



Central Region Newsletter

April/May 2023

Your Central Region Newsletter From The Alpaca Association New Zealand

Hi everyone,

I can't believe it's winter already – where did the first 6 months of the year go?

This edition of the Central Region newsletter includes some great alpaca health related articles that I hope will appeal – Alpaca Teeth, some top tips on Alpaca Nutrition and finally an article on Rickets.

Over the past few months there has been a bit of activity in Central Region. We were fortunate to be able to have a stand representing the AANZ at the Central Districts Field Days in March. While overall numbers for the 3 days were down on previous years over 620 people visited our AANZ

stand. This was a great opportunity to showcase the industry and provide guidance and advice to those with alpaca or considering getting them. Thank you so much for those that volunteered their time to “man” the stand over the 3 days.

In May (Mothers Day) a collection of breeders in the Manawatu got together and ran an open day. We probably had over 300 people visit during the day – which was a great turn out. It was another fantastic opportunity to showcase alpaca and provide some hands on experience and education. The following weekend our Central Region AGM was held at FMG House in Palmerston North. I am pleased share that we have plenty of members wanting to be part of the Committee. The team is as follows:

- Ros Scott (President)
- Stephen Kellam (Vice President)
- Cheryl Hunter (Secretary)
- Virginia Darlow (Member)
- Marion Burgess (Member)
- Cheryl Wheatley (Member)
- Carey King (Member)

The Committee is meeting in June where we will come up with a plan for the year which we will share with you all. We are definitely planning on running a hands on workshop for all alpaca owners in the area. This invite will extend beyond CR members.

Safe warm and safe out there. **Ros Scott, AANZ Central Region President**



Contact Your AANZ Central Region Committee - centralregion@alpaca.org.nz

Alpaca Calendar

Autumn.

Autumn is well and truly here and below are the tasks you should attend to.

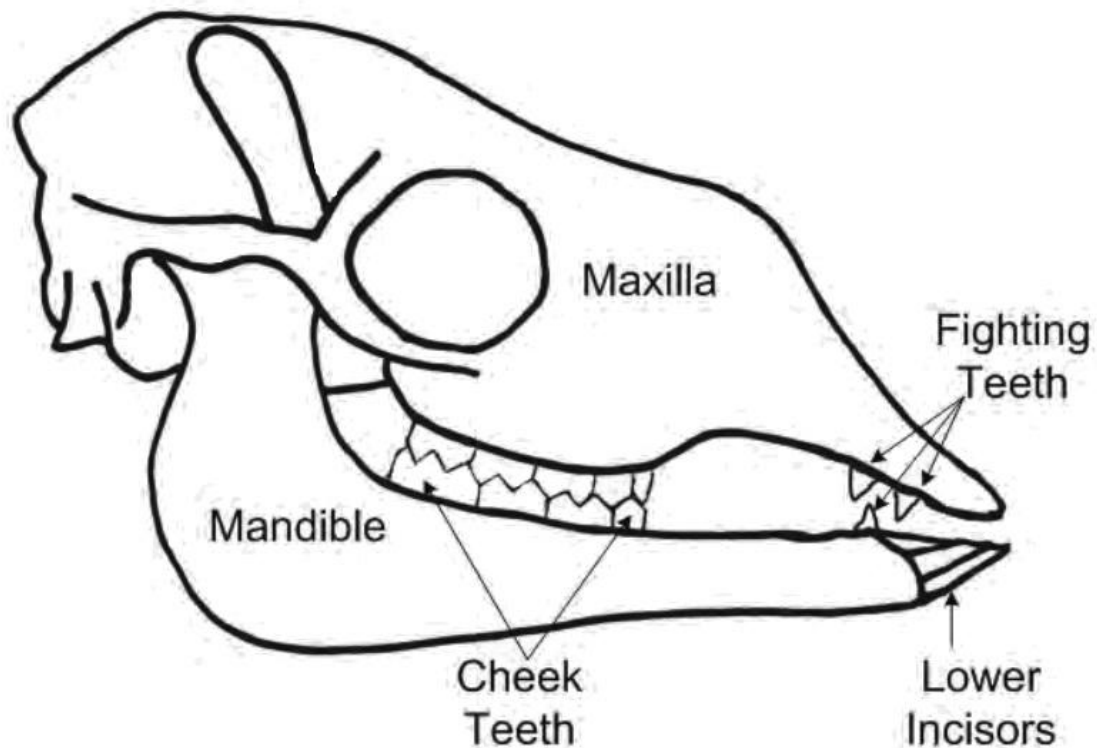
- Give vitamin D to adults and cria prior to winter
- Observe animals for signs of ryegrass staggers
- Monitor faecal egg counts from all age/sex groups and drench accordingly
- Trim toenails
- Body Condition Score all animals monthly.



