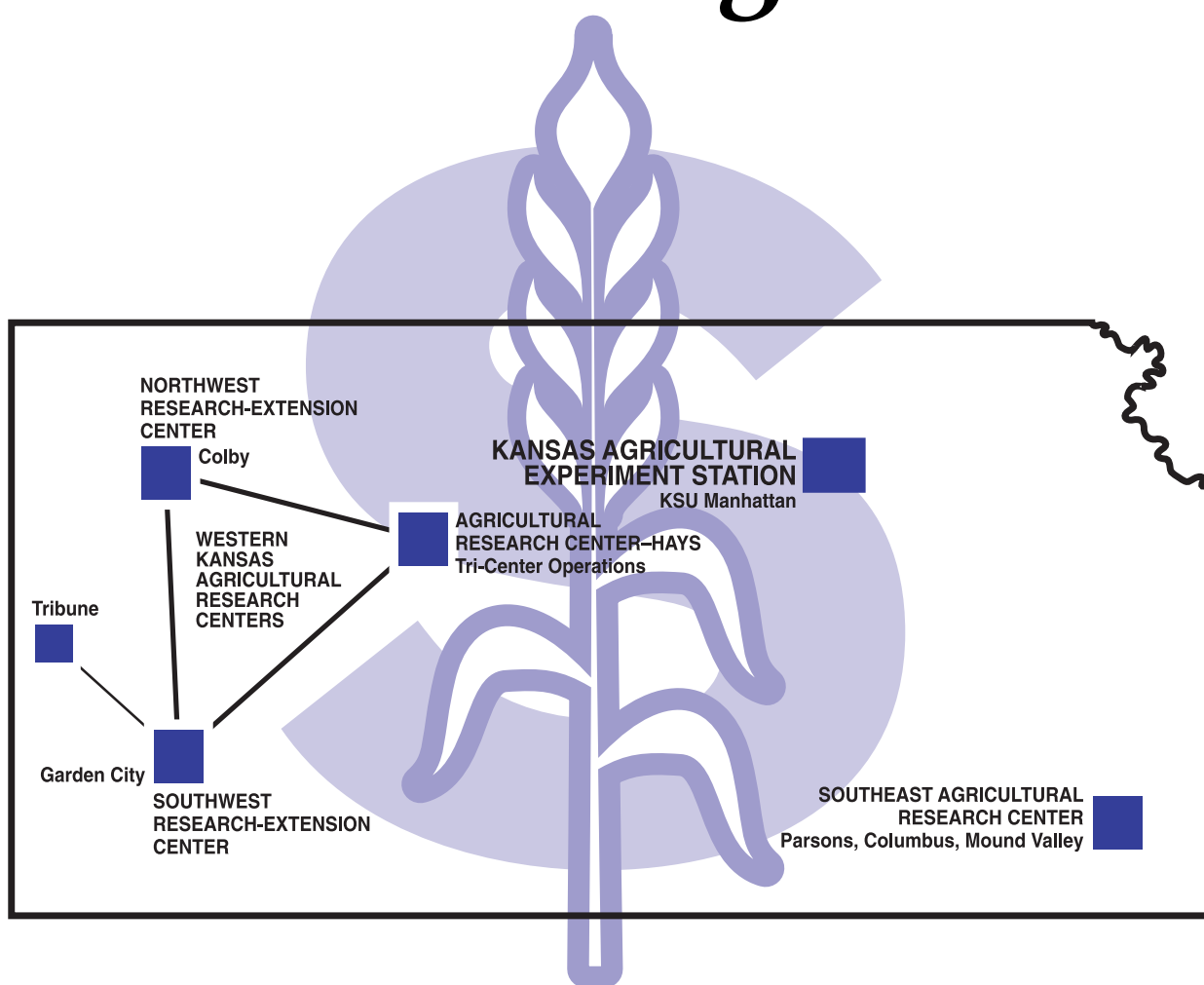


Economic Issues with Natural and Organic Beef



Agricultural Industry Competitiveness

Enhance the value of Kansas Agricultural goods

Much has been said about the economic forces affecting agriculture and what they might mean for the 21st century. The term “mass customization” has been used to describe how firms might be able to produce customized products for different market segments.

