

Tips for drought management in alpaca herds

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At this time of the year, pastures are typically low in quality (grass is brown and stalky, therefore very low in protein and digestibility) and quantity (pastures are short or non-existent). Many paddocks are bare. Some areas are profoundly dry after a poor spring in 2012. Here are some tips to implement during the current dry conditions and to keep in mind each year when managing stocking rates and planning feed purchases.

Recognise the possibility of a poor season early

Statisticians have shown that long-term predictions for rain by the Bureau of Meteorology are not accurate. It might rain, or it might not! Whilst not possible for this particular dry spell, it is good farm practice to look at monthly long-term average rainfall in your district. As each month falls below the annual average, introduce strategies gradually to combat drought. Aim to store fodder and improve water supplies in good seasons.

List farm resources

- What are your current finances?
- Water availability?
- Equipment to feed alpacas?
- How long will you have to feed for?
- Aiming to feed for survival, maintenance or production?
- What classes of stock are on the property?
- What fodder to use and how much will it cost?
- Agistment an option?
- Current prices of animals vs drought prices?
- Effect on soils and pastures?
- ALLOWING STOCK TO STARVE IS NOT AN OPTION

Be flexible

You do not need to implement all of your plan at once. Your drought plan will require continual modification. In general, it is sound to sell some stock and feed the rest.

Drought management options

1. Sell stock

- Identify culls and sell early before they lose too much condition/markets start to drop
- Maintain as many breeders as possible so you can build up numbers quickly after the drought
- Keep the most productive animals – younger ones
- If you de-stock by 30%, there should be no need to re-sow pastures
- Observe meat withholding periods if selling alpacas for human consumption
 - You must not use drugs that are not registered for use in food-producing animals such as gentamycin, chloramphenicol, metronidazole, enrofloxacin and phenylbutazone. If in doubt, check with your vet.

2. Buy in feed

Plan ahead and forward purchase fodder (hay and silage) and grain. Bear in mind that dry pastures will provide more feed than anticipated. Remember that feeding is expensive and time-consuming. **BODY CONDITION SCORE YOUR ANIMALS TO MONITOR FEEDING.** Maintain at BCS 2 (see below for more information).

3. “Sacrifice” paddocks

Take stock off vulnerable pastures/soils to protect vegetative cover on pastures and contain weeds that may be in purchased feeds. If ground cover is less than 30 % wind will erode the soil during the drought and water will erode it when drought breaks. Start supplementary feeding 2 weeks before putting stock into the containment area. Ensure they have been vaccinated with 5-in-1 and monitor worm burdens.

Put animals into containment areas to monitor feeding and watering, and to maintain ground cover (> 30 %) over most of the farm so re-sowing of pastures is not necessary after the drought breaks. Do not put animals back onto pastures after rain until grass has had 3 or 4 weeks to get away (3-4 leaf stage after the autumn break).

The site for a containment area could be set up as permanent structure for future emergencies – drought/flood/fire. Select an area with moderate slope and well-drained, stable soil like clay. Ensure there is no important remnant vegetation and protect trees with guards. Ensure there is shade, shelter and good drainage. Provide access to good quality water and set up clean handling facilities. Set the area back from watercourses and dams by 500 m. Minimise problems with dust, noise and smell for you and your neighbours.

4. Agistment

This is a valid option if you can find suitable agistment as it saves time in feeding and releases more feed for stock left on your farm. Be aware of the risk of stock losses whilst on agistment, introduction of diseases/weeds when stock return home and cost of transport to and from the agistment block.

5. Change mating, weaning and shearing times to reduce feed demands during drought

(a) Early weaning. The cost of drought feeding a breeding female for 6 months (late pregnancy and lactation) is about 50% more than for a dry female.

(b) Postpone or do not mate females. Delay mating in maidens and older females first. Remember that severe undernutrition of a female will decrease lifetime wool production of her cria and limit her ability to conceive at the next joining.

(c) Do not shear at a cold time of the year. Beware of penalties for short/over-long wool.

What and how to feed?

There is no universal ration to suit all farms. Set targets for each class of stock. For example, wethers may undergo gradual weightloss to BCS2, while breeding females may be fed to maintenance. Weaners may be fed to maintenance or to grow.

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). *Feed up to maintenance requirements with roughage* (pasture, hay, silage).