Winter.

- Give vitamin D to all animals at the end of winter.
- Supplementary feed with hay/ balayage / chaff etc.
- Wean cria
- Monitor faecal egg counts from all age/sex groups and drench accordingly
- Body Condition Score all animals monthly.





Alpaca Teeth

BASIC DENTAL ANATOMY

By Allison Quagliani | Alpaca Dental Services

(Republished from AANZ Magazine, April 2018)

Alpacas originate from South America, living in a harsh, high altitude environment where they survive on native grasses, succulent forbs and sedges. Over thousands of years alpaca's teeth have evolved, like those of other herbivores, to be hardwearing and efficient in biting and grinding high fibre vegetation.

Whilst alpacas are grazing animals they do spend time browsing when trees and shrubs are within reach.

Eating is a serious business for these animals that spend more than half their lives grazing and chewing their cud. The mouth is the first stage of the digestive tract and its' function is to prepare food for the journey through the digestive system.

The mouth

The lips, dental pad, tongue, cheeks, roof of the mouth and teeth all play a part in the intake and chewing of the alpaca's food. The lips act as a sensory tool. The upper lip is split at the front and each side can move independently to carefully select food and gather it into the mouth.

The teeth at the front of the mouth, the incisors, grasp and tear blades of grass. The tongue works the food to the back of the mouth, where it is pushed out onto the grinding surfaces of the cheek teeth. Chewing at this stage is brief, with saliva being added and the mixture ground to a consistency suitable for swallowing.

Alpacas ruminate or "chew cud". Food is regurgitated and then chewing commences for a second time. Using a side to side and up and down chewing motion, these movements combine to form a circular, figure of eight pattern. The tongue and the cheeks guide the food along the teeth, more saliva is added and, combined with the grinding action of the teeth, the food is broken down into smaller particles in preparation for digestion. These smaller food particles provide an increased surface area for good utilisation of nutrients by the microbes of the stomach. The more efficiently the alpaca is able to carry out the intake and chewing of its food the more nutritional value will be gained during digestion.

Alpaca teeth are very different to our own but similar to those of other herbivores. The teeth form and grow inside the jaws below the gum. Once the teeth erupt through the gum into the mouth they keep doing so for most of the alpaca's life, until the tooth is worn away.

Alpacas have a total of 30-32 teeth comprising of 6 incisors in the lower jaw, 6 fighting teeth and 18-20 cheek teeth (Fig 1, previous page).

Incisors

The incisors are the six teeth in the lower jaw at the front of an alpaca's mouth (Fig 2, overleaf). They are designed to fit snugly against the dental pad of the upper jaw. The incisors are forever wearing against the dental pad and at the same time erupting through the gum. They are used to grasp and cut grass, leaves and shrubs. If the incisors don't meet with the dental pad then they will get longer and longer, often seen protruding through the lips, until they either snap off or are trimmed. The longer the incisors become the more difficult it is for the alpaca to graze.



Figure 2 - Incisors of an adult alpaca.



Fig.3 - Deciduous incisors of a five day old cria.

Crias are usually born with their first two incisors (Fig.3), the other four incisors erupting over the next six months. These first incisors are deciduous teeth and they will be replaced starting at around two years old by permanent teeth. By four years old the alpaca will have all of its permanent incisors and should have lost all of its deciduous incisors.

At the other end of the age spectrum alpacas will often start losing their incisors at around fourteen years old (Fig.4).

Fighting teeth

The fighting teeth of an alpaca are located behind the incisors (Fig 5, overleaf).

There are two in the top jaw and one in the bottom jaw at each side of the mouth. Males have well developed fighting teeth. These teeth are very sharp, curved towards the back of the mouth and well designed to rip and tear. These teeth can cause serious injuries during fights for dominance. As your males approach three years old you will notice the appearance of the fighting teeth and they will grow quite quickly. These teeth can be trimmed to ensure the male cannot cause injuries to other alpacas or their handlers.

