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Mg
Magnesium

Magnesium

Always remember that minerals and vitamins interact in many different ways and to supplement with one just one or two minerals and not with others is highly likely to cause problems with imbalances in the other vital nutrients. Very rarely is a horse's diet deficient in just one mineral and rarely does a nutritional medical problem respond to the addition of just one or two minerals. Whilst the action of individual minerals can be described in the functioning of the normal horse's body never forget that it needs other cofactors to enable it to work.

An informed, astute and observant owner is the best judge of how a horse is performing on the diet it is on and can correct it appropriately as required.

Magnesium is vital for correct nervous system and muscle function, energy metabolism and production and is directly required for hundreds of chemical reactions in the body daily. An absolute or relative deficiency of magnesium manifests as horses with nervous, wary or excited behaviours and muscle tremors. There is poor work tolerance with tying up likely. Magnesium is important to help lessen horse obesity and may help in the management of laminitis. Excess magnesium is excreted in the urine and there is very little magnesium stored in the body. Major overdoses of magnesium can lead to renal and cardiac problems.

Most magnesium needs are acquired through forage – they absorb 40-60 % of the magnesium in pasture plants and acquire between 60% to 100% of daily needs through this source.

Magnesium deficiency is likely when there is strong grass growth as in spring or when winter pastures are fertilised and grass grows well – grasses under these conditions of rapid growth are likely to be low in magnesium, sodium and soluble carbohydrates and relatively high in nitrogen and potassium. High potassium slows magnesium uptake while high sodium helps magnesium uptake. A relative magnesium deficiency is likely when dietary potassium is too high and calcium, phosphorus and fats in the diet also influence the ability of the horse to utilise and store magnesium.

Magnesium can be supplemented in the diet with magnesium oxide, magnesium carbonate, magnesium sulphate and magnesium-L-aspartate. It has been estimated that maintenance needs of magnesium for horses is 13-15 mg/kg/day – this is increased 1.5 to 2 times for growing horses, lactating mares and horses in medium to heavy work due to losses in sweat.

Based upon a 70% absorption rate a horse needs to consume 31mg/kg/day of magnesium oxide to get 15mg/kg/day; 64 mg/kg/day is required for magnesium carbonate to get 15mg/kg/day ; and 93 mg/kg/day of magnesium sulphate is required to get 15mg/kg/day.

Magnesium –L –aspartate is a chelated magnesium which means it is bound to an amino acid and is 100% absorbed. However, it is only 20% magnesium so 32.5 grams /500kg horse /day is needed to achieve maintenance needs of 13 mg/kg/day. It is also at least ten times more expensive than magnesium oxide. Not only is magnesium oxide far more economical to feed it also requires only 15.5 gms/500hg horse/day to provide 13mg/kg/day maintenance needs.

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