

BCRC BEEF SCIENCE CLUSTER

RESEARCH Facts

IN PROGRESS

Providing Consumers With More Tender Roasts BQU.04.10

Project Title: Improvement of High Connective Tissue Beef Cuts with Collagenolytic Enzymes

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Background: Connective tissue (gristle) is a part of muscle and is a significant cause of tough beef. The end cuts of beef in the carcass contain more connective tissue than the middle cuts. Collagen protein is the main type of connective tissue. Grinding improves tenderness by physically breaking up the collagen, but this doesn't help tough steaks and roasts. Pumping beef with salt or phosphate can tenderize the steaks and roasts, but it can negatively affect flavor. Enzymes that degrade collagen can tenderize beef, but commercially available collagenolytic enzymes (collagenases), often degrade more than just collagen and make the product 'mushy' or 'granular'.

Objective: The overall objective is to improving the tenderness of beef cuts from the ends of the carcass by identifying collagenases that will degrade collagen without negatively affecting palatability.

These researchers will first identify enzymes only degrade collagen or make collagen more likely to break down when cooked. Then, promising enzymes will be tested to determine if they are effective in a meat/muscle system. Finally, candidate enzymes will be tested in a commercial meat processing system to determine their effectiveness.

Implications: Improving the tenderness of Canadian steaks and roasts will improve consumer satisfaction.

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