



## Kansas Meat Marketing Innovations

Farrell E. Jensen, Donald B. Erickson,  
S. E. Trieb, and Harold J. Tuma<sup>1</sup>

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The U. S. system of producing, marketing, and distributing farm products has been heralded as the world's most efficient, with lower distribution costs than any other nation. Research continues to improve marketing through new methods and technology. Central cryogenic-frozen meat packaging is an example.

Research in central cryogenic-frozen meat packaging was conducted by a team in the Kansas Agricultural Experiment Station. Staff members participated from the Departments of Agricultural Economics, Animal Science and Industry, Foods and Nutrition, Statistics and Computer Science, and Agricultural Engineering. Funds were obtained from the U. S. Department of Agriculture, the Kansas Agricultural Experiment Station, and from several companies interested in the meat industry.

### Market Test of Centrally Packaged and Cryogenically Frozen Meat

Objectives were to determine the nature of decision making regarding buying fresh or frozen retail cuts, and whether or not consumers would buy frozen retail cuts packaged and sold as identical fresh cuts were. Savings in market costs could have considerable impact on the Kansas cattle feeding and packing industries. If frozen meat satisfies consumers, Kansas feeders and meat packers could save on transportation to distant markets.

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<sup>1</sup> Farrell E. Jensen, Graduate Research Assistant, Department of Agricultural Economics, Donald B. Erickson, Associate Professor, Department of Agricultural Economics, Sykes E. Trieb, Professor, former member of the Department of Agricultural Economics (currently Head, Extension Marketing, University of Georgia), and Harold J. Tuma, Associate Professor, Department of Animal Science and Industry.

In the test, frozen meat was sold 13 weeks in two types of retail stores in New Jersey and Pennsylvania: high volume supermarkets and service-oriented convenience stores. Three types of packages were used: (1) frozen meat in cartons, (2) frozen meat in clear film with both sides visible, and (3) identical fresh meat cuts in overwrap trays.

Sales data and daily purchase patterns were recorded and questionnaires were administered to selected consumers who maintained daily purchase diaries during the test. Following the sales test, interviews were conducted on what customers want when they shop for meat.

Meat used in the tests was packaged in clear see-through film attached to a headerboard to allow total product visibility. The film conformed to the exact contour of the meat and prevented frost pockets and ice crystals from forming. Consumers were offered a wide range of frozen meat: 26 cuts of beef, pork, and lamb. Frozen meats were displayed in the center of meat cases next to identical fresh cuts. Frozen cuts were priced the same, higher, and lower than identical fresh cuts. The meat was frozen cryogenically (using inert nitrogen) at 75°F below zero, for a bright red, natural color. The test meat competed objectively for consumer acceptance.

### Results

The average package market share for the frozen meat compared to the identical fresh cuts was 15.6% and 19.2% at the two supermarkets. Sixty-two percent of a sample of panelists purchased the frozen meat, and 83 percent of them said "it measured up" to their expectations; 45% liked the frozen meat's good flavor and 27.2%, its tenderness.

Over half (54.3%) said they "had no complaints." Product dissatisfaction by some consumers included lack of tenderness (12.4%), inconvenience (11.6%), and unattractiveness (11.6%).

The flavor of the test product was considered equal to fresh meat by 54.9% and better than fresh meat by 18% of the panelists; 27% considered the fresh product's flavor "better".

The majority of respondents considered frozen meat to have less waste (it and fresh meat were trimmed to the identical specifications). Most frequent suggestions to improve the frozen cuts were related to packaging and merchandising. Typical comments referred to package size, appearance (artificial, unappetizing), price, and lack of a variety of cuts.

Statements indicating equal acceptability for both fresh and frozen cuts were made by 43.2% of the respondents. Fresh meat was rated "better" in over-all characteristics by 32.8% while 24% considered the frozen product better.

Purchasers of the test meat listed tenderness, juiciness, and flavor as the most important factors they considered when buying fresh or frozen meat. Nonpurchasers listed the same factors for fresh meat but were more concerned with quality, attractiveness, amount of bone and fat, and freshness of frozen meat.

A high percentage (82.8%) of the respondents were favorably impressed with the packaging because they could "see both sides" of the meat. Criticism of frozen packaging centered around inconvenience in handling the header board, the meat's artificial appearance, and the inconvenience of storing frozen cuts (because of header board).

### Implications

There are at least eight changes that encourage alternative marketing patterns now.

- 1) The development of new "skin tight" packaging materials.
- 2) Cryogenic freezing methods with more desirable packaging.
- 3) Consumer acceptance of see-through, clear packaging.
- 4) Natural product color and shape with freedom from frost and ice on meat and package surfaces.
- 5) Attitudes of retailers seeking ways to improve retail meat operations.
- 6) Fewer waste disposal problems in areas of highly concentrated populations.
- 7) Adaptability of frozen meats to neighborhood convenience stores (fastest growing in the food industry), and the 10,000 to 20,000 square foot supermarkets.
- 8) Increased shelf life of frozen meat in low-volume stores.

## Considerations for Possible Future Application of Meat-distribution-and-processing Technology and Logistics

- 1) Meat department productivity (sales per man hour) has remained nearly constant at 50 to 60 pounds per man hour, while labor costs have increased 5% to 10% per year.
- 2) Qualified meat cutters, especially on the east coast, are in short supply.
- 3) The meat department is not a profit leader. Average direct profit reported by other studies was only 5.5% before store and general overhead expenses which reduced net profit to or near 0%.
- 4) Central packaging, near feedlots for shipment of retail-ready merchandise to distant markets could increase efficiency as well as help reduce environmental problems disposing of bone and fat waste creates in population centers.
- 5) Union attitudes toward central processing have softened recently.

### Seeking Efficiencies

Store types in the food retailing industry are dominated by different philosophies of merchandising. The high-service, convenience store, with long hours, low volume, and higher gross margins (22-26%) is at the "service" end, while the low-service warehouse retailer with shorter hours, high volume and lower gross margins (10-15%) is at the "no service end." Between them are food discounters, supermarkets, new delivery system retailers, and vending operations.

People will seek to concentrate their once-a-week shopping in the large full line stores while using the quick-serve, 16- to 24-hour convenience stores for fill-in needs. Merchandise requirements for both types of stores indicate that today's perishable products, especially meats and produce, will change drastically, so frozen meat marketing may increase significantly.