Females often have fighting teeth but they are usually much smaller and rarely noticed. Wethers, castrated at a young age do not usually have fighting teeth.

Alpaca Teeth - continued

Cheek teeth

At the back of the mouth in both the upper and lower jaws are the premolars and molars, usually referred to as the cheek teeth or grinding teeth (Fig.6). The cheek teeth are arranged so the upper and lower arcades (rows of teeth) mesh together to provide an efficient grinding surface.



Figure 4 - Worn incisors of an older alpaca.



Figure 6 - Cheek teeth.



Figure 5 - Fighting teeth of a mature male.

The cheek teeth in the bottom jaw are constantly wearing against the teeth in the top jaw as the alpaca chews. If these teeth do not align perfectly parts of a tooth may become too long and dig into the opposing jaw. This can cause pain and loss of condition.

As with all animals, alpaca teeth don't always develop as per the textbook and problems with the mouth can be encountered. These include overlong incisors, sharp points and overlong molars cutting the cheeks and tongue ulcers and abscesses. Most of these issues can be alleviated with careful dental/ veterinary attention.

TOP 10 TIPS

of Alpaca Nutrition

by **Jane Vaughan** BVSc PhD MACVSc
Republished from **AANZ Magazine**, April 2016

The principal of Cria Genesis, Jane Vaughan, has been working with alpacas and llamas since 1991. Jane graduated with a Bachelor of Veterinary Science (Honours) from the University of Melbourne in 1988, gained membership to the Australian and New Zealand College of Veterinary Scientists in the Ruminant Nutrition Chapter in 1998 and completed a Doctor of Philosophy in the control of alpaca ovarian function in 2002.

Jane performs commercial embryo collection and transfer in alpacas

throughout Australia, New Zealand and the United Kingdom. She also provides nutritional advice and Johne's disease Market Assurance and Q-Alpaca programs to alpaca breeders in Australia. Jane lectures regularly to farmers, veterinarians and veterinary students on alpaca reproduction, nutrition and husbandry in both Australia and internationally, and has co-authored a number of papers in refereed journals. She is a past-President of the Australian Alpaca Veterinarians (AAV; a special interest group of the Australian Veterinary Association)

and is the current Secretary and Newsletter Editor of the AAV. In collaboration with various universities, Jane has on-going research interests in reproduction, parasitology and genetics of alpacas.

Jane travels nationally and internationally to provide the services offered by Cria Genesis.



1. How much to feed?

Alpacas will eat approximately 1.5% of their body weight as dry matter to maintain body weight (i.e. not growing, pregnant or lactating; Table 1).

Feed up to maintenance requirements with palatable, digestible roughage (leafy, green pasture, hay, silage).

E.g. 70 kg alpaca:

70 kg x 1.5% of body weight = 1.05 kg as dry matter (DM) i.e. all water removed from feed

1.1 kg DM x 100/20 = 5.3 kg lush pasture/day (grass with 20% DM content)

1.1 kg DM x 100/90 = 1.2 kg pasture hay/day (hay with 90% DM content)

Growing alpacas and late-pregnant and lactating females will eat about 2-2.5% of their body weight as dry matter. Feed up to maintenance requirements with palatable, digestible roughage (leafy, green pasture, hay, silage). Then supplement with energy/protein as required (good quality lucerne hay/oats/lupins/peas).

2. Body condition score to monitor if feeding too much or too little

Based on the 1 (emaciated) – 5 (obese) system used by the Australian Alpaca Association Inc., body condition scoring involves palpation of various parts of the body to ascertain the degree of body fat cover (or lack thereof; Figure 1). Gut fill and foetal size does not interfere with scoring. Ideal body condition score for a on-lactating, non-pregnant animal is body condition score (BCS) 2.5-3.

The first area to feel is the backbone near the last ribs. Do not palpate over the pelvis, as alpacas invariably feel skinny here due to their lack of muscling. The muscles over the vertebrae should be flat (triangular cross section) and the backbone palpable for a BCS 3. Animals that are too thin have concave musculature and animals that are too fat have convex fat and muscle bulging. Confirm your initial estimate of BCS by palpating the ribs at the point of the elbow. In an animal of BCS 3, you will just feel the ribs. Leaner animals have more prominent ribs, fatter animals' ribs are more difficult to feel, or may be unpalpable if very fat. Lastly, observe and palpate the hairless areas between the front legs and back legs to back up your score. Practise and consistency are the most important features of body condition scoring.

