



## **Alpacas - management and health**

Alpacas are indeed easy to manage.

By nature alpacas are calm and gentle - handling them is seldom stressful. This ease of management brings with it much satisfaction and pleasure to the owner.

Highly intelligent, alpacas are easy to move from one area to another and through gateways. Under normal circumstances they will approach humans and come when called. They are quick to learn and halter training can be achieved in hours. Alpacas load and travel easily and cleanly in anything from a float to a small van.



They respect fencing, preferring to remain with the herd rather than explore other territory. Fencing suitable for sheep (either ringlock or 5 - 7 strand wire) is generally adequate, preferably with no barbwire.

Alpacas require no special shedding or shelter - a tree belt for shade and shelter is quite adequate.

Alpacas are low maintenance. They are highly resistant to internal parasites and fly strike is unlikely. They do not require crutching, mulesing or tail docking. With softer pads than hooves, they are less susceptible to foot rot. Protection against colostridial diseases with the use of 5-in-1 vaccinations, is recommended.

Alpacas require a diet high in fibre and low in protein. They prefer a variety of grasses and do well on both improved and native pastures. Quality oaten-hay is ideal if supplementary feeding is needed.

Annual shearing is recommended. This is a good time to check teeth and toenails, which may require occasional clipping.

Alpacas are hardy animals and by comparison to other livestock species are very easy to manage. The greatest management tool is observation.

### **Nutrition**

Alpacas prefer grasses to other pasture species (like clovers) or to shrubs. Like other ruminants alpacas only have incisor teeth in the lower jaw that bite against an opposing dental pad on the upper jaw. They generally complete their temporary tooth development from 4 to 10 months of age and permanent tooth development by about 4.5 years of age.

Alpacas differ from advanced ruminants in stomach morphology, digestion, diet selectivity and intake. Alpacas have a compartmentalised stomach, which is functionally similar to that of true

ruminants, but have 3 compartments rather than 4. Rapid absorption of water and dissolved nutrients combined with an ability to maintain a better nitrogen balance than sheep means that alpacas are more efficient digesters of food than either sheep or cattle. This means that they consume less forage per unit of body weight than other domestic species of the same production status and they can make better use of poorer quality feeds.

Alpacas are known for their tolerance of water deprivation. However they should have access to a supply of fresh, clean water at all times. An average daily water intake is suggested to be 5 litres for an adult alpaca. This will of course vary depending on environment and management regimes.

Alpacas love water and during summer like to sit in troughs or dams to cool off.

Protein requirements for alpacas are relatively low compared to other animals and the following protein levels are provided as a guide.

- Maintenance 8% to 10% crude protein
- Rapid growth from weaning 16% crude protein
- Pregnancy and lactation 12% to 14.5% crude protein

Energy requirements for alpacas are approximately 30% less than those of sheep. Fibre is also a source of energy for alpacas. The fibre or roughage component of diets should not fall below 25% and ideally should be at least 50% of the intake at all production levels.

Small quantities of minerals, trace elements and vitamins play specific roles in normal body metabolism and some are required in higher quantities during periods of growth, pregnancy and lactation.

Alpacas in southern Australia have been found to be at risk from vitamin D deficiency in the winter and spring seasons.

Any necessary mineral supplements should be incorporated directly into the diet by way of pelleted feed or grain, as alpacas are apparently unable or unprepared to lick a stock mineral block.

## Stocking rates

As a general guide, alpacas may be grazed at a stocking rate similar to that of sheep.

Feed requirements of grazing livestock are expressed as 'Dry Sheep Equivalents' (DSE). A DSE refers to the average daily energy requirement to maintain a 45kg merino wether with a fat score of 2.

The following table is a guide to the corresponding alpaca equivalents, ie: one 55kg macho alpaca = 0.9 DSE.

Growth status	Alpaca liveweight		
	35 Kg = DSE	55 Kg = DSE	65 Kg = DSE
Dry adult	0.6	0.8	0.9
Hembra	0.9	1.2	1.3
Macho	0.7	0.9	1.1
Growth: 50gms/day	1.1	1.5	1.7
Growth: 100gms/day	1.2	1.7	2.0
Growth: 150gms/day	1.4	2.0	2.2

## Shearing

Alpacas are generally shorn annually and at a time when there is least possible contamination of the fleece.

Shearing is done with conventional sheep or goat shearing equipment or hand shears. As alpaca fibre is non-greasy, shears must be well oiled to guard against overheating.

Alpacas are usually shorn lying down, gently restrained with feet shackled.

Annual fibre yield is up to 5 kilograms from a male and up to 3 kilograms from a female.

The first cria or baby clip commands a premium price because of its extra fineness. The best fleece comes from the saddle (ie back, side, shoulder and rump). Neck fleece can be slightly coarser and is usually shorter. Coarser fibre is usually found on the belly and legs.

