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Impact of Supplementing Cattle with Omnigen-AF at the Receiving or Fin-ishing Phase on Beef Shelf-Life

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Objectives

A proprietary feed additive designed to augment the innate immune function in cattle, OmniGen-AF (Phibro Animal Health Cooperation, Teaneck, NJ), might extend beef shelf-life by incorporating antioxidants via phenolic-rich compounds. Thus, the objective of this study was to evaluate the effect of supplementing cattle at the receiving or finishing phase on beef steak shelf-life after 8, 22, and 29 d of aging.

Materials and Methods

Three treatment groups included a control group with no supplementation, OmniGen-AF supplementation (4 g/100lb BW/hd per d) for 28 d after receiving, and supplementation for 210 d during finishing. The study had a total of 288 steers that were randomly assigned to one of the three treatment groups (96 hd/treatment) which were randomly sorted into groups of 8 steers for a total of 12 pens/treatment. At harvest, 24 USDA Choice carcasses were selected within each dietary treatment (n = 72) and left and right side *Longissimus lumborum* samples were collected for analysis.

Results

The inclusion of OmniGen-AF had no effect on tenderness (P = 0.31). Meat from cattle supplemented throughout the finishing phase had more C18:1, C19:0, C18:2, C18:3ω3, total, UFA, MUFA, and trans fatty acids in relation to meat from cattle supplemented through the receiving phase while meat from non-supplemented cattle had intermediate amounts (P < 0.05). Steaks from non-supplemented cattle had the most C18:2TT in comparison to the other two treatment groups (P = 0.04). There was more C20:5ω3 fatty acid in beef from the non-supplemented group than the receiving group, with the finishing group being intermediate (P = 0.02). The SFA:UFA ratio was greater in beef from the receiving group, intermediate in beef from the non-supplemented group, and lowest in beef from the finishing group (P = 0.04). The PUFA concentration was greater in beef from the finishing and non-supplemented groups (P < 0.01). Dietary treatment had no effect on discoloration under retail display conditions at any aging period (P = 0.34). Although color stability seemed to be unaffected by the supplementation, feeding OmniGen-AF throughout the entire finishing period tended (P = 0.10) to decrease TBARS values (a measure of oxidation) versus cattle supplemented only through the receiving phase or those never supplemented (2.80 vs. 3.07 and 3.06 mg malonaldehyde/kg tissue, respectively). Despite this trend, meat from cattle fed OmniGen-AF throughout finishing did not show meaningful differences (P = 0.92) in superoxide dismutase activity compared to meat from cattle that were not supplemented.

Conclusion

Supplementing cattle with a greater concentration of OmniGen-AF or increasing the antioxidant components in the feed supplement could be explored to further maximize beef shelf-life following long periods of aging.