Table 1. Summary of Feed Requirements in Alpacas

Feed requirements Av. female 60-80 kg Av. male 70-90 kg	Maintenance (> 2.5-3 years of age)	Growth (crias should double birth weight by 50 days of age)	Lactation (peak milk output 2-4 weeks post-partum)
Dry Matter Intake (DMI % BW/d)	1.5% (1.1-1.6%)	1.8-2%	2-2.5%
Crude Protein %	8-10%	14% < 12mo 12% > 12mo	13-15%
Crude Fibre %	25%	20-25%	20-25%
Neutral Detergent Fibre (% BW/d)	0.8-1.0%	0.6-0.8%	0.8-1.0%

Top 10 Tips of Alpaca Nutrition - continued

- Growth: 3
- Maintenance: 2.5 – 3
- Females at full term: 3
- Working males: 2.5 – 3

If alpacas are too fat, feed less. If alpacas are too thin (e.g. during growth, pregnancy or lactation), feed more, better quality feed. If some alpacas in the same paddock are too fat and some are too thin, then divide the group and feed accordingly.

3. Pasture and water will supply most nutrients

Alpacas require four main ingredients in their diets: water, energy, protein and fibre.

Ensure access to fresh clean water at all times. The daily requirement of water is 30-80 mL/kg body weight per day (3-8% BW/day). So a 70 kg alpaca requires 2.1-5.6 litres water per day. The amount of water drunk is lower when grazing green pasture (20% DM) compared with hay (90% DM). Alpacas will drink more water in hot weather and when lactating. Check water troughs daily, clean them weekly.

Pasture will supply most energy, protein and fibre needs. Remember that pasture intake is driven by quality of feed, not quantity. The proportion of each depends on plant maturity (Figure 2). It will also satisfy most vitamin and mineral requirements.

Total ration (100 %) = protein % + energy % (sugars and fats) + fibre (cell walls) % + minerals %. Note that as the proportion of one nutrient increases in a ration, the proportion of other nutrients must decrease.

Greener pastures contain more protein, therefore as pasture matures, protein decreases. Crude protein content of feed required for maintenance is 8-10%. Higher levels are required for growth (12-14% CP), pregnancy (12% CP) and lactation (13-15% CP).

4. Feed long- stemmed roughage

Alpacas need palatable, digestible, long-stemmed roughage (leafy, green pasture, hay and/or silage greater than 4 cm in length) to keep their fore-stomachs functioning normally. A diet based on very short (or non-existent under drought conditions) pasture, chaff and grain/pellets or very lush spring pasture is not adequate to keep the stomach healthy. Ensure ad lib, long- stemmed, palatable, digestible pasture/hay at all times if pasture fibre is limited.

Top 10 Tips of Alpaca Nutrition - continued

A rough estimate of plant fibre content in pasture may be gained by manually testing the breaking strength of plant matter – more mature plants contain more fibre (thicker cell walls, more lignin) and are more difficult to break and are thus less palatable and less digestible.

Feed intake is driven by quality of feed, not quantity. $120/\%NDF$ = amount DMI as a % of BW possible/day:

e.g. if straw NDF is 80%, then DMI = 1.5% of BW is possible; if clover hay NDF is 45%, then DMI = 2.7% of BW is possible.

Observe alpacas to see if there is enough fibre in the diet:

- > 50% of recumbent alpacas should be chewing their cud
- Body condition score adequate – adequate fibre in the diet is required for fat deposition
- Faecal consistency – % fibre vs % DM in diet

