

Processing of Soybean Affects Meat Fatty Acid Composition and Lipid Peroxidation in Beef Cattle

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Effects of processing whole soybean on growth characteristics, fatty acid composition and lipid peroxidation activity of beef tissue were investigated with 40 crossbred steers. The basal diet consisted of grass and corn silage, barley grain, vitamins and minerals. The dietary treatments were: raw soybean, extruded soybean, roasted soybean, and Megalac plus soybean meal to give equivalent lipid and protein contents.

There were no differences in growth or carcass characteristics among the dietary treatments. The fatty acid composition of the meat from the roasted soybean-fed steers reflected a healthier profile for humans that eat it, as the hypercholesterolemic medium-chain fatty acids were lower ($P < 0.05$) and the hypocholesterolemic unsaturated fatty acids were higher ($P < 0.05$) than from the other three treatments. The rate of lipid peroxidation after a challenge was higher ($P < 0.05$) for meat from the roasted soybean-fed steers than for meat from steers fed the other treatments. Meat from the extruded soybean-fed group had higher ($P < 0.05$) levels of conjugated linoleic acid compared with the other treatments.

It is possible to modify the fatty acid composition of beef meat by including roasted soybean in the diet.