

# **Mixtures of Extruded or Roasted Canola/Soybean/Flax in Beef Finishing Rations Affect Mmeat Lipid Peroxidation and Fatty Acid Composition**

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Effects of feeding 1:1 mixtures of canola (C), soybean (S) and flax (F) on growth characteristics, fatty acid composition and lipid peroxidation activity of beef tissue were investigated using 80 crossbred steers. The basal diet consisted of grass silage, barley grain, vitamins and minerals. The dietary treatments were: S:F (1:1), S:C (1:1), C:F (1:1) and S:F:C (1:1:1), and the oilseeds were processed either by roasting or extruding before mixing. Soybean meal and soybean oil were used to give equivalent lipid and protein contents to each experimental diet. Steers were fed for a minimum of 120 d then slaughtered at a uniform degree of finish.

There was no difference in growth rate, feed intake or feed efficiency of the steers based on dietary treatment. Roasting the oilseeds increased the meat lipid peroxidation rate after a challenge compared to extrusion, and meat from animals fed diets containing canola had a lower peroxidation rate. Roasting the oilseeds increased the proportion of C18:3n-3 in the meat while extrusion increased the proportion of conjugated linoleic acid (CLA) and its precursor C18:1n7t. The type of oilseed also had an influence on the fatty acid composition of the meat: the soy-flax diet had highest levels of C18:1n7t, C18:3n-3, and CLA compared to the other diets.

It is possible to modify the fatty acid composition of beef meat toward a healthier profile by including soybean and flax in the diet and using a processing method to influence the degree of lipid metabolism in the rumen.