



HUSBANDRY

MINERAL AND VITAMIN SUPPLEMENTS

The main vitamin to consider in alpaca supplementation is vitamin D and the main mineral is selenium. Both are responsible for significant pathology when deficient and both are able to induce severe toxic signs if given at too high dosage.

Vitamin D

Vitamin D is essential for bone metabolism, amongst other things. Therefore growing animals have high vitamin D requirements. One of its main effects is to enhance calcium absorption from the diet.

It seems that alpacas have higher vitamin D requirements compared to Ruminants, and this may be due to them being adapted to very high UV exposure in their native environment, as UV exposure is necessary for activation of vitamin D in the skin (transformation of a cholesterol derivative into vitamin D₃). As a result, vitamin D requirements are especially high for:

- Young growing animals (note that milk is essentially devoid of vitamin D).
- Animals with darker skin or heavy coat (blocking UV light).
- Animals not sufficiently exposed to UV light (i.e. south of latitude 34°S during winter time in Australia, or kept indoors).

The classically recommended dose rate for cria is 1,000-2,000 international units (IU) per kg bodyweight by subcutaneous injection twice at 6 week interval, during the winter months.^{1, 2}

The form of vitamin D generally used in supplementation is vitamin D₃ or 25-hydroxycholecalciferol. 1,000 IU of vitamin D corresponds to 25 µg. Normal values in alpaca plasma are reported as being above 25 to 30 nmol/L vitamin D₃.²

Vitamin D deficiency in growing animals leads to a bone condition called rickets. However massive doses of vitamin D can be toxic and result in the following signs:

- Calcium deposits within blood vessels such as the aorta and carotids.
- Calcium deposits on adrenals, stomach wall and parathyroids.
- Reduced growth, hyperphosphataemia, weight loss, anorexia, debilitation.

Selenium

Selenium deficiency is responsible for 'white muscle disease' in young animals (well documented in lambs) and for infertility in adults, especially females.

Selenium supplementation should be implemented carefully as too much selenium can lead to severe problems including sudden death in its acute form or abnormal nail and wool growth in its chronic form.

With the exception of slow release products, specially formulated to provide selenium supplementation for a long period after administration (e.g. DEPOSEL®), the dose to be given to an alpaca is 0.1mg selenium per kg bodyweight, either orally or by subcutaneous injection.^{2, 3} With slow release products, the dose can be much higher.

As the difference between the therapeutic/preventative dose and the toxic dose is narrow, it is recommended to check the selenium status of your animals before implementing a supplementation regimen.

Normal values in alpaca blood are reported as being above 0.5 to 0.7µmol/L selenium.²

References

1. DIXON R. – personal communication.
2. JUDSON G. – Mineral and vitamin needs of alpacas – Proceedings of the Australian Camelid Veterinary Association, Perth, June 2000, pp 45-58.
3. Standing Committee on Agriculture and Resource Management, Ruminants Subcommittee – Feeding standards for Australian livestock, Ruminants – CSIRO, 1990.

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Disclaimer: The management practices detailed in this overview do not constitute veterinary advice. Any alpaca appearing to have an adverse condition should be assessed by a veterinarian.