their worldly goods. This generosity has made it possible to provide free dental care to more than 30,000 people in forty communities; to aid earthquake victims in Ica; to respond to bone cracking winter freezes with antibiotics and alpaca blankets; to help sister Antonia, an 85 year-old Maryknoll nun, feed 800 people a day at the church in Yanque; to build dormitories to house school children who live too far from school to attend; to support 26 girls at the Mosoq Runa orphanage in Macusani; to help deserving young adults attend college in Arequipa; and to fund life-saving surgeries for the poorest of the poor. The generosity has accomplished much. The need is relentless.

All of these experiences have provided Quechua Benefit with insight into the hidden truth behind the children's shy smiles: neglect, hunger, domestic abuse, and missing parents.



Trip by trip, we have searched for a way to answer a nagging question: How can we create a permanent solution in the lives of the young people with running noses and abscessed teeth who find their way to our mobile dental clinics? Year by year we have built up a balance sheet of good will with local mayors, priests, nuns and school teachers. It is time.

At the root of Peru's poverty are universal social conditions: unemployment, alcoholism, family violence, single mothers with few resources, and worse yet, orphans with no hand to hold. Parents, if any, are often too poor to feed their children who go to bed hungry and wake up hungry. The little ones suffer first and most often, their eyes dulled by hunger. The question that gnaws at Quechua Benefit is how, even in a small way, can we snap this cycle of despair – repair a life and touch someone who will go on to touch another. The goal is simple, the task is complicated.

Mario Pedroza says that pulling teeth is a fleeting fix, and that without improved dental hygiene and fluoridated water, the problem will remain in perpetuity – an endless drip of decay. I worry that providing remedial services and material goods alone, without teaching life skills, ends up making little difference in the future of the Quechua communities that we visit. Together with Dr Wilfredo Uscamayta Condori (Dr Willy), the benefit's full-time dentist, we have developed a vision for a more permanent solution – one that, undoubtedly small, can break the cycle of poverty from one generation to the next.

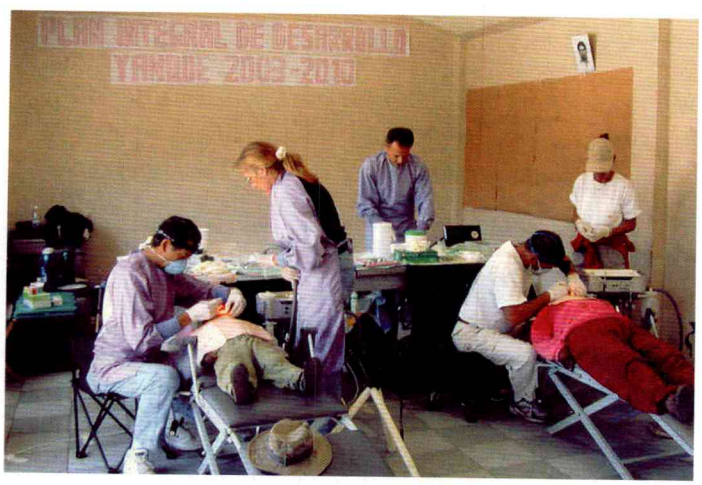
The need is undeniable. Forty percent of the Indian population in the highlands is undernourished, too few children graduate from high school, and even fewer advance to higher education. Infant mortality is 12.5% at one year and reaches over 25% by age ten, the life expectancy

of an adult is 55 years. The average annual income of the Quechua peasant is $872 US dollars. Children are abandoned, orphaned, and many live in remote areas without schools. Single mothers are commonplace.

Peru's society is complex. There are no government traditions of social welfare for the peasants in the highlands, no large private charitable foundations, and little means of delivering help directly to the poor. The Roman Catholic Church in Peru has traditionally been the source of social safety nets administered in an ad-hoc fashion, pueblo by pueblo. These informal programs often receive operating funds from foreign religious congregations of all denominations or from secular organizations similar to Quechua Benefit. In the past year this practice has begun to change. Pope Benedict XVI, elected in April 2005, appointed new Bishops in Peru to enforce a conservative church doctrine, which focuses on evangelism and administration of the sacraments. This new policy has taken precedence over the historical role of the Roman Catholic Church in Peru, which since the time of Pope John Paul II has included providing social services to the poor.