## Feet and teeth trimming

When alpacas are kept on softer ground their toenails require trimming from time to time. Foot shears used for sheep are quite satisfactory.

When an occasional animal has teeth protruding past the top pads then the teeth should be filed back. The animal should be restrained (shearing time is suitable) and the teeth filed back with an appropriate rasp or a small angle grinder with the necessary guard attached.

Males have fighting teeth and these should be cut off from 3 years of age. If not removed they can inflict severe injury during fights with other males. There are 6 fighting teeth - 4 upper and 2 lower. This is a two-person job with one restraining the animal while the other uses a piece of obstetric wire to remove the teeth. The fighting teeth do regrow and may require recutting after 3 to 4 years.

## Alpaca health

The adult alpaca's normal vital signs are:

Temperature	37.5 – 38.3° C
Heart / Pulse rate	60 to 90 beats per minute
Respiratory rate	10 to 30 breaths per minute

## Parasite control

### *External parasites*

The biting or chewing louse, *Bovicola breviceps*, has been seen with increasing frequency in recent years. Shearing time in spring 1998 revealed many cases of infection of alpacas with the camelid biting or chewing louse *Bovicola breiceps* in Western Australia, New South Wales and Victoria.

The life cycle intervals of the louse are as follows: adult lice copulate, then the female deposits fertilised eggs onto hair fibres. The eggs hatch within 1 to 2 weeks to give rise to a first stage nymph. The nymph has 3 stages of development as it matures to adult size. Maturation takes 2 to 3 weeks. The life cycle can be completed as little as 3 to 5 weeks. Adults may live on average from 30 to 50 days.

Studies have shown that lice shed into the environment all die within 5 days. However eggs can take up to 8 to 12 days to hatch, but the unfed, newly emerged, first stage nymphs live no longer than 12 hours.

From these findings, it is seen that the risk of transfer via inanimate objects such as grooming utensils, blankets or harnesses is quite high. These items should be disinfected regularly as a precaution against unwanted transfer of lice.

In the case of housing or bedding a 14 day spelling period would be sufficient to ensure absolute protection against reinfestation.

No louse products are registered for use on camelids. However organophosphates such as diazinon used at the same rates as recommended for sheep have given good results.

Three applications, each applied a fortnight apart following shearing, will ensure eradication. Animals should only be treated on a cool day and should not be stressed at time of application.

### ***Internal parasites***

Many of the sheep and cattle parasites are unlikely to endanger the health of alpacas in Australia.

The Scourworms [*Trichostrongylus* spp. (Black Scourworm), *Ostertagia* spp. (Brown Stomachworm), *Cooperia oncophora* (Cattle Scourworm)] and *Nematodirus* spp. have the potential to cause disease across a wide range of farming conditions. However, they are only likely to do so in the presence of concurrent disease, severe stress or heavy environmental contamination as contributory factors.

Worms with the potential to be a serious or sporadic problem on specific farms or in certain regions are *Fasciola hepatica* (Liver fluke), *Dictyocaulus* spp. (Lungworm) and *Haemonchus contortus* (Barber's Pole Worm).

Research findings have shown that all scourworm egg counts greater than 200 eggs per gram (epg) of faeces were from crias or weaners. *Nematodirus* epg values were also generally low in all age classes; only 4 counts (1.5%) were greater than 100 epg. Crias and weaners had greater faecal egg counts than tuis and adults for all worm categories, confirming a very clear age resistance to internal parasites. Once age resistance has become established, usually in the second year, it should persist if general management and husbandry are adequate.

Faecal egg counts of alpacas can provide a useful tool for monitoring of the herd status but are inappropriate at the levels of sensitivity routinely used for sheep. Minimum sensitivity should be 15 epg of faeces.

Bulk faecal egg counts are unsuitable and counts from only one or two animals in a herd rarely provide useful information. Unless the egg types are accurately differentiated by an experienced person, the results may be meaningless.

### **Drenching recommendations**

- Drenching of alpacas less than 1 year old is recommended only when the Scourworm egg count exceeds 350 epg, unless there is some unusual stress factor present or a concurrent burden of another parasite, such as *Nematodirus* with an egg count of 50 to 100 epg or greater.
- *Nematodirus* infections in most young animals spontaneously resolve. Individuals with counts exceeding 100 epg should be drenched.
- It is probably necessary to drench animals older than 1 year with a Scourworm egg count greater than 125 epg or *Nematodirus* count greater than 50 epg. In addition to their well being, the justification for these treatments is related to the greater potential of mature animals to heavily contaminate the environment.