Firms using such a competitive strategy will need to operate at the lowest average cost if they are to succeed in marketing products to these customized market segments. A competitive strategy that requires a firm to focus on particular market niches and provide differentiated products requires tremendous coordination, from identification of end-user needs to selection of genetic traits that may satisfy these needs profitably.

One such niche is the natural and organic market. Vandeman and Hayden report that these segments have had dramatic increases in demand over the past decade. But these words are often confusing to consumers and producers. Natural is defined by the U.S. Department of Agriculture as “a product containing no artificial ingredient or added color and is only minimally processed (a process which does not fundamentally alter the raw product) may be labeled natural. The label must explain the use of the term natural (such as no added colorings or artificial ingredients or minimally processed).” Organic is in the process of being defined by USDA. However, the claim “certified organic by a certifying entity” is now authorized for use on the label of meat or poultry products (Anonymous).

What does natural and organic beef production mean for producers? The objective of this publication is to provide an overview of the natural and organic beef industry and why some consumers might prefer this beef over conventionally produced beef.

Drivers of Change in the Natural and Organic Beef Industry

Young reports that the USDA first introduced the term “natural” in the 1960s. Low profitability in the beef industry, coupled with changes in consumer tastes and preferences, have led some producers to look at niche markets. Increased demand for natural and organic foods, product innovation, competition, recent changes in USDA quality certification programs, and the beef hormone dispute are all positive drivers of change for the natural and organic beef industries.

Growth in Natural Food Supermarkets

The health food store industry has achieved a 20 percent annual sales increase in recent years and comprises approximately one percent of all U.S. food sales, or an estimated \$8.4 billion in 1997. Approximately \$4 billion was organic foods (Mayer). Wild Oats Markets and Whole Foods Markets have approximately 35 percent of this retail supermarket segment (Kaufman). Much of the growth has occurred in suburbs with high-income consumers. Some traditional supermarkets are responding to this consumer segment by “mainstreaming” natural and organic products alongside conventional food products.

Product Innovation

Wet-aged or vacuum-packaged beef has been the industry standard since the development of commercial vacuum-packaging technology in the late 1960s. This has decreased processing costs due to lower inventory costs. However, dry-aging has experienced some resurgence in popularity due to improved flavor and increased tenderness. K-State Research and Extension meat scientists Robert Campbell and Melvin Hunt analyzed dry aging of Certified Angus Beef under three parameters: pre-aging time (7 or 14 days)

in vacuum before dry aging; dry-aging time (7, 14, or 21 days); and time in vacuum (2, 9, or 16 days).

They concluded that dry aging provided advantages in flavor, tenderness, and juiciness over vacuum aging product. These advantages are offset by the yield losses; however, for high-quality markets, dry aging adds value and provides distinctive palatability profiles not obtainable with vacuum aging. Huffman et al. found the dry-aged beef to have increased tenderness levels, which has been found to be the most important palatability attribute of beef.

Dry aging is more costly relative to other conventional processing methods. The additional time required in refrigerated coolers and estimated shrink loss of at least 10 percent increases the cost of producing dry-aged beef significantly. Thus, consumers must be willing to pay a higher price to justify dry-aging of beef. There is some evidence to suggest that consumers are willing to pay an average premium of \$1.23 per pound for a tender steak relative to a tougher steak (Lusk et al.).

Competition

One of the first natural beef companies was Coleman Natural Meats, which was approved by the USDA to use the term “natural” (Fee). Until the 1990s, most organic and natural products were only available at health food stores. However, the recent success of natural supermarkets has led to increased organic and natural product offerings at traditional retail grocery stores (Dunn).

Another company, Laura’s Lean Beef, was the first natural beef program to participate in the Heart Check Certification Program sponsored by the American Heart Association. The largest processors of Kansas natural beef are Coleman Natural Meats, Laura’s Lean Beef, and All Natural Beef Cooperative.

Recent Changes in USDA Quality Certification

The Quality System Certification Program (QSCP) is a program under the Agricultural Marketing Service (AMS)

Livestock and Seed Division (LS) of the USDA. It allows livestock and meat marketing programs to apply for certification of special label claims or quality management systems. These standards are outside of what is already specified by the USDA in current grading standards. Organizations may apply for certification by demonstrating that they have accurate methods of verifying quality. Certified programs validate their quality standards through extensive documentation. In addition, a program manual, training courses, inspection and testing, internal audits, and statistical analysis are part of the certification.