The Sisters of the Cross have operated Mosoq Runa Orphanage in Macusani for more than twenty years. On 23 December 2007 they were directed to leave by the new bishop. Pablo Paul's Boys Home in Nunoa is being converted to diocesan offices, and the boys have been sent away. The Maryknoll sisters and priests who minister to the needs and rights of the poor in Puno have been given one year to leave the diocese. Rumors of future draconian changes are rampant, and the Peruvian Catholic Church is in turmoil. The peasants in Macusani have demonstrated against the harsh measures, which they see as the church choosing the rich over the poor. Quechua Benefit looks on with a broken heart, not pretending to understand the Church's thinking, but knowing that without the sisters and priests to minister to the needs of the people living in pervasive poverty, the local peasants will have few advocates. These changes have immeasurably increased the difficulties faced by outside charities attempting to deliver services on the ground.

Mario and Frank operating



For twelve years Quechua Benefit has observed and identified the need: hunger, lack of shelter and available education, affordable medical and dental services, clothing – a never-ending flood of need. Quechua Benefit has been looking for a successful model, a reason to hope, a permanent solution. Our search led us to a former priest, Jean Bouquet and his wife Silvia Fischer, a Swiss teacher, who operate a children's home, Allin Kawsay. This home is different than the others that Quechua Benefit supports. It was founded in response to a series of tragic incidents in Coaza, a small town near Macusani where the population of 3,000 live on a steep mountainside 14,000 feet above sea level, three hours from the main road. A diminutive Catholic chapel is perched at the entry to town, looking down over the wheat-thatched roofs and crooked streets where a river flows through the center, lending the sound of rushing water to the outwardly peaceful surroundings.

Father Jean came to Coaza in 1986 and Silvia in 1989. In 1991, a series of six murders, committed within one year, shocked the seemingly happy locals. All of the victims, as well as the perpetrators, were a part of Jean and Silvia's flock. One victim was a young woman who was raped and beaten to death by young men who knew her well. Silvia and Jean grieved, filled with disbelief. They could not reconcile the innocent smiles and deceivingly docile natures of the murderers with the crime. The victim was their friend. How could this happen?

After much soul searching, they faced hard facts. Family violence was commonplace, learned by each of the young perpetrators in their family homes where discipline was administered with fists and rods and where their fathers beat their mothers. Jean and Silvia's analysis established that the murderers' experiences were not isolated exceptions. This social condition is not exclusive to the poor Quechua communities in Peru; it is a universal malady that feeds on the emotional deficits born of poverty and hopelessness.

The difference, in Coaza, is that Father Jean and Silvia did something; they built Allin Kawsay, a home to 34 pupils made up of orphans, abandoned children with living parents, and kids from families so poor that their parents cannot care for them. Quechua Benefit supports similar homes in Peru, but Allin Kawsay is unique. The residents are half boys and half girls; there are greenhouses; and sheds full of chickens, rabbits, cuy and pigs. A trout hatchery generates cash flow. The children have a full schedule of daily chores, raising the meat and vegetables that sustain the home. They are immersed in cultural values that emphasize mutual respect, self sufficiency, self esteem, and education. Each child is encouraged to embrace continuing education beyond high school and to learn a trade or profession. The home is owned by a foundation that is separate from the church. ➤

The staff, much larger than similar facilities, is trained to instil values and to encourage each child to live out those values in a culturally appropriate manner. Jean and Silvia train teachers at the schools their children attend, passing on their methods to teachers, parents, and other students from the Coaza community. In recent years, their ministry to prevent family violence has spread out to other highland communities. Their success is evident in the lives of the children who have lived and graduated from Allin Kawsay. Many have gone to Arequipa or Juliaca for higher education, and many have broken the cycle of family violence and poverty to become stable, productive parents and valuable members of their communities.

