

Effects of distillers grains finishing diets on fatty acid profiles in beef cattle.

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Ninety-four, calf-fed crossbred steers were randomly allocated to three different treatments (0%, 15% or 30% wet distillers grains plus solubles - WDGS – DM basis) and fed for 133 d to test the influence of different levels of WDGS on fatty acid profile in the ribeye. After grading, one ribeye slice (*M. Longissimus thoracis*) about 7 mm thick was excised from each carcass, trimmed and analyzed for fatty acid profile and lipid content. Treatment did not influence the content of total lipid (5.44, 5.91, and 5.94%; $P > 0.187$), unsaturated ($P = 0.762$) and saturated fatty acids ($P = 0.788$). As amount of WDGS in the diet increased (0, 15 and 30%), there were higher concentrations (g per 100 g) of C 18:2 fatty acids (3.27b, 4.22a, and 4.50a, respectively; $P < 0.001$), C 18:2 trans fatty acids (0.003 b, 0.011b, 0.034a, respectively; $P < 0.011$), total amount of trans fatty acids in the lean (2.87c, 3.61b, 4.86a, respectively; $P < .001$), conjugated linoleic acid 9c, 11t (CLA: 0.21b, 0.22ab and 0.27a; $P < 0.041$) and an elevated omega 6:omega 3 ratio (26.72c, 33.64b, and 41.75a; $P < 0.001$) in the lean. Conversely, increasing WDGS in the diet reduced concentrations (g/100 g) of *cis*-vaccenic acid [C 18:1, n7] (3.20a, 2.77b and 2.41c; $P < 0.014$), which has been related to development of off-flavors in beef. The elevated content of polyunsaturated fatty acids could lead to greater oxidation, which could negatively affect color and rancidity. Results from this study demonstrate that inclusion of WDGS in finishing diets can alter the fatty acids profile, which may have negative implications to product quality.

Key Words: Beef, Fatty Acids, Distillers Grains