Many small meat producer groups have Food Safety and Inspection Service (FSIS) approved special claims labels to identify special production practices. In the past, special label claims were verified and approved by the USDA through the Product Quality Control (PQC) Program. Certification of the PQC required internal audit documentation to ensure quality control. The PQC was replaced with the QSCP in an effort to increase the competitiveness of marketing livestock and livestock programs.

The QSCP is a voluntary quality system management verification program based on the International Organization for Standards (ISO) 9000 Series. The ISO program requires documentation of the quality management system and all business processes affecting product quality, in addition to a mandatory third-party audit from an unbiased source. The QSCP is the USDA’s adaptation of these principles, which were modified to reflect the needs of livestock and meat marketing programs. In addition, the program has been designed to complement requirements with other federal programs such as Hazard Analysis and Critical Control Point (HACCP) options. Certification under the USDA AMS-LS agency is designed to be a substitute for ISO certification. USDA certification is thought to be more identifiable and therefore, more valuable than ISO certification to an organization.

The QSCP offers a small beef processing or slaughter facility many advantages. Establishing a quality program through a reputable certification agency provides an organization with a competitive position in the international marketplace. This provides a method of validating the quality of brand name products and/or services. QSCP certification allows an organization to use the USDA "Processed Verified" logo. The materials used for QSCP certification also may be used to verify organic production, processing, and fabrication practices, if the company chooses to apply for organic certification of meats. Applying for certification requires a company to develop a program manual in order to apply for certification. A sample program manual has been provided by the USDA AMS agency (Phone number: 202-720-4486).

Beef Hormone Dispute

As of January 1989, the European Union banned imports of beef and beef products from countries that allow the use of growth promotants, unless the product was certified as raised without growth promotants. The U.S. government argued that the EU ban was merely a trade barrier with no scientific basis. In January 1996, the United States requested consultation with the World Trade Organization (WTO) regarding the ban on the grounds that there was no scientific evidence for the ban. On June 30, 1997, a WTO dispute panel found EU's ban on the use of hormones to be inconsistent with the EU's obligations under the Sanitary and Phytosanitary Agreement. The EU appealed this decision, but the WTO ruled in favor of the United States. At the present time, the United States has imposed tariffs in selected EU imports.

Research on Natural Beef

A study of consumer segments who purchase branded natural beef products marketed by a Kansas producer-owned cooperative, All Natural Beef Cooperative, was conducted to learn more about consumer purchasing behavior. The

cooperative dry-ages the natural beef to improve tenderness. The cooperative uses no growth hormones or subtherapeutic antibiotics, feeds corn in the last 90 days, and produces the beef on small family farms. The cooperative dry-ages the natural beef to improve tenderness. The beef is sold within retail supermarkets in Kansas City suburbs.

Givry, Boland, and Fox surveyed 500 consumers who had the highest weekly purchases of unbranded conventional beef and 500 consumers who had the highest weekly purchases of branded natural beef. In general, there were no significant differences between the two segments with respect to demographic or attitudes towards meat. However, with respect to beef purchasing factors, natural beef consumers ranked tenderness as most important in why they purchased natural beef. Conventional beef purchasers were less concerned about tenderness.

The main conclusion in that study was that consumers preferred the taste of the natural beef and were less concerned about production practices. After educating consumers, both segments expressed a willingness to pay a premium for natural beef produced without subtherapeutic antibiotics and growth hormones that were raised by producers from small operations.

A second study by Peterson, Boland, and Boyle (sponsored by USDA-SARE) focused on in-store surveys of meat managers and consumers. The cooperative gave gift certificates to meat managers to purchase natural beef each week for 15 weeks and answer a short survey.

Consumers were surveyed using a computerized kiosk with a touch-screen. As with conventional products, this study concluded that consumers and meat managers found greater value in natural beef loin (defined as KC strip, sirloin, strip, T-Bone, tenderloin, and top sirloin) relative to ground beef, chuck (roast, flank steak, arm clod, brisket, broil, tri-tip) and round (eye of round, inside round, rump roast, top round) cuts. This suggests that consumer's may be willing to pay more

for cuts made from loins but not other cuts. Consequently, natural beef producers will likely need to add value to these other cuts to increase total carcass value to offset higher production costs. Consumers did associate the branded natural beef with local, family farms and lack of subtherapeutic antibiotics and growth hormones during production.

