

## Ross Mosteller

District Extension Agent  
Livestock & Natural Resources

### Winter Vitamin A and E for Beef Cows

Since I've been on a roll with nutrition topics, vitamins are another consideration that can't be overlooked in winter cowherd nutritional discussion. Two of the most important to discuss at this time of year are Vitamins A & E. Unfortunately, I've ran into personal experience with weak calves at birth due to Vitamin A deficiency, so my first-hand knowledge of this topic has been hard learned! Balanced vitamin consumption is always important.

Both Vitamins A and E are plentiful in green forages, but tend to be scarce commodities in dormant range, crop residues and hay. The farther away a cow gets from the last bite of green grass only continues the decline in availability in forage diets and stored reserves within the cow. As fat-soluble vitamins, there is debate on how well Vitamin E is stored, but Vitamin A is generally stored 3 to 4 months, primarily the liver. Be honest with yourself on when the last time was that your cows grazed, lush, green grass, for some cows that might have been last spring!

Vitamin A maintains tissues lining in the respiratory, digestive, and reproductive tracts – keeping them pliable and in good working order. Without these healthy tissues, nutritional absorption in the gut is reduced and immune function declines. Vitamin A deficiency also impacts reproduction in both males and females. Deficiency symptoms include loss of appetite, rough hair coat, and reduced feed efficiency. Swelling of the legs and brisket, especially after working the animals, is also a symptom of vitamin A deficiency.

Vitamin A and E deficiencies in calves can range from vision issues and white muscle disease, to the more commonly noted challenges with calf vigor and immunity. The result of deficiencies in these vitamins can show up as decreased vigor and an increased susceptibility to illness. It is important to note that these vitamins do not cross the placenta in high enough amounts to directly meet calf requirements. Calves must obtain sufficient Vitamin A & E levels through colostrum directly after birth, which emphasizes the priority focus on the vitamin status of the cow prior to calving to ensure sufficient levels in the colostrum.

Forage vitamin levels are not something cattle producers should take for granted in any situation. Supplying sufficient Vitamin A and Vitamin E to cows in late gestation is important every year, and the price of the supplement should not be a limiting factor, as these are relatively inexpensive inputs. Pregnant cows and heifers should be supplemented with 30,000-100,000 IU/head/day of Vitamin A and 50-100 IU/head/day of Vitamin E when green forage is not available. Even high-quality stored forage should not be assumed to supply sufficient Vitamin A or E. Pay close attention to storage life on supplementation products, as vitamins can degrade relatively quickly. If a mineral-vitamin package is not fed within about a year the minerals are still good but vitamin activity can be reduced.

Injections of Vitamin A can be used to help increase stored levels in the liver. An injection of 1,000,000-1,500,000 IU per head can boost liver levels, but may need to be given monthly if supplementation is not provided by the diet. A single injection a few weeks prior to calving can help the cow overcome a drop in the body reserves of these vitamins prior to calving. Producers should consult their veterinarians regarding specific products and the timing of their use, as there are reported issues with injections given at the wrong time or in conjunction with other injections. Additionally, injections of Vitamin E and A to newborn calves can be given, but this should not be considered a substitute for proper vitamin supplementation in the cow's diet to produce and provide quality colostrum.