E.g. **70 kg alpaca maintaining body weight:**

$70 \text{ kg} \times 1.5 \% \text{ of body weight} = 1.05 \text{ kg as dry matter (DM)}$ ie all water removed from feed

$1.1 \text{ kg DM} \times 100/20 = 5.3 \text{ kg lush pasture/day}$ (grass with 20 % DM content)

$1.1 \text{ kg DM} \times 100/90 = 1.2 \text{ kg pasture hay/day}$ (hay with 90 % DM content)

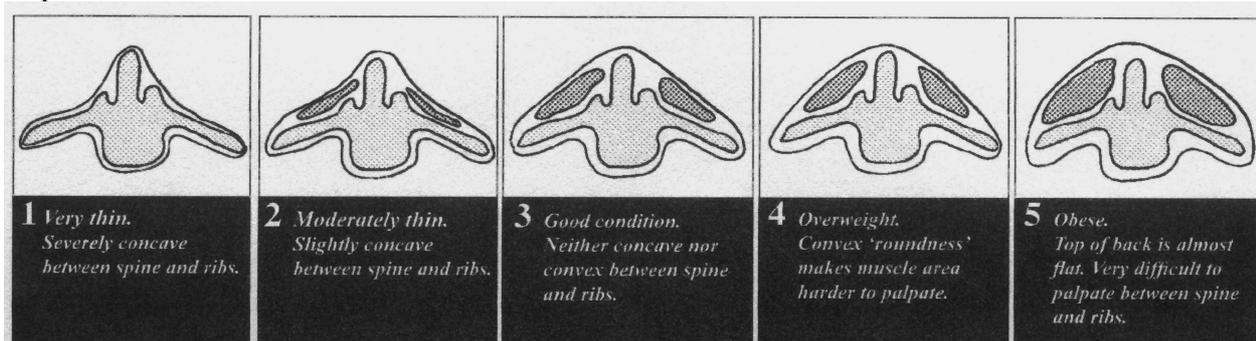
Growing alpacas will eat about 2 % of their body weight as dry matter, so a 35 kg weaner will eat 0.7 kg DM/day (or 0.8 kg dry feed)

Late-pregnant and lactating females will eat about 2-2.5 % of their body weight as dry matter so a 70 kg lactating alpaca will eat around 1.75 kg DM/day (or 2 kg dry feed)

Feed up to maintenance requirements with roughage (pasture, hay, silage). Then supplement with energy/protein as required (good quality pasture hay/lucerne hay/oats/lupins/peas) in weaners and late pregnant/lactating females.

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

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



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



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

If alpacas are too fat, feed less. If alpacas are too thin (eg during growth, pregnancy, lactation and drought), 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 50-80 mL/kg body weight per day (5-8 % BW/day). So a 70 kg alpaca requires 3.5-5.6 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.

Ensure water quality is maintained during drought. Ideally there should be less than 3000 mg/L salinity, however young and lactating stock can tolerate up to 5000 mg/L whilst adults can handle 10,000 mg/L. Beware of evaporation from dams as salinity may increase. 1-2 m depth is evaporated from a dam each year. Have you got enough water?

Pasture will supply most energy, protein and fibre needs when rainfall is adequate. The proportion of each depends on plant maturity. It will also satisfy most vitamin and mineral requirements. However, under drought conditions, pasture will fail to provide adequate energy and protein.

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 (12-15 % CP), pregnancy (12 % CP) and lactation (13-15 % CP). Drought pastures may not even contain 4 % CP. Lupins (25-45 % CP) and lucerne hay (15-25 % CP) make excellent protein supplements to boost the average CP intake above that which is contained in dry-standing pasture.

4. Feed long-stemmed roughage

Alpacas need long-stemmed roughage (pasture, hay, 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 pasture/hay at all times if pasture fibre is limited and if feeding stock in a containment area.

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 less digestible.

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

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

5. Vitamins

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

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). Consider supplementation if pasture is completely dry for more than 8-10 weeks and under drought conditions.

6. Feeding supplements

Beware of feeding unnecessary supplements that may be costly, labour intensive to feed out and/or toxic to your animals. Do not feed out supplements designed for use in horses and pigs as they have different digestive systems and different mineral requirements. Read the label carefully on all supplements.

7. Access for all

Animals should have access to long-stemmed fibre at all times (eg 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. You can feed out directly onto the ground in a long thin trail, but you may reduce wastage by feeding in long troughs (eg guttering, old conveyor belting laid out on ground, shade cloth attached to fence) or feed out grain on an unrolled bale of hay to make alpacas fossick for the grain and reduce the risk of grain overload.