- Faecal monitoring twice a year (July/August and December), will detect those animals which need to be drenched. The identified animals should be individually drenched. Regular monitoring of parasite levels can avoid a large amount of unnecessary drenching without compromising the health of the animals.
- Routine drenching of the whole herd is not recommended because of the danger of the development of resistant worms.
- Drenching based on the double summer drench concept commonly employed for worm control in sheep and sometimes recommended for cattle in southern Australia is not recommended. At most, animals should be treated once, in December, and a second drench only given to individual animals in February upon confirmation by faecal examination that it is required. Drenches given at other times of the year should be in response to a requirement identified by faecal sampling, and should therefore rarely include animals older than 1 year.

### **Vitamin D supplementation**

It is clear from survey results that alpacas in southern Australia are at risk of vitamin D deficiency during the winter and early spring.

Vitamin D plays an important role in controlling calcium and phosphorus utilisation in the body, and in early stages of vitamin D deficiency blood phosphorus concentrations will readily fall whereas blood calcium concentrations, which are tightly controlled, will only fall in severe deficiencies.

Vitamin D synthesis in the skin, as a result of solar radiation, is likely to be reduced in winter months, particularly in animals with thick fleeces. Alpaca owners in southern Australia need to be concerned about the risk of vitamin D deficiency in their animals during the winter months.

A syndrome of lameness, limb deformity and poor growth rates (rickets) associated with low blood phosphorus concentrations has been observed in alpacas and llamas in the USA and in alpacas in New Zealand.

Crias born during the late summer and autumn in southern Australia appear to be particularly vulnerable to vitamin D deficiency during their first winter.

A single injection of 1000 IU vitamin D per kg body weight has been found to maintain an adequate vitamin D status in crias for approximately 7 weeks. An increase to 2000 IU maintains the vitamin D status in crias to between 7 and 11 weeks. A second injection is required after 7 or 11 weeks to continue to maintain vitamin D status.

Adult alpacas are less susceptible than crias to vitamin D deficiency. Older animals have an opportunity during the summer and autumn to build up their vitamin D reserves. Crias born in autumn and winter do not have this opportunity and therefore require two injections of vitamin D. A single injection of vitamin D at a dosage of 1000 IU/kg bodyweight in mid winter should prevent the vitamin deficiency in older animals.

Although there appears to be a relationship between coat colour and plasma vitamin D concentrations, the importance of coat colour in affecting the susceptibility of alpacas to vitamin D deficiency is not fully understood.

It is recommended that for alpacas in southern Australia, a single injection of 1000 IU vitamin D per kg body weight to crias in late autumn and again in mid winter and to adult females in mid winter should ensure vitamin D adequacy. While increasing the dosage to 2000 IU vitamin D per kg body weight will increase the period of adequacy it will not eliminate the need for a second injection in crias.

## **Colostridial diseases control**

Enterotoxaemia and tetanus are the two most common colostridial diseases affecting alpaca. Five-in-one vaccinations are recommended.

A herd vaccination program using a minimum vaccine should be practised. The 5-in-1 dose as recommended for cattle is used.

Recommendation for crias is the vaccination given at 6 to 8 weeks of age, followed by a booster 4 to 6 weeks later, then annually. Vaccination in late pregnancy should be avoided.

## **Johnes disease**

The disease is caused by a bacterium, *Mycobacterium paratuberculosis*. The disease does not seem to be widespread throughout the alpaca population. However the source of the infection is often difficult to establish because of the nature of the disease. There can be a long period between when the animal is infected and when it begins to show symptoms.

Some animals show no symptoms while others show weight loss, have diarrhoea and in some cases die. The characteristic lesions are enlargement of the lymph glands of the intestines, which can only be found on autopsy.

Although animals can be tested for Johnes Disease using faecal culture the test is not foolproof.

A voluntary Market Assurance Program (MAP) aimed at identifying, promoting and protecting accredited herds of alpacas has been formulated.

It is designed to ensure that any animal purchased or brought onto a property from an Alpaca JDMAP property is as far as can be ascertained, unlikely to be infected with Johnes Disease.

## **Fight induced infections**

These may occur if males are run together and need to be treated on an individual basis, depending on the location of the fight wounds.

Trimming of the fighting teeth is an important management tool, which should be undertaken to prevent such injuries.

## **Lameness**

Lameness can occur from a variety of causes such as limb abnormalities, joint problems resulting in arthritis or a vitamin-mineral imbalance.

The reason for the lameness needs to be determined, then appropriate treatment given.

## **Skin problems**

A zinc responsive dermatitis can occur in alpacas, which responds to supplementary zinc in the diet.

Lesions are mainly around the head and perineum (the hairless area under the tail, around the anus) and along the backline.

## **Dystocia (difficult birth)**

In general, birth problems with alpacas are not common and most crias are born during the middle of the day.

Dystocia is usually a result of the cria being in the wrong position in the uterus. The legs may be flexed or the neck may be bent or the cria may be presenting backwards.

In all cases appropriate action needs to be taken before the birth can proceed.

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