



**NEWS TO USE**

**Fat-Soluble Vitamin Injection Program  
for Newborn Beef Calves**

**Recommended Vitamin Injection Program for Calves Born in Winter Through Early Spring and During Drought Conditions.  
Inject 5 mL VITAL E-A+D at Birth**

**Rationale**

**Calves are born deficient in fat-soluble vitamins.**

All beef calves are born deficient in fat-soluble vitamins due to poor placental transfer. They depend upon colostrum and milk to provide adequate fat-soluble vitamins. If colostrum and milk are deficient in these vitamins, the most efficient means to dramatically improve vitamin status is to inject with fat-soluble vitamins. This assures that they have adequate levels of these critically important fat-soluble vitamins during the first weeks after birth.

**Calving season affects vitamin status and supplementation needs in newborn beef calves.**

Calves born to cows in winter through early spring or during drought conditions are more likely to be vitamin deficient compared to calves born to cows grazing pasture summer through fall. The reason is primarily due to the amount of vitamins the cow is consuming during late gestation. During winter through early spring months and drought conditions pregnant cows are consuming low quality roughages that are very low in fat-soluble vitamins. This results in cow's colostrum and milk having low levels of fat-soluble vitamins. On the other hand, during summer through early fall, cows consuming green grass have much higher levels of fat-soluble vitamins in colostrum and milk. Calves born during this time of year would not need to be injected due to the adequate intake of vitamins in colostrum and milk.

**Mineral supplements may contain vitamins A and D, but rarely enough vitamin E.**

Most mineral supplements may contain vitamins A and D with little or no vitamin E. When cows are on dormant grass or low-quality roughages, rarely do mineral products provide enough fat-soluble vitamins to meet the gestating cow's needs.

**Effects of Injecting Spring-born Newborn Beef Calves with VITAL E-A+D**

Response of spring-born calves to a single 5 mL injection of VITAL E-A+D was determined. Calves were injected and serum vitamin A and vitamin E status was determined forty-eight hours after the injection. As can be seen below, vitamin A and vitamin E status was dramatically increased (P<0.05).

	<u>U. of Georgia (G. Hill)</u>	<u>North Dakota State (C. Dahlen)</u>
<b>Vitamin A status improved</b>	<b>200% (0.20 – 0.6 ng/mL)</b>	<b>100% (0.11 – 0.22 ng/mL)</b>
<b>Vitamin E status improved</b>	<b>458% (1.31 – 7.32 µg/mL)</b>	<b>1004% (1.34 – 14.80 µg/mL)</b>

Initial serum vitamin A and vitamin E levels were considered deficient. In the North Dakota study, weight gains were determined 23 days after injecting and the VITAL E-A+D-injected calves had 5 lbs more gain compared to the control calves (P<0.10).

**Injectable selenium does not improve vitamin A or vitamin E status**

Calves injected with BO-SE (Merck Animal Health) do show an improvement in selenium status, but not vitamin A or E status. BO-SE, when injected at recommended levels, does not provide enough vitamin E to impact the calf's vitamin E status.