Introduce new feeds over a period of 10-14 days to allow adaptation to the new feed. The digestive tract in camelids has adapted to facilitate plant digestion by setting up a symbiotic relationship with billions of microbes in the forestomach. Therefore, when you feed an alpaca, you also feed the microbes in the forestomach. Look after the microbes and the microbes will look after your alpaca. Different rations favour different microbes so change feeds slowly to allow the microbes to adjust to the new nutrients. Failure to do so could result in alpacas suffering indigestion, grain overload and possibly death.

8. Feed wastage

If supplements remain at the next feed out, or hay is being wasted, you are feeding 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.

9. Keep it simple

Complicated recipes containing scoops of this and cupsful of that do not alter cria sex or kill worms, but may waste your time, energy and money. *Feed alpacas up to maintenance requirements* (go back to Point 1!) *with pasture/hay/silage*. Supplements for growth, pregnancy and lactation may be met by providing energy with cereal grains (eg oats) and protein with lucerne hay and lupins.

10. Some simple rations to get you started

The following guidelines assume that there is no pasture available. You must combine skills of pasture evaluation with body condition scoring to determine appropriate supplementation. **These are rough guidelines only.** All new feed should be introduced slowly (over a period of 10-14 days) to allow the microbes to adjust to the new feedstuff.

Supplement all classes of stock up to maintenance requirements with *high fibre* supplements if pasture is limiting. eg good pasture hay or 3 parts oaten hay/1 part lucerne hay. Ensure at least 25 % of fibre is greater than 4 cm in length to optimise stomach function. Animals requiring more than maintenance requirements (growth, lactation) but unable to obtain them from pasture can be supplemented with concentrates eg oats/lupins/vitamins/minerals.

A 70 kg adult alpaca can be just maintained on 1.2 kg oaten hay with 8-10 % crude protein. However, a mixture of 3 parts (on a weight basis not volume basis) oaten hay and 1 part lucerne hay will contain a little more energy and protein. 1.2 kg of this mix will provide some safety margin for energy and protein needs.

Growing crias require more energy and 14-16 % crude protein. An appropriate supplement could consist of an *ad lib* ration of 2 parts oaten hay, 2 parts lucerne hay, 3 parts oats, 3 parts lupins. This will provide enough energy and protein and calcium and phosphorus in a ratio of 1.7:1.0. Beware of excess intake when grain feeding – introduce feed slowly, do not let grain feed build up in the bottom of feeders, mix well with fibre (hay/chaff) to reduce the risk of grain poisoning and death.

Lactating females require more energy and 13-15 % crude protein. A mixture of 3 parts oaten hay, 3 parts lucerne hay, 2 parts oats, 2 parts lupins would satisfy energy, protein and Ca:P needs. Again, beware of grain feeding.

11. When to start feeding in a drought?

The onset of drought is usually gradual and loss of body condition/body weight and declining pasture quality and quantity are signals to begin supplementary feeding. Start while there is reasonable feed in paddocks and offer a third to a half of the calculated supplementary ration. Monitor body condition scores and adjust as necessary.

Stop feeding after the drought breaks only when less than a quarter of the herd are BCS 2 or less. Do not stop feeding suddenly and keep animals restricted from pasture until adequate green grass is available, then allow increasing grazing time each day until full grazing in 7-10 days.

12. Frequency of feeding

Frequency of feeding depends on the physiological status of each mob, the type of feed and availability of troughs. Once adapted to the new feed, feeding twice as much, every second day will save you time and money, but more importantly will allow shy-feeders access to supplements. The dominant animals will fill up quickly (you have seen how they stake out the feed and spit at any animal trying to get near) and move away when full, allowing the shy feeders to eat the supplements later in the day/overnight. Try extending feeding frequency for maintenance by offering thrice the ration every 3 days or twice weekly.

Note that alpacas in late pregnancy, lactation and growth require daily feeding.

Draft off shy-feeders. About 10 % of animals will not adapt to hand feeding very well. Draft them off the main mob and offer good quality hay and persist with grain as well.

In summary, during an extended dry period, it is essential to start supplementing your alpacas early to maintain animal health and prevent pastures from being destroyed. You must monitor your efforts by body condition scoring regularly so you can adjust quality and quantity of rations. Seek assistance and useful ideas for drought feeding from your veterinarian, the local department of agriculture, the plethora of articles on drought feeding on the internet and other resources.