Risk Factors with Natural and Organic Beef

There are some risk management issues with natural and organic beef production which should be considered by producers.

Production Risk

The use of subtherapeutic antibiotics and growth hormones increases average daily gain in cattle. Successful cattle producers pursue a low cost business strategy. Because the opportunity cost of time spent in a feedlot is important, any cost-reducing technology such as growth hormones is important.

Mayer notes that it costs 25 percent more to produce natural beef as compared to conventional beef using growth promotants. The USDA reports that anabolic agents can improve weight gain by 5 to 20 percent, feed efficiency by 5 to 12 percent, and lean meat growth can be improved by 15 to 25 percent (Kennedy and Fallert).

However, many natural beef producers are likely to be diversified with crops rather than specialized in only cattle production. Consequently, natural beef producers will need to use other inputs to achieve lower costs. In general, natural and organic beef production has higher production costs which means producers will need greater revenues to offset these costs.

Market Price Risk

Beef is a commodity and the market price does not distinguish between natural and conventional beef. Consequently, natural beef producers will require access to markets that enable them to differentiate

natural beef. Market access implies that natural beef producers must: 1) supply enough volume to satisfy the market size at any given time and 2) provide marketing services to create a differentiated product for consumers. Achieving these two objectives is difficult. One option for producers is to contract, which provides a definitive market but also decreases producer flexibility.

Many diversified crop and livestock operations are not able to supply beef cattle each week. Beef production is seasonal, however, not all consumer purchases are seasonal. Most natural beef producers do not have large cattle herds. It is likely that producers will have to join together in a partnership or cooperative to provide enough supply.

Providing marketing services, often referred to as “value added,” is beyond the expertise of most natural beef producers. Marketing services include processing the beef into a form that can be used by butchers, conducting research to develop ingredient and nutrition labels as required by USDA, packaging the beef into appropriate containers, transporting the meat to its final destination, and other services. This is important with a differentiation strategy because consumers will ultimately determine in the marketplace whether the difference in value justifies the higher price. This requires a significant amount of investment. Finally, business organizations require cooperation and solid management to ensure success.

In addition, scientific data on shelf life studies and the feasibility of using natural ingredients in processed products (such as precooked beef roasts, marinated beef kabobs, and frankfurters) is needed. Meat scientists at Kansas State University have completed research on the quality characteristics, display life, and consumer acceptability of all natural beef products, including marinated shingled beef, marinated beef roasts, and all beef or beef-buffalo frankfurters (Nam Kang, Limsupavanich).

Conclusion

Natural or organic beef production is one option for cattle producers who are looking for alternative ways to enhance income. While some markets may exist for natural beef products, it is a small segment of total meat sales. Some survey research suggests that consumers and meat managers are willing to pay more for dry-aged natural beef products made from the loin but not other cuts of meat. Thus, marketing of the entire carcass is important in order to increase value to offset higher production costs.

Producers contemplating natural or organic beef production should be aware that providing services, processed products, and other marketing functions to increase the value of the carcass will require significant investment. Such investment also has corresponding risk.

Key Questions and Responses

What is the difference between natural and organic beef?

Natural is defined by the U.S. Department of Agriculture as “a product containing no artificial ingredient or added color and is only minimally processed (a process which does not fundamentally alter the raw product) may be labeled natural. The label must explain the use of the term natural (such as no added colorings or artificial ingredients or minimally processed).” Organic is in the process of being defined by USDA. However, the claim “certified organic by a certifying entity” is now authorized for use on the label of meat or poultry products (Anonymous).

Are there markets for natural or organic beef?

Research suggests that some suburban, higher-income consumers in some regions are willing to pay more for beef cuts made from the loin (steak, tenderloin). These

markets are growing but are still a very small percentage of total U.S. meat sales.

What exactly is the EU/United States beef hormone dispute about?