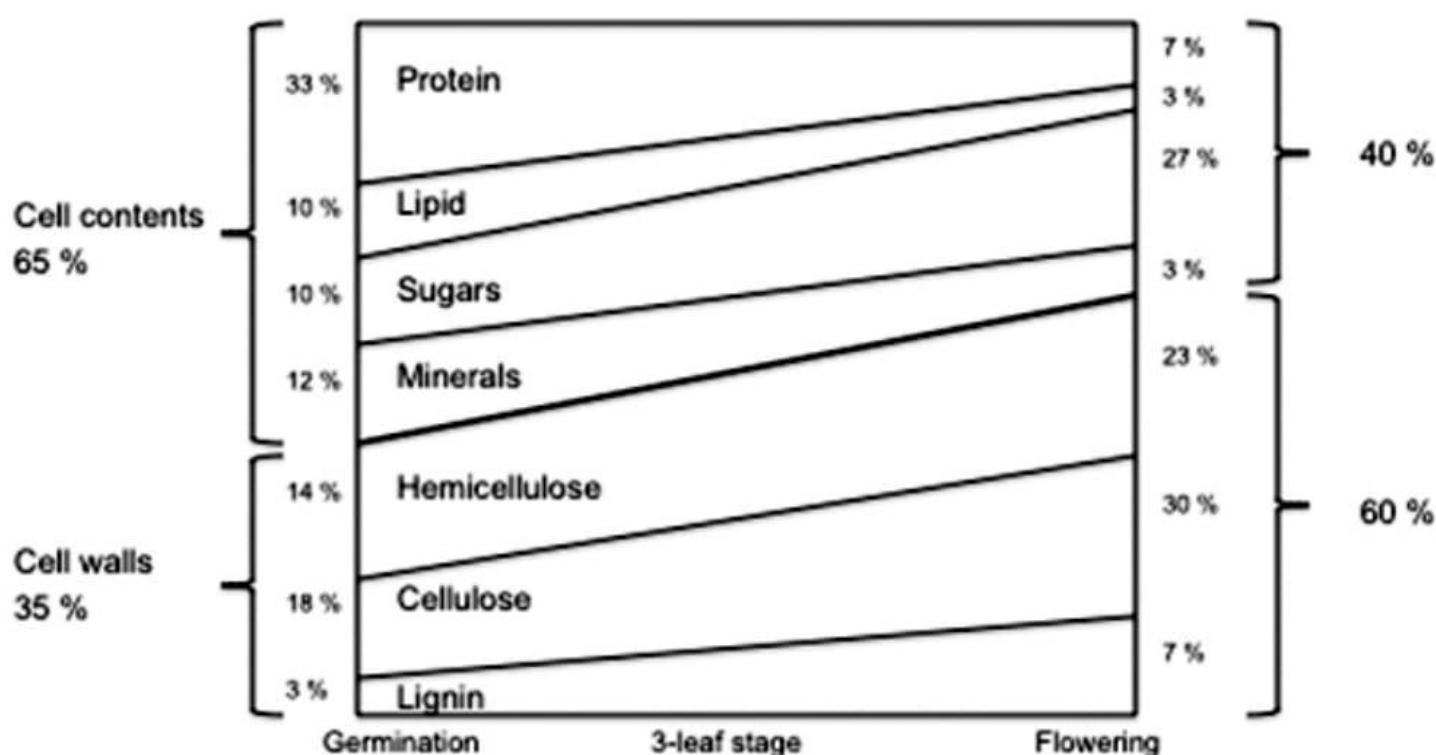


Figure 2. Feeding value of grass and how it changes with different stages of maturity [adapted from (Beever, Offer et al. 2000)].

5. Vitamins

Many of the water-soluble vitamins (vitamins B, C) are provided by the microbes that live in the fore-stomachs, so healthy alpacas do not require supplementation if they are healthy.

Top 10 Tips of Alpaca Nutrition - continued

Palpate musculature over the backbone at the level of the last ribs.

