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Buiatrics is the study of cattle diseases and health management.

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The manuscripts published in these Proceedings were photocopied. The editor is not responsible for any errors in the scripts.

Stressed Livestock Often Need Quick Vitamin E Boost

The variability of vitamin E in feedstuffs requires routine evaluation of vitamin E activity in livestock diets through all phases of production.

Research by P.G. Reddy and associates at Kansas State University has shown that injectable vitamin E administration improved vitamin E status of calves from two to eight weeks of age, compared to oral dosing.[1]

Kansas State University research has also documented an improvement in immune response measurements with the use of parenteral administration of tocopherol (vitamin E).[2]

Critical for health and performance

A nutrient that functions as an antioxidant in the body, vitamin E is essential for good livestock health and peak performance.

Adequate vitamin E is crucial for the optimal functioning of the nervous, reproductive, muscular, cardiovascular, pulmonary and immune systems.

Among other things, tocopherol deficiency may cause fetal death and resorption, liver necrosis, testicular degeneration, nutritional muscular dystrophy, hemolyticanemia, vascular degeneration and neural and myocardial degeneration.

Vitamin E and ruminants

In ruminants, the most widely recognized syndrome is nutritional myodegeneration (NMD) or "white muscle disease."

Factors influencing vitamin E requirements of ruminants include rumen microbial destruction, nitrate ingestion, high intake of dietary polyunsaturated fatty acids, excessively high dietary vitamin A and deficient intake of other antioxidants, such as carotenoids and vitamin C.

Utilization of forage preservatives such as propionic acid and sodium hydroxide further destroy alpha-tocopherol content and increase vitamin E requirements.

Vitamin E and Swine

Classical vitamin E deficiency lesions in swine include mulberry heart disease (MHD), hepatosis dietetica and NMD.

General signs of NMD in swine include sudden death, lameness and ataxia, reduced growth rate and feed intake and lower feed efficiency. Pigs with chronic liver damage may appear jaundiced and transudates appear frequently in the pleural cavity.

MHD, or microangiopathy, usually results in sudden death following destruction of heart muscle. Newborn and young growing pigs between three and eight weeks of age are generally affected.

Marginal deficiencies

Although clinical vitamin E deficiencies are well documented and apparent, subclinical problems caused by marginal deficiencies may be more economically important because they subtly affect livestock health and performance.

These subclinical deficiencies may lead to secondary reproductive problems, increased morbidity and mortality and overall reduction in performance.

When considering injectable vitamin E supplementation, it's important to note that there are major differences between natural vitamin E injectables and synthetic vitamin E injectables.

Natural E, for example, has more biological activity—expressed in international units (I.U.)—per ml than synthetic vitamin E.

Natural is more potent

Natural vitamin E can have a higher potency per ml than synthetics. The highest potency for synthetic products, for instance, is 250 I.U. per ml, while for natural vitamin E, the highest potency is 500 I.U. per ml.

Also, in natural injectables, the vitamin E activity is provided as alpha-tocopherol, the biologically active form of vitamin E activity. Some synthetic products provide vitamin E as an acetate-ester, which is not as biologically available as the free tocopherol.

These studies also calculated that the conversion factor for d-alpha-tocopherol in cattle is much higher than generally recognized.

Schering-Plough Animal Health introduces new natural vitamin E products

Schering-Plough Animal Health has recently introduced a new line of natural and powerful vitamin E injectable products that give you the tools you need to help your clients when their livestock require a quick vitamin E boost.

New injectable Vital E™ is available in 300 and 500 I.U. concentrations and 300 I.U. concentration in combination with vitamins A and D. These new products are clear, sterile, non-aqueous solutions of d-alpha-tocopherol, for use as a supplemental source of natural vitamin E.

Contact your Schering-Plough Representative for more information on these new natural vitamin E products, or write to: Schering-Plough Animal Health, Dept. RY, P.O. Box 529, Kenilworth, NJ 07033.

References

1. Reddy, P.G. et. al. 1985. Effects of Supplemental Vitamin E on Performance and Metabolic Profiles of Dairy Calves. *J. Dairy Sci.* 68:2259

2. Reddy, P.G. et. al. 1986. Effects of Supplemental Vitamin E on the Immune System of Calves. *J. Diary Sc.* 69:164.