Vitamin E and feedlot diets

Darryl Gibb, May 2007

Over the past 8 years, Cargill has required fat cattle be fed high levels of vitamin E. As an anti-oxidant, vitamin E reduces oxidation of the meat and thereby prolongs visual appearance in the grocery store. Cargill has targeted 50,000 IU be fed the last 100 days of the feeding period. Most feedlots provided 500 IU/d for the last 100 days or 400 IU/d for the last 140 + days. This increased level of vitamin E cost about $0.75 per animal.

Cargill no longer requires elevated levels of vitamin E for fat cattle they slaughter. In the fax sent out to feedlots, Cargill references "beef tenderness" as their primary incentive. This is possibly related to recent research that has documented reduced fat synthesis with high levels of fat soluble vitamins (especially vitamins A & D). Because grass is high in vitamins, researchers propose that the seasonal fluctuations in carcass quality may partially be due to intake of high levels of vitamins of pasture cattle prior to entering the feedlot.

We now have an opportunity to save a small amount of money (< $1) by no longer feeding elevated levels of vitamin E. However, before we pull it out, lets consider the research that has looked at the effects of vitamin E on animal performance.

Researchers from Oklahoma State University summarized the effects of vitamin E on feedlot performance (Secrest et al., 1997). There were 21 comparisons in finishing diets in which vitamin E was provided at 20 to 2000 IU per head daily. Averaged across trials, higher levels (> 500 IU/d) of vitamin E increased ($P = 0.02$) ADG 3% (3.04 vs 3.13 lb/d) with trends ($P = 0.08$) of improved feed conversion (6.53 vs 6.41) and carcass quality. If these small improvements are real, they will reduce cost of gain by about a cent per pound ($6 for cattle gaining 600 pounds).

Improved health in receiving cattle with high levels of vitamin E have also been documented and its effects on health and immunity are well known. When fed in finishing diets, vitamin E has also reduced liver abscesses in some trials.

Although responses to vitamin E have not been consistent in all trials, when all trials are considered, the extra vitamin E we have been feeding may be making you a bit of money.