

Project Title:	Enhancement of Beef Quality and Palatability Traits through Postmortem Vascular Infusion of Calcium Chloride, Vitamin E and Ascorbic Acid
Principle Investigator(s):	M. E. Dikeman, M. C. Hunt, P. Addis and M. Pullen
Institution(s):	Kansas State University and the University of Minnesota
Completion Date:	April 1999

Layman's Summary:

Several trials were done to examine the effects of vascular infusion of cattle with calcium chloride, phosphates, Vitamin E, sugars, glycerin, ascorbic acid and other ingredients on beef tenderness, juiciness and flavor, quality grade, muscle color and color stability.

Infusing carcasses with 10 % solutions of calcium chloride or a mixture of phosphate, sugars and salt resulted in 2-4 % increases in dressing percentages, but USDA quality and yield grades were not affected. The infusion of calcium chloride resulted in undesirable fluid accumulation, two-tone color in several muscles at 48 hours postmortem and a toughening of steaks as evaluated by two trained sensory panels. Adding Vitamin E to the infusion mixture made steaks lighter and extended display shelf life. Various combinations of infusion ingredients failed to improve any palatability attributes. Adding vitamin E and/or C to the mixture of phosphate, sugars and salt resulted in a decrease in values representing "warmed over flavor" and also reduced cholesterol content, but this was primarily due to a dilution effect.

While a few positive attributes were noted in this series of studies, no significant benefits due to vascular infusion were found.