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


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