The home feeds itself and earns needed funds from selling produce and trout at the local market. The facility has been thriving for more than ten years. Its guiding principle is to create emotionally integrated adults who live in peace and prosperity with their families and contribute to their communities.

The model created in Coaza can be replicated in other communities. The investment is not prohibitive and the dividends can compound through future generations. The key to success is leadership – additional 'Padre Jeans and Silvias' will need to be recruited. With twelve years on the ground and with the continued support and open hearts of alpaca breeders, Quechua Benefit can build a similar home and permanently change young lives for the better. With this idea in mind, Mario Pedroza and I visited Peru in March of 2008 to search for a location where such an orphanage could be built and nurtured into a sustainable community.

We began our search for an ideal location, intending to purchase an appropriate property. To our surprise, several communities contacted by Dr Willy offered to donate land if we would build in their community. One pueblo, Imata, which serves 350 families that own 35,000 alpacas, offered not only land but also 250 alpacas to provide a sustainable economic base for the facility.

Our search took us to Coporaque, a pueblo of 2,000 people that sits across the river from Yanque in the Colca Valley, a four-hour drive from Arequipa. At 12,000 feet above sea level, the Colca is characterized by gravity-defying green terraces that cascade down canyon walls. Curtains of rock terraces suspend cultivated plots above the Colca River, which runs twice as deep as the Colorado River on its journey through the Grand Canyon. Condors nest on the steepest canyon walls and soar daily above the snowy peaks of the six volcanic sisters – Ampato, Sabancaya, Hualca, Hucalca Mismi, Quettuisha, and Sepregina. They shadow the valley below, each bleeding rivulets of melting snow that nourish crops of papas, quinoa, onions, fruits, and maize that have been grown there since man domesticated plants. Alpacas on the high terraces give way to cows and sheep on the journey to the valley floor.

In the 14th century the Emperor Tupac Yupanqui sent his general, Mayta Copac to conquer the Colca Valley and expand the Incan Empire. The general established his base camp in Coporaque, married a local princess, built a palace of shining copper, and conquered the entire valley. The region was bent to the will of the supreme Inca in Cusco. In 1532 Francisco Pizaro conquered Peru and, in the name of Spain, killed the Emperor Atahualpa, ultimately granting the Colca Valley to his brother Gonzalo. The valley was reorganized into fourteen colonial towns connected together by a narrow rutted road. Each town was built with a Catholic church at its heart. All still stand today, magnificently restored by a Spanish architectural preservation society. The Church in Coporaque is the oldest Spanish structure in the valley.

I first visited the Colca Valley with my wife, Julie in December 1990, where we went to see the Condors rise skyward on the morning breeze. We were the only visitors. On a recent visit to Condor Cross with the Quechua Benefit crew, 3,000 tourists congregated at 7am to see the condors glide out of the canyon. Quechua Benefit has been traveling to the Colca for many years. Dr Willy was born in Chivay and Mario has pulled teeth in all of the valley's fourteen pueblos. We know it well.

Tourism has taken hold in the valley. But when I asked William Bernalhuarca, the mayor of Coporaque, if it had helped his town's economy, he said, "Not really. The hotel is full but it is owned by someone from Lima." I asked a lady in the square at Yanque what she thought of the tourists, and she replied, "They come, they take our pictures, and they leave no money."

The mayor of Coporaque has offered to donate ten acres that lie at the edge of town to build the orphanage. In addition, 250 acres that stretch across a plateau high above the town would be donated to raise alpacas and cows. There is a lake on the plateau that would support trout, the local delicacy. The orphanage would farm the trout, selling them to the hotels servicing the valley's booming tourist trade. All of this land is currently owned by the municipality and would be given to Quechua Benefit if they commit to build the facility.

