



## **Animal Health & Nutrition Specialists!**

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### **What Vitamins do my Cattle Need?**

Vitamins are complex organic molecules that are needed for biological processes. They are usually only required in small amounts but a deficiency of them can cause major problems to the beast and its ability to utilise the available feed. Vitamins are not always the same chemical as often biological processes can transform one form of the vitamin into the biologically active form. For example beta carotene and retinol are both vitamin A. Processes in the body convert beta carotene to retinol which is the form needed by the body. For this reason vitamins are measured in international units (IU). Vitamins can be broadly separated into two groups, water soluble and fat soluble. The fat soluble vitamins are Vitamins A, D, E and K. The water soluble vitamins are the B group and vitamin C.

All of the water soluble vitamins can be manufactured by rumen microorganisms and so deficiencies are rare. Cobalt is required by the rumen bugs to form vitamin B12 so deficiencies of this can occur when cobalt is lacking. In very high producing animals such as modern dairy cows supplementation with some of the B group vitamins has been found to enhance production as the rumen bugs cannot produce enough for the very high demands required. Young calves without a functioning rumen can experience vitamin deficiencies if there are not sufficient quantities in their feed. Vitamin K is also produced in the rumen.

The vitamins that are necessary for a beast to obtain from its diet are the fat soluble vitamin A, D and E. Cattle grazing green grass with plenty of sunlight generally obtain enough vitamins from the pasture. However when stock are on grain, hay or dry sun-bleached grass deficiencies can occur.

Vitamin A deficiencies have been associated with lower conception rates, increased time to return to service, ovarian cysts, increased incidence of retained placenta and abnormal semen in bulls. It is stored in the liver but reserves generally last only 2 to 3 months. Large quantities are available in green feed but dry and frosted pastures are generally low in vitamin A.

Vitamin D has an important role in absorption of phosphorous and calcium and the remobilization of these elements from storage. Weak bones and rickets together with reduced appetite and growth are general signs of deficiencies. Vitamin D can be manufactured by stock exposed to sunlight so deficiencies are rare.

Vitamin E is closely associated with selenium and these two have a sparing affect on each other. This means if one is lacking the other can be partially used in replacement. Vitamin E is not stored in large quantities. Deficiencies have been associated with lowered resistance to disease particularly mastitis. Supplying sufficient vitamin E can increase weight gain in calves and ensure that they can fight off any diseases they may encounter. Recent research has also linked vitamin A and E to improved meat colour and tenderness.

The added vitamin A, D and E in Cattle King products can ensure that your stock can perform to their full potential whether it be for growth or to raise a healthy calf each year. The addition of the water soluble vitamins is not needed as they are produced by the rumen microflora and are therefore not normally deficient.