



The Impacts of Feeding Natursafe (an Immune Support Product) on Beef Quality

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Objectives

NaturSafe® (Diamond V, USA) is a *Saccharomyces cerevisiae* fermentation product developed as an animal feed supplement for the further manufacture of nutritionally balanced feeds for beef cattle. This immune support product (Association of American Feed Control Officials number 96.8, 73.046 and International Feed Name number 7–05–520, 8–08–034) has been specifically formulated to optimize beef cattle health and performance, antibiotic stewardship, and food safety. Research has shown that NaturSafe supports optimal rumen and liver health, overall health and immune function, consistency of feed intake, daily gain, feed conversion, and antibiotic effectiveness. As no research previously has assessed the impacts of this feed ingredient on the quality of meat, the objective of this research was to characterize the effects of feeding NaturSafe on meat quality characteristics in beef.

Materials and Methods

Crossbred steers ($N = 60$, $n = 12$ per treatment; mean hot carcass weight = 421 kg), through an antibiotic free production system, were individually fed diets containing 12, 15, or 18 g/d of NaturSafe or a control diet without (–AB) antibiotics or a control with antibiotics (+AB; 330 mg monensin + 110 mg tylosin·steer⁻¹·d⁻¹) for 112 d. Strip loins were collected and aged for 13 or 29 d post-mortem prior to fabrication. Steaks (*m. Longissimus*) were then evaluated for Warner-Bratzler shear force, pH, sarcoplasmic calcium concentration, troponin-T degradation, fatty acid profile, proximate composition, sarcomere length, total collagen and insoluble collagen. After each aging period, steaks were evaluated for lipid oxida-

tion, and color characteristics (L^* , a^* , b^* , discoloration percentage, and percentage surface oxymyoglobin, metmyoglobin and deoxymyoglobin), during and/or after a 7 d simulated retail display period. A subset of samples at various aging and retail display periods were analyzed for lactic acid bacteria (LAB), psychrotrophic plate counts (PPC), and aerobic plate counts (APC). Animal was considered the experimental unit and hot carcass weight and marbling score were used as covariates in the analysis.

Results

Treatment had no effect on pH, sarcomere length, troponin-T degradation, fatty acid profile, proximate composition, total collagen, insoluble collagen, LAB, PPC, APC, lipid oxidation, oxymyoglobin percentage, or metmyoglobin percentage. Meat from cattle fed 18 g/d of NaturSafe was (1) equal to –AB controls and had higher shear force values compared to all other treatments ($P < 0.01$), (2) had higher ($P < 0.05$) sarcoplasmic calcium levels than +AB controls and cattle fed 12 g of NaturSafe/d, (3) was redder (higher a^* values, $P < 0.05$) than all other treatments, and (4) was yellower (higher b^* values, $P < 0.01$) than the 12 or 15 g dose and the –AB control. There were no differences among treatments fed NaturSafe for lightness (L^*) at either aging time. There were no differences for meat from animals fed 12 or 15 g NaturSafe/d, except deoxymyoglobin percent and discoloration, which were both minimal. Discoloration values were low for all treatments ($< 10\%$).

Conclusion

These data indicate that feeding NaturSafe had few discernible effects on meat quality characteristics.