With continuing help and generosity, Quechua Benefit will endeavor to create a long-term, sustainable children's home in Coporaque for orphaned, abandoned, and poverty-stricken boys and girls. The adobe buildings will house 100 children at full capacity with an infrastructure that includes a kitchen, dining room, library, wood and machine shops, sewing room, computer lab, greenhouses, staff quarters, study hall, and small barns for chickens, rabbits, cuy, pigs, and milk cows. A medical clinic capable of accommodating volunteer surgical teams from abroad will be equipped and built. Alpacas will graze the plateau.

The goal is to create a safe environment to nurture solid citizens who will in turn raise intact, healthy families. In addition, the project's greenhouses will produce fresh vegetables year round and the kitchen will feed many of the undernourished children from Coporaque at least one meal a day. The orphanage will open its computer lab and shop facilities to the local community.

The home will receive children from all the pueblos in the valley and has the potential to put a serious dent in the need to care for at-risk children. The entire staff will be trained by Jean and Silvia, including the teachers, cooks, a horticulturist, and a person specializing in animal husbandry. The children will learn to tend the vegetables and animals that will provide nutritious meals for the home. There will be quarters for volunteers from colleges, churches, medical professionals and Quechua Benefit supporters, who can teach and labor with the children. Graduates will be encouraged and supported in their quest for higher education. Hopefully the love, values, and lessons in personal responsibility will carry them far.

This vision of a future mission for Quechua Benefit would not be possible without the experience gained in the last twelve years since Don Julio Barreda invited the alpaca breeders in the United States to help his village of Macusani. The experiences collected over multiple trips to Peru by dozens of volunteers would not have happened without the generosity of hundreds of alpaca breeders around the world.

This tiny project will not resolve endemic hunger, the numbers of orphans, lack of resources, and apathy by the government that prevails in the highland of Peru. But it will help the small children, lucky enough to find their way to us, who would otherwise have no help at all. Quechua Benefit asks for your support, both moral and monetary, in pursuit of what is currently a dream. Each contribution will bring the vision closer to reality. One small step at a time can create a new beginning for small kids who are without advocates. Please contact Mario Pedroza at *alpacaroza@aol.com* or Mike Safley at *mike@alpacas.com* ■

Don Julio and children

HOW YOU CAN HELP

Quechua benefit is an approved and registered charity in the United States and Peru. All contributions are tax deductible. There are many ways you can help in addition to donations.

The building project in Peru would greatly benefit from the assistance of individuals or groups that could travel to Peru and help build the various buildings. You may know of an organization that could contribute medical equipment for the clinic or solar equipment for the hot water. We need greenhouses, a truck or bus, blankets and mattresses. The list is long.

If any of you are aware of a charitable organization that might provide a construction or operating grant, Quechua Benefit has retained a grant writer who can make a proper application and would appreciate your referral. Alpaca organizations and shows have provided many generous donations to Quechua Benefit. If your affiliate needs help organizing a Quechua Benefit fundraiser please contact us. If your professional group, Kiwanis Club or Rotary Club wants to help, we can provide a speaker or any informational material you need.

Quechua Benefit would like nothing more than to name buildings or the entire project after any donor that wants to make a gift that will build a specific part of the facility. Finally, more than anything, we appreciate your positive thoughts and prayers for the project. Please contact either Mario Pedroza at *alpacaroza@aol.com* or Mike Safley at *mike@alpacas.com*

Poisonous Plant Profile

ANIMAL HEALTH AND WELFARE ARTICLE by **Elizabeth Paul** > Erehwon Alpacas, VIC

Lantana and Privet

These two garden escapes are two of the worst weeds in bush and farmland areas. Both will take over an area completely, and even in small infestations are difficult to control.

Lantana, Common Lantana, *Lantana camara*

Other name: Fam Verbenaceae

Lantana is widely cultivated as a garden shrub, with colour varieties of white, pink, purple, yellow and orange, sometimes with several colours on the same plant.

Native to Central and South America, with garden cultivars from Europe.