Aim for body condition scores somewhere between BCS 2.5 and BCS 3

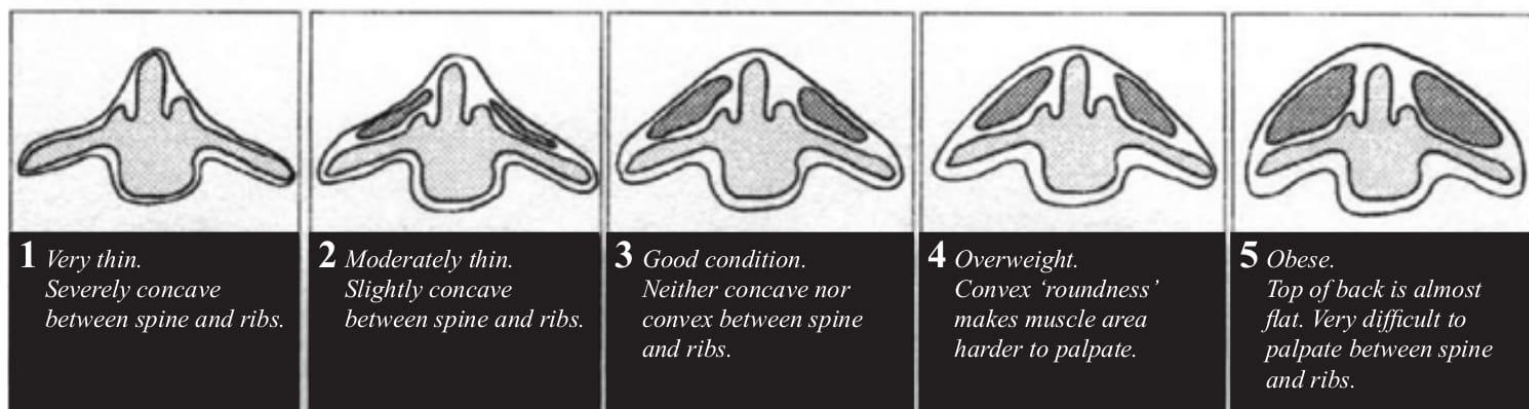


Figure 1. Alpaca Note 4: Body Condition Score of Alpacas. Prepared by AAA Inc. Education and Training Sub-committee.

Of the fat-soluble vitamins, vitamins A and E are available from green grass (even from green weeds that come up after brief summer rain) so only need supplementation if pasture is completely dry for more than 8-10 weeks.

Vitamin D supplementation is required in alpacas. Inject all alpacas less than 3 years of age, and all females due to give birth in winter/ early spring (to fortify colostrum) with 2000 iu vitamin D/kg body weight under the skin or into the muscle. Administer in late autumn, mid-winter (and early spring in higher latitudes like Tasmania, New Zealand, Europe, Canada). Read the label on the bottle to determine vitamin D concentration to determine what volume to administer.

E.g. A 20 kg cria needs 40,000 iu vitamin D. If there is 75,000 iu per mL vitamin D in your selected source of vitamin D, then the cria would need approximately 0.5 mL of solution injected. Too much vitamin D can be toxic.

6. Minerals

Are minerals deficient in the surrounding area in sheep and cattle? Ask the local Department of Agriculture, district veterinarian and neighbouring farmers for information. If in doubt, sample soils, pasture and/or alpacas to determine if mineral levels are adequate, before supplementation.

Acid, water-logged soils (annual rainfall > 500 mm) contribute to selenium deficiency. Selenium deficiency may be treated using an annual depot injection under the skin of barium selenate. Alternatively, alpacas may be supplemented by short-acting oral preparations at a rate of 0.1 mg/kg BW orally every 4-6 weeks. Do not inject alpacas with sodium selenite or sodium selenite as it can cause peracute liver failure and death.

7. Feeding supplements

Beware of feeding unnecessary supplements that may be costly, labour intensive to feed out and/or toxic to camelids. Do not feed out supplements designed for use in horses and pigs as they have different digestive systems and different mineral requirements. In the words of the late Dr Murray Fowler, University of California (Davis),

“the most toxic plant for alpacas is the food-processing plant”.

Unless pellets are being used exclusively to deliver a specific supplement (e.g. zinc to assist with facial eczema prevention), avoid feeding pellets as they are usually rapidly digestible, very low in fibre and will cause acidosis and possibly death. In the words of Dr LaRue Johnson, Colorado State University, “you do not have to feed alpacas pellets because they make their own”.

8. Access for all

Animals should have access to long-stemmed fibre at all times (e.g. in drought conditions, consider placing a large round bale of pasture/oaten hay in the paddock). If supplementary feeding of concentrates (eg grain, pellets) is required, make sure all animals can access the feed at the same time. Feed can be put out directly onto the ground, but wastage may be reduced by feeding in long troughs (e.g. guttering, old conveyor belting laid out on ground, shade cloth attached to fence).

Introduce new feeds over a period of 10-14 days to allow adaptation to the new feed. Once adapted to the new feed, feeding twice as much, every second day will save time and money, but more importantly will allow shy-feeders access to supplements. The dominant animals will fill up quickly and move away when full, allowing the shy feeders to eat the supplements later in the day/overnight.

9. Feed wastage

If supplements remain at the next feed out, or hay is being wasted, animals are being fed too much (do their body condition scores reflect this?)