The World Trade Organization (WTO) found that EU ban on beef from cattle treated with hormones was contrary to WTO provisions. The EU had a May 13, 1999 deadline to comply and did not. WTO found that the damage to U.S. beef producers was \$116.8 million annually, which will be obtained by imposing 100 percent duties on various EU products. These products include: fresh or chilled and frozen meat; fresh or chilled and frozen pork; edible offal; Roquefort cheese; onions; truffles; dried carrots; liver (including goose); rusks; single fruit juice concentrate or not concentrate; roasted chicory; and prepared mustard.

What is the history of the dispute?

In December 1985, EU restricted use of natural hormones for therapeutic purposes, banned the use of synthetic hormones, and prohibited importation of animals that had been administered hormones. In 1989, EU began its ban. The United States has worked since then to seek resolution through appropriate trade channels. In 1997, WTO ruled that the ban is not based on scientific evidence.

Is there any merit to the claims that hormone-fed beef is not safe to eat?

None whatsoever as long as the hormones are used with generally accepted veterinary principles. Leading U.S., EU, and WTO scientists have found no scientific evidence that hormones have any health risks. All evidence based on a risk assessment or international standards indicates that there are no problems. Please see the USDA Foreign Agricultural Service webpage at <http://www.fas.usda.gov/itp/policy/hormone.html> for more information.

References

- Anonymous, 1999. USDA authorizes 'certified organic' meat, poultry labeling. *Food Labeling and Nutrition News* 7(15): 7-9
- Campbell, R.E. and M.C. Hunt. 1998. Dry aging: an old process revisited. In *Cattlemen's Day*, Kansas State University, Manhattan, KS, pp.103-105.
- Dunn, J.A. 1995. Organic foods find opportunity in the natural food industry, *Food Review*, USDA, Economic Research Service, Vol., No., September-December : 7-12.
- Givry, S., M. Boland, and J. Fox. 1999. A consumer survey to identify marketing issues for natural beef. Research Report #29, Department of Agricultural Economics, Kansas State University.
- Fee, R. 1997. A is for alliance, *Successful Farming*, December 1997: 25-29.
- Huffman, K.L., M.F. Miller, L.C. Hoover, C.K. Wu, H.C. Brittin, and C.B. Ramsey. 1996. Effect of beef tenderness on consumer satisfaction with steaks consumed in the home and restaurant. *Journal of Animal Science*. 74:91-97.
- Kaufman, P. 1998 Natural foods supermarkets gaining in popularity. *Food Review*, USDA, Economic Research Service, September-December: 25-27.
- Kennedy, J. and D. Fallert. 1989. Livestock hormones in the United States. Economic Research Service, US Department of Agriculture 12: 21-24.
- Limsupavanich, R. 1999. Quality and display life of chilled or frozen natural beef and beef-buffalo frankfurters. GEMS Report, Kansas State University, Manhattan, KS
- Lusk, J., J. Fox, T. Schroeder, J. Mintert, and M. Koohmaraie. 1999. Will consumers pay for a guaranteed tender steak? Research on Livestock Pricing Research Bulletin 3-99, Virginia Tech University, Blacksburg, VA, 20 pages
- Mayer, J. Will organic and natural beef provide growing markets? *Angus Journal*. October: 193-194.
- Nam Kang, P. 1999. Consumer acceptability and quality characteristics of marinated or enzymatically tenderized natural beef products. Unpublished MS thesis, Kansas State University, Manhattan, KS.
- Peterson, D., M. Boland, and E. Boyle. 1999. Marketing issues for natural beef products: opinions of supermarket meat managers and consumers. Research Report #28, Department of Agricultural Economics, Kansas State University.
- USDA Agricultural Marketing Service-Livestock and Seed Division. Certified and process verified programs. October 1, 1999. Available online at <http://www.ams.usda.gov/lsg/certprog/speccomp.pdf>.
- USDA Agricultural Marketing Service-Livestock and Seed Division. MGC Instructions 913-1, Standard for Approval of USDA Certification Marketing Programs, July 21, 1997.
- USDA Agricultural Marketing Service-Livestock and Seed Division. ISO-9000 Quality Management Standards – Informational memorandum for the assistant secretary. February 14, 1996.
- Young, D. 1998. Is it organic? *Meat & Poultry*. March 1998: 38-41.

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