Plant description

Perennial shrub, growing to 3m high in the garden, with a spread of 3m. The young stems are square and carry spines. The leaves are about 10cm long, and 8cm wide, oval, pointed at the end, medium to dark green, with defined lateral veins giving a textured surface. They have a strong odour when crushed. The flowers form in clusters, and may age to different colours, giving a pretty rainbow effect. *See Photos 1 and 2.* The berries also form in clusters, bright green when unripe, before turning black. *See Photo 3.* The bush will carry flowers or fruits most times of the year. Lantana can also reproduce by suckers and layering.

There are dozens of garden cultivars, and also a distinct creeping form with mauve flowers, *L. montevidensis.* A low growing, mauve garden cultivar is sometimes used as a ground/rockery cover or low hedge. *See Photo 4.*

If left unchecked in the bush, it forms an impenetrable thicket of spiny twigs, which also harbours vermin. Because of the spines, it can also scramble to 10m with support. It devastates native ecosystems by crowding out indigenous understorey vegetation, and also alters soil chemistry, affecting remaining overstorey plants. It is considered to be allelopathic (poisonous to other plant root systems). Lantana burns easily when dry, and thickets can become a fire hazard.

Poison parts

All parts of the plant are poisonous, especially the leaves and green berries, and they may also be a skin and eye irritant. It is especially toxic to children, domestic pets, cattle and other livestock. The spines can deliver painful scratches.

Human symptoms include vomiting, diarrhoea, dilated pupils, respiratory difficulties and coma.

Photo 1: Common lantana

Photo 2. Yellow garden cultivar

Photo 3: Ripe and unripe lantana berries

Photo 4: Mauve lantana forming hedge

Status

Lantana is a declared noxious weed in NSW, NT, SA and Tasmania. It is a *Weed of National Significanc* [1,2] and is on the *World's Worst Weeds list* [2] as one of the worst invasive weeds of tropical and semi tropical areas of the world.

Privets, *Ligustrum sp*

Other name: Fam Oleaceae

Privets are shrubs to small trees, common garden ornamentals (although they are quite plain to look at) and very common as hedges all over suburban and most rural areas.

Plant Description

The two common varieties appear to be the broad leaved privet *Ligustrum lucidum,* and the oval leaved privet, *L. ovalifolium*, probably seen as in a variegated hedge form. Variegated forms of privet revert easily to plain green. Broadleaved privet grows to 10m as a small, single trunked tree.

The leaves are between 6-12cm long and 3-5cm wide, with a pointed tip, waxy coating and mid to dark green. The small white flowers appear spring to autumn, depending on the species.

It has pyramidal shaped clusters of creamy white flowers in summer. *See Photo 5.* The oval berries ripen in winter from green to red then glossy black, which are distributed by birds. The wax deposited on the branches by a scale insect was collected for coating candles and sizing paper, and supported a 19th century industry in China, where the plant originates.[2]

Privets are major invasive weeds of bushland in NSW, particularly in moist gullies and woodlands, rainforest areas as well as degraded environments. They tolerate shade as well as sun. They repress indigenous vegetation by vigorous competition as well as by allelopathic means, and will completely take over an area. Clearing mature privet plants stimulates mass seedling germination. Some species also sucker freely.

Poison Parts

The leaves and fruits are poisonous particularly for children, and are also a skin and eye irritant. The pollen is weakly allergenic, and the perfume highly so for sensitive people, causing breathing difficulties and irritation to the mucous membranes. Reported to be toxic to sheep, horses and cattle.

Human symptoms include severe gastric irritation and pain, vomiting and diarrhoea. Children may show drowsiness and difficulty in moving, followed by high temperature, lowered blood pressure and possibly fatal convulsions.

Status

Noxious weeds in ACT, NSW and Qld. ■

Photo 5: Broadleaf privet in flower

Photo 6: Small leaved, variegated privet hedge

References

1 *Bush Invaders of South East Australia.* Adam Muyt. Published by RG and FJ Richardson. Meredith, Victoria. 2001.

2 *Environmental Weeds - A Field Guide for SE Australia.* Kate Blood, 2001. CH Jerram & Associates – Science Publishers Victoria, 2001, reprinted 2003.