Ensure that growing, pregnant and lactating animals are fed appropriately with good quality feed and feed the left-over portions to non-pregnant/non-lactating females, wethers etc.

10. Use good quality feedstuffs & keep it simple

Feed intake is driven by quality of feed, not quantity. Get pasture/ hay/supplements feed-tested so quality is known. Feed alpacas up to maintenance requirements (go

Top 10 Tips of Alpaca Nutrition - continued

back to Point 1!) with good quality pasture/hay/silage. Supplements for growth, pregnancy and lactation may be met by providing energy with cereal grains (e.g. oats – preferred over wheat/barley due to higher fibre content) and protein with lucerne hay and lupins (Table 2).

Complicated recipes containing scoops of this and cupsful of that do not alter cria sex or kill worms, but may waste owner time, energy and money.

Table 2. *Nutritive Values of Some Commonly Available Stockfeeds*

(adapted from Feedtest 2014 and Drought Feeding Management of Sheep, Agriculture Victoria 2007).

Feed Type	Av. metabolisable energy (range) (ME MJ/kg DM)	Av. crude protein (range) (CP %DM)	Crude Fibre (%DM)	Neutral detergent fibre (NDF %DM)
Spring pasture	11 (8-14)	25 (15-30)	23	38
Dry pasture feed	6 (3-8)	5 (4-8)	40-60	70-80
Pasture hay (mid-season)	7 (6-7)	11 (8-16)	28-32	49-56
Grass hay	6 (5-7)	8 (5-10)	32	56
Clover hay (early)	8.5 (7-9.5)	18 (15-20)	28-30	42-46
Oaten hay	7 (6-7)	8 (5-10)	32	56
Straws	5 (4-8)	4 (2-5)	50-70	80
Lucerne hay	8.5 (7-9)	20 (16-25)	24-28	45-50
Mixed pasture silage	8 (6-10)	11 (5-19)	29-35	45-60
Oats	11 (9-12)	9 (6-12)	12	26-35
Wheat, barley	12 (11.5-13)	10 (8-14)	2-5	12-20
Maize	13 (13-14)	9.5 (7.5-12)	2-5	12-20
Lupins	12 (12-14)	32 (28-36)	15	24
Peas	12 (11.5-12.5)	24 (20-27)	15	24

USE GOOD HUSBANDRY TECHNIQUES. KEEP GOOD RECORDS. WRITE DOWN TREATMENTS/MATING DATES/MEAT WITHHOLDING TIMES.

NO PRODUCTS ARE REGISTERED FOR USE IN ALPACAS. CONSULT YOUR VETERINARIAN AND ALWAYS READ THE LABEL BEFORE USING ANY OF THE PRODUCTS MENTIONED. NEVER USE ANY PRODUCT IN ALPACAS THAT IS NOT REGISTERED FOR USE IN FOOD PRODUCING ANIMALS.

FOR ANY SIGNS OF UNUSUAL OR SERIOUS ANIMAL DISEASE, RING YOUR VETERINARIAN.

The advice provided in this publication is offered as information only and is based on knowledge and understanding at the time of writing. While the information in this publication has been formulated in good faith, the contents do not take into account all of the factors that need to be considered before putting the information into practice. Accordingly, no person should rely on anything contained herein as a substitute for specific advice. The author does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence that may arise from you relying on any information in this publication.



RICKETS

or Hypophosphatemia Syndrome In Alpacas

By **Christopher K. Cebra** VMD, MA,
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**Republished from AANZ Magazine,
December 2016.**

Rickets is a reasonably well-known disease: most alpaca owners have heard of the human form of it, even if they are not as aware of their alpacas' susceptibility. They know it is a bone disease and related to a deficiency, but do not appreciate the variety of disease signs it can cause. Additionally, although this disorder was well publicized in the mid-to-late 90s, when reports and research came out of Oregon and New Zealand, and a few years later with a new wave of research, it seems to drift out of view on occasion, then strike unexpectedly.

Rickets in alpacas usually relates to Vitamin D deficiency. Although some of this may be dietary deficiency, especially in hay-fed alpacas, most relates to a seasonal lack of production due to lack of adequate exposure to ultraviolet (sun) light. In winter, especially in areas with cloudy weather and at higher latitudes, or places where the weather is bad enough that alpacas are kept largely indoors, blood vitamin D concentrations drop to as little as one-sixth their summer levels.

