

Feeding wet distillers grains plus solubles reduces shelf life and increases lipid oxidation during retail display of beef steaks.

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Strip loins (*M. Longissimus lumborum*), tenderloins (*M. Psoas major*) and top blades (*M. Infraspinatus*) from 46 carcasses of calf-fed, crossbred steers, were evaluated to test the effect of wet distillers grains plus solubles (WDGS) in beef cattle finishing diets on beef shelf-life (color and oxidation). The animals were randomized into three groups (0%, 15% or 30% WDGS – DM basis) and fed for 133 d. After grading, the short loins (IMPS # 174) and shoulder clods (IMPS # 114) were vacuum-packaged and shipped to the University of Nebraska Meat Laboratory. At 7 d postmortem, two steaks were cut from each strip loin, tenderloin and top blade. One steak was vacuum packaged and frozen (-16°C) immediately until a measurement of rancidity could be made (thiobarbituric acid reactive substances - TBA). The other steak was divided in two and the halves were wrapped in oxygen-permeable film and displayed for 3 and 7 days under simulated retail conditions (200-250 ft-candles light, 2°C). For the top blade and strip steaks, inclusion of 30% WDGS in the diet resulted in higher levels of oxidation (higher TBA values) in the lean after 7 d display (Top blade: 3.84a, 5.04a, 8.42b for 0, 15 and 30% WDGS, respectively; $P < 0.001$. Strip steaks: 2.02a, 3.77b, 4.81b, respectively; $P = 0.001$). There were no effects of WDGS on TBA values of tenderloin steaks ($P = 0.191$). After 3 d of retail display, steaks from cattle fed WDGS were numerically higher in TBA values than those from controls ($P = 0.075$ for top blades and 0.285 for strips). Top blade steaks from cattle fed 15 or 30% WDGS were darker (lower L* values) than controls ($P < 0.028$). Top blade and tenderloin steaks from cattle fed 30% WDGS were significantly less red (lower a* values) after 3 d of retail display ($P < 0.040$). These data indicate that feeding WDGS can compromise the shelf-life of steaks.

Key Words: Distillers Grains, Oxidation, Shelf-Life