

CHARACTERIZATION OF BISON FINISHING AND HARVEST SYSTEMS: EFFECTS ON CARCASS AND MEAT QUALITY CHARACTERISTICS OF BISON HEIFERS

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Rationale. While commercial production and consumption of bison continues to increase, meat quality attributes such as healthfulness, tenderness, juiciness, flavor, and consumer preference of bison meat are not well understood. The Institute undertook this study to characterize the influence of finishing system (grain-based diet versus pasture diet) on carcass characteristics, meat quality, nutritional composition, and consumer preference for bison meat. Outcomes from this work will also help define more detailed studies on how animal diet variation and breadth influence bison meat nutritional profiles and healthfulness.

Outcomes. Grain-finished bison heifers had greater live and hot carcass weights, dressing percentage, ribeye area, back fat, and marbling scores when compared to grass-finished. Steaks from grain finished heifers had increased crude protein and fat content and decreased moisture. Grain finishing produced steaks with increased cholesterol, palmitic, stearic, oleic, linoleic, arachidonic, and total fatty acids. Tenderness of all steaks improved with aging and grain finished steaks were more tender overall. Finishing system did not influence ultimate pH or sensory ratings by a consumer panel. Animals transported to and harvested at a commercial facility had elevated cortisol levels compared to those harvested on-ranch (mobile abattoir). For a more complete summary please see the following:

Janssen, J., K. Commack, J. Legako, R. Cox, J. Grubbs, K. Underwood, J. Hansen, C. Kruse, and A. Blair. 2021. Influence of grain- and grass-finishing systems on carcass characteristics, meat quality, nutritional composition, and consumer sensory attributes of bison. *Foods* 10(5): 1060. <https://www.mdpi.com/2304-8158/10/5/1060>

Janssen, J. 2020. Characterization of bison finishing and harvest systems: effects of carcass and meat quality characteristics. MS Thesis. South Dakota State University. <https://openprairie.sdstate.edu/etd/4186/>

Blair, A., J. Martin, and J. Janssen. 2022. Does diet matter: influence of bison finishing systems on composition and meat quality. *Bison World* (winter):18-23. https://www.researchgate.net/publication/358536282_Does_diet_matter_Influence_of_bison_finishing_systems_on_composition_and_meat_quality