The decline appears to be especially bad in alpacas with fuller or darker fiber coats. In rare cases, rickets may also result from a phosphorus-deficient diet.

Lack of exposure to ultraviolet light leads to a drop in vitamin D. Vitamin D helps in the uptake of dietary calcium and phosphorus, the re-uptake of urinary calcium, and the normal mineralization of bone. When vitamin D drops and blood calcium drops, parathyroid hormone increases and starts degrading bone. In mature alpacas, this can lead to some thinning of bone, but it is rarely clinically significant. The greater problems occur in developing animals, either during the fetal period or growing alpacas in the first 2 years of life. In the fetus, bone disease may develop immediately. In more mature animals, changes in bone seem to lag a few months after the drops in blood vitamin D.

The fetus is dependent on its mother's circulating vitamin D. Fairly little crosses the placenta, leaving the nursing cria dependent on getting enough through colostrum and milk. If the period of skeletal growth (third trimester) coincides with maternal deficiency (winter), crias may be born affected. More commonly, fall-born crias develop abnormalities during their early skeletal growth, which often coincides with a period of low sunlight. Similar seasonal maldevelopment may occur any year until the alpaca achieves skeletal maturity.

There are a variety of different clinical presentations, ranging from covert to overt. In newborns, the most common sign is abnormal angulation of the carpus or tarsus. This may affect the ability to stand or the cria's gait. The gait may be inconsistently abnormal, because pain may shift from leg to leg. Severely affected crias may be reluctant to move or stand. In older animals or crias with more chronic problems, angulations are less notable. It becomes more common for them to stand abnormally, usually with their weight rocked back onto their hind legs. The carpus remains the most commonly affected joint, and it may appear slightly swollen or painful to palpation. In severe cases, the leg may break from a weakened cortex or ligaments may pull loose from their attachments. There is also growing evidence for vertebral column involvement, resulting in pain, reluctance to stand or move, or possible neurologic deficits. Poor weight gain and a generally unthrifty appearance are other findings. These may relate to pain and reluctance to move to eat, or possibly to some other effect of vitamin D deficiency. Some affected alpacas appear to have an immune deficiency, which can also contribute to ill thrift.

Rickets - continued

Screening for at-risk animals may be accomplished by measuring dietary vitamin D, calcium, and phosphorus, or more directly, by measuring these same parameters in blood. Young, growing animals usually have blood phosphorus concentrations at the high end of or even above adult reference ranges, so finding lower values in younger alpacas is suggestive. Ideally, serum phosphorus is above 7 mg/dl and the Calcium:Phosphorus ratio is greater than 1.5 in growing camelids. Vitamin D concentrations should be above 50 nmol/L. Blood values usually become abnormal weeks to months before clinical disease develops.

Radiographs or more advanced imaging studies may give further evidence. Angular limb deformities, fractures, thin bone cortices, and widening and irregularity of the growth plates are all characteristic. The distal radius and tibia are the best places to find lesion, but any bone may be affected.

If the disorder is caught early, prompt treatment may lead to complete resolution. This may involve vitamin D supplementation, mineral supplementation, supportive care, and possibly surgical or splint management of the legs. Supportive care may involve pain medications, convenient provision of feed, water, and shelter, sometimes slinging and physical therapy. Improvement may be noted within 1 to 2 weeks, but it may take several months for all signs to disappear.

Prevention strategies have been developed to avoid this disorder. These include keeping the blood vitamin D and phosphorus of most alpacas above the values stated above, especially pregnant females or growing crias and juveniles. Managing animals to optimize UV light exposure is recommended, but not always practical. If UV light exposure is inadequate, vitamin D should be fed or injected. The oral requirement in alpacas appears to be around 30 to 40 U/kg/day. Gel supplements, milled pellets, or mineral mixes may be used. Injecting vitamin D is the other choice. The recommended dose is 1000 to 2000 U/kg of vitamin D under the skin. This should be repeated every 2 to 3 months during the low-light season. Giving too much vitamin D may damage the kidneys.

If alpacas do not respond to the standard treatment of vitamin D supplementation, an imbalance of dietary calcium and phosphorus may be the culprit. These may respond to rebalancing these minerals in the diet.

The doses of medications described in this report have NOT been extensively scientifically tested and should be used with caution.

Your Central Region Committee

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