3 *Pretty But Poisonous.* RCH Shepherd 2004, RG & FJ Richardson, 2001.

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Denise Tiyce-Mathews • Shalom Alpacas, NSW

< Convenient headrest >

Cora Zyp • Coraz Alpacas, QLD

< Let's sneak a kiss >

Sandra Kop • Sandjo Alpacas, VIC

< Wedding belles >

John & Cecile Christensen • Karisma Alpacas, NSW

< I'd like to see a dog get through this >

Grace Hunter • Hillside Alpacas, TAS

< Am I doing this right? >

Tricia Gauvin • Didohama Suri Stud, QLD

< There's nothing like a full sunning! >

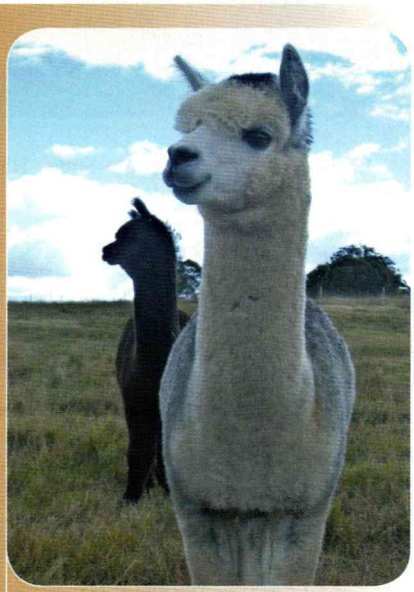
Rosemarie Mason • Glen Rose Alpacas, VIC

< It's called snow, dear >

David Lowe • Plateau's Edge Alpacas, VIC

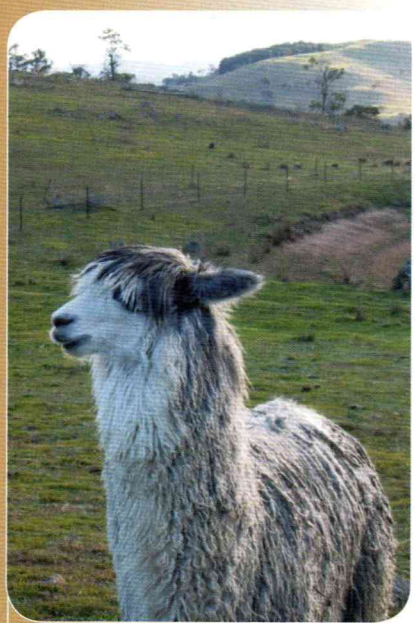
< When your alpaca thinks she's a kangaroo >

Geoff & Jenni Smith • Aingeal Ridge Alpacas, NSW



< Hey! Look over there >

Libby Garner-Paulin • Tarraganda Lodge Alpaca, NSW



< Home alone >

Odette Mayne • Currumbong Alpacas, ACT

< Comparing lustre and lock structure >

Leah Grice • Anndaleah Alpacas, QLD

< They're both cute, which one is mine? >

Michelle & Kim Oates • Serenity View Alpacas, TAS

< Sun protection is important >

Graham Rapson • Rapsody Alpacas, NSW

< Are you really sure you love me too? >

Angela Smyth • Gwandalan Alpacas, VIC

< Me and my shadow >

Lesley Gould • Tremere Alpacas, TAS

Upcoming Events

August

7-16 Royal Brisbane Show: QLD
Venue: Brisbane Showgrounds
Highlights: Alpaca & fleece judging
Contact: Camilla Smith (07) 3408 7639

9 Hawkesbury Spring Show: NSW
Venue: Hawkesbury Showground
Highlights: Alpaca judging
Contact: Don Culey (02) 4576 4576

9 Lardner Show: VIC
Venue: Lardner Park, Warragul
Highlights: Alpaca & fleece judging
Contact: Bob McLeod (03) 5629 1140

16 Spring Show: NSW
Venue: Wyong Racecourse
Highlights: Alpaca judging
Contact: Sandra Vella (02) 6564 2046

16-17 Colour Classic: SA
Venue: Murray Bridge Racecourse
Highlights: Alpaca & fleece judging
Contact: Sharon Warland 0438 072 383

