

## DEVELOPMENT OF RESTRUCTURED BEEF PRODUCTS

J.R. Busboom<sup>1</sup>, H.G. Dolezal<sup>2</sup>, J.J. Guenther<sup>3</sup>, and F.K. Ray<sup>4</sup>

The chuck comprises over 25% of the beef carcass and because of its inherent lack of tenderness, cuts from the chuck are used primarily for roasts and/or hamburger. U.S. consumers generally desire more steaks and fewer roasts. The preference for steaks is reflected in the price differential between steaks and roasts. Current lifestyles indicate that this preference will continue since in many families both husband and wife are employed outside the household. Therefore products such as steaks that can be prepared quickly, conveniently and in individual portions will be in demand.

Restructuring of chuck muscles is a manufacturing process that imparts to chuck meat desirable palatability characteristics. Currently available restructured products lack palatability characteristics necessary to merit success in the market place. Therefore, research is being conducted to improve consumer acceptability of currently available restructured beef products, such as chunked and formed beef steaks, and also to develop a new restructured beef product made from muscles of the chuck and other low to intermediate value cuts. The new product will more closely resemble intact muscle cuts of meat in such characteristics as appearance, palatability, texture and "bite" than do conventional restructured products. Technology for manufacturing the new product will involve removal of individual muscles from the low value wholesale cuts of beef and reorientation of the muscles to achieve the desired effect. Appropriate equipment has been obtained and placed in operation. Consumer response to experimental products has been extremely favorable. The products have received comments such as "very good flavor", "very tender" and "steak-like texture".

Individual chuck muscles are being characterized to ascertain their suitability for inclusion in restructured products. Twenty chucks varying in quality (U.S. Choice vs U.S. Good) and yield (U.S. 2 vs U.S. 3) grade will be physically separated into fat, individual muscles and bone. Eighteen muscles from each chuck will be analyzed for weight, chemical composition, connective tissue, shear resistance, fiber diameter, oxidative enzyme activity and binding strength.

In addition, experiments are planned to:

1. Compare new products with conventional restructured products and intact muscle using trained and consumer taste panels.
2. Evaluate the effects of type and quantity of added binding materials on functional and sensory characteristics of the product.
3. Determine the most efficient method for extraction of binding protein.
4. Determine the effects of long term modified atmosphere storage on product stability.

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<sup>1</sup>Research Associate, <sup>2</sup>Assistant Professor, Animal Science, <sup>3</sup>Professor, Animal Science, <sup>4</sup>Associate Professor, Animal Science.