

## **A-Mix (A, D & E Vitamins) Healthy Tissue Growth**

**Three very important vitamins are A, D, and E. Vitamin A maintains the skin and the linings of the digestive, respiratory & reproductive tracts. Healthy tissues resist invasion by disease. Vitamin A is needed for normal sight and to prevent night blindness. Colostrum is high in Vitamin A.**

**Vitamin D is the "Sunshine Vitamin." It prevents rickets and is essential for proper bone growth and consistent reproduction. It is linked importantly with calcium:phosphorus utilization.**

**Vitamin E aids in absorbing and storage of Vitamin A. It is part of the enzyme and hormone systems.**

# **A-Mix (A, D & E Vitamins) 2**

## **FACTORS EFFECTING VITAMIN A CONSUMPTION**

- 1. High nitrates interfere with the thyroid's ability to convert carotene to Vitamin A.**
- 2. Protein deficiency-lowers ability of blood to transport Vitamin A and interferes with liver storage of Vitamin A.**
- 3. High Concentrate Rations - Intensifies Vitamin A requirements.**
- 4. High production (1200 IU Vitamin A necessary for each pound of milk).**
- 5. Low Vitamin A levels within the liver creates high consumption of Vitamin A.**
- 6. Imbalance in Carbon:Hydrogen:Oxygen ratio increases Vitamin A need.**
- 7. Mineral Balance of Rations - All mineral elements are involved either directly or indirectly through enzyme systems, thus Vitamin A utilization.**
- 8. High Temperature - Depresses thyroid activity; thus interferes conversion of carotene to Vitamin A.**
- 9. If Vitamins D or E is deficient or excessive, Vitamin A demands increases.**
- 10. As rumen pH becomes more acid, Vitamin A consumption increases.**
- 11. Stress, weather, mud, rain, cold, heat, dry matter deficiency, disease, parasite load, etc. increase Vitamin A need/consumption.**

# **A-Mix (A, D & E Vitamins) 3**

## **Increased Consumption of A-Mix IS: 1<sup>st</sup> Indication of Nutritional Management Issue**

- **EFFECT OF AN EXCESS OF VITAMIN A**
- **Stored in liver and fat tissue.**
- **Works against Vitamin D.**
- **EFFECT OF A DEFICIENCY OF VITAMIN A**
- **Infection**
- **Nasal discharge, coughing, scouring & watering eyes due to drying and hardening of the mucous membranes, which line the lungs, throat, eyes and intestines.**
- **Severe diarrhea in young calves.**
- **Redness and swelling around dew claws.**
- **Stiffness in the hock and knee joints and swelling in the brisket.**
- **Increased incidence of mastitis and other udder problems due to drying and hardening of the mucous membranes of the udder.**
- **Decline in sexual activity. Sperm decrease in number and mobility.**
- **Loss of appetite.**
- **Zinc deficiency, nitrates and low ash rations increase the need for Vitamin A.**
- **Disease – Calving – Weaning – Internal and/or External parasites.**
- **Limited availability of feedstuffs.**
- **Weather stress, including heat or cold.**
- **Shipping stress**
- **High protein and/or nitrate ration.**
- **High nitrate content of water.**
- **Excess grain or protein of the ration without availability of low protein roughage for dilution.**
- **Vitamin A is chemically an alcohol, therefore a contributor of hydrogen energy.**
- **Low carotene content of feedstuffs.**