17 Colourbration Show & Picnic: WA
Highlights: Alpaca judging
Contact: Sue Locke (08) 9571 2150

28-31 AAA Ltd. National Show & Sale: ACT
Venue: Budawang Pavilion, Exhibition Park in Canberra
Highlights: Alpaca & fleece judging; alpaca auction 31 August; alpaca craft competition; photography competition
Contact: AAA National Office (03) 9873 7700

29-31 Gold Coast Show: QLD
Venue: Parklands Showgrounds
Highlights: Alpaca judging 31 August
Contact: Wendy Summerell (07) 5543 0207

September

TBA Alpaca Information Day: WA
Venue: Williams
Contact: Sue Locke (08) 9571 2150

5-13 Royal Adelaide Show: SA
Venue: Adelaide Showgrounds
Highlights: Alpaca & fleece judging 5 Sept
Contact: Kerry Porter (08) 8568 5254
Lea Richens (08) 8842 2344

11-14 Florafest: NSW
Venue: Mt Penang Showgrounds
Highlights: Promotional display
Contact: Sandra Vella (02) 6564 2046

13-14 Colourbration Spring Carnival: VIC
Venue: Bendigo Showgrounds
Highlights: Alpaca & fleece judging
alpaca sales; display
Contact: Deborah Patti (03) 5423 2727

13-14 10th Charles Ledger Show: NSW
Venue: Wivenhoe, Camden
Highlights: Alpaca judging
Contact: Heather Vickery (02) 4885 2852

18-28 Royal Melbourne Show: VIC
Venue: Melbourne Showgrounds
Highlights: Alpaca judging 27 & 28 Sept; fleece judging - date TBA
Contact: Geoff Hargreaves (03) 5773 2494

26-4/10 Royal Perth Show: WA
Venue: Perth Showgrounds
Highlights: Alpaca & fleece judging
Contact: Chris Ravenhill (08) 9399 8981

27 Lawrence Agfair: NSW
Highlights: Alpaca display
Contact: Meegan Losurdo 0409 854 071

27-28 Nimbin Show: NSW
Highlights: Alpaca display
Contact: Chris Ransby (02) 6689 7443

October

Victorian Eastern Region Alpaca Month: VIC
Highlights: On farm displays; sales & information
Contact: Stella Butler (03) 5997 5520

3-4 Burnie Show: TAS
Venue: Wivenhoe Showgrounds
Highlights: Alpaca & fleece judging
Contact: Bryan Gunn (03) 6264 1154

4 Seymour Show: VIC
Venue: Seymour Showgrounds
Highlights: Alpaca & fleece judging
Contact: Rod & Ann Sales (03) 5433 3789

6 Strathalbyn Show: SA
Venue: Strathalbyn Showgrounds
Highlights: Alpaca & fleece judging
Contact: Jan Bentley (08) 8556 0256

7-9 Elmore Field Days: VIC
Venue: Elmore Field Days Site
Highlights: Promotional display
Contact: Huw Jones (03) 5448 4917

9-11 Royal Launceston Show: TAS
Venue: Inveresk Rail Yards, Launceston
Highlights: Alpaca & fleece judging
Contact: Bryan Gunn (03) 6264 1154

10-11 Wangaratta Show: VIC
Highlights: Alpaca & fleece judging
Contact: Peter Harris (03) 5765 2396

11 Sunbury Show: VIC
Venue: Sunbury Showgrounds
Highlights: Promotional display
Contact: Kelly Ward (03) 9744 1855

11 Leeton Show: NSW
Venue: Leeton Showgrounds
Highlights: Alpaca judging
Contact: Tracy Pratt 0438 298 361
Katrina Dufty (02) 6955 9556

11-12 Taree Show: NSW
Highlights: Promotional display
Contact: Sandra Vella (02) 6564 2046

16-19 Lismore Show: NSW
Highlights: Promotional display
Contact: Tracey Filicietti 02 6663 1172

18 Clare Show: SA
Venue: Clare Showgrounds
Highlights: Alpaca & fleece judging
Contact: Tracey Earl (08) 8847 2017

19 Lancefield Show: VIC
Highlights: Promotional display
Contact: Jillian Holmes (03) 5423 4237

21-23 Australian National Field Days: NSW
Venue: ANFD Site, Borenore via Orange
Highlights: Fleece judging; promotional display
Contact: John Lawrie (02) 6846 7292
Kate Bailey (02) 6887 1233

22-25 Royal Hobart Show: TAS
Venue: Hobart Showgrounds
Highlights: Alpaca & fleece judging
Contact: Bryan Gunn (03) 6264 1154

24-25 Bendigo Show: VIC
Venue: Bendigo Showgrounds
Highlights: Alpaca & fleece judging
Contact: Gayle Heafield (03) 5435 3837

26 Warrnambool Show: VIC
Venue: Warrnambool Showgrounds
Highlights: Alpaca & fleece judging
Contact: Allan Waterson (03) 5565 8462

November

1 Windellama Field Day: NSW
Venue: Windellama Community Hall & Park
Highlights: Promotional display
Contact: Roger Curvey (02) 4829 8283

2 Colac Show: VIC
Venue: Colac Showgrounds
Highlights: Alpaca & fleece judging
Contact: Lauris Jephcott (03) 5237 7783

7-8 Albany Show: WA
Venue: Albany Showgrounds
Highlights: Alpaca & fleece judging
Contact: Lorraine Naylor 0438 412 691

9 Brighton Show: TAS
Venue: Pontville Showgrounds, Brighton
Highlights: Promotional display; alpaca product sales
Contact: Sarah Priest (03) 6261 4000

15 Huon Show: TAS
Venue: Ranelagh Showgrounds
Highlights: Alpaca & fleece judging
Contact: Bryan Gunn (03) 6264 1154

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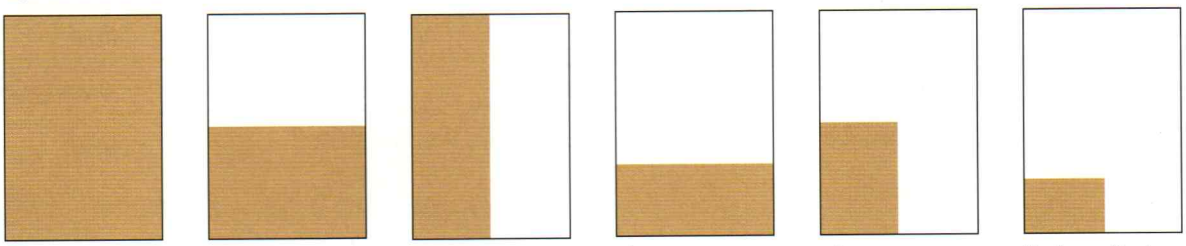

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Deadline: Friday 3 October 2008

Issue 58: Autumn
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Issue 59: Winter
Due: August 2009
Deadline: Friday 5 June 2009

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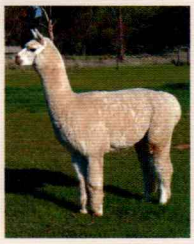
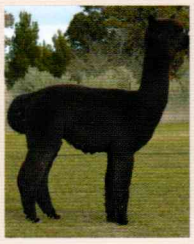
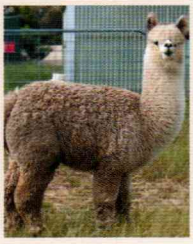

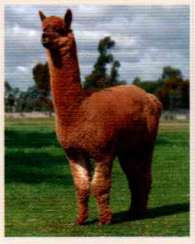
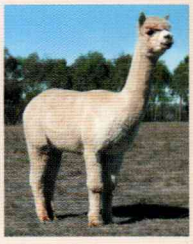

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