

New value cuts increase beef options at the meat case



by Charlene Schuster, Executive Director, Montana Beef Council

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As the demand for convenient beef products continues to grow, the beef industry, through the checkoff program, has introduced a new product line of moderately priced cuts from the underutilized chuck and round boxed beef. Tentatively called **Beef Value Cuts**, this new line of 13 single-muscle cuts promises easy preparation, greater consistency and more lean beef product options for consumers, as well as greater profit potential for the beef industry.

The Beef Value Cuts concept was created using information from the beef industry’s Muscle Profiling study. Analyzing 39 individual muscles from the chuck and round, the multi-phase, checkoff-funded study identified specific characteristics of each muscle, including palatability, functionality and how to get the most value from these muscles.

From this study, the beef industry’s New Product Development team identified single muscles that provided the greatest opportunities for new beef products. Thirteen new cuts of beef were created based on the research.

Because of their popularity, steaks often see the greatest impact in price when supplies tighten. That is why it was extremely important for us to develop new cuts of steaks from the underutilized chuck and round. By providing more convenient and moderately priced

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Details make the difference at the Curlew Cattle Company

by Jack Stivers, Lake County MSU Extension Agent

Each issue of Beef: Questions & Answers this year will include a profile of ranch operations around Montana.

Describe your operation

Located two miles west of Dixon, Mont., is the Curlew Cattle Company, owned and operated by Howard and Lynn Moss. They have owned the operation since 1976 when they purchased it from Lynn's parents. Lynn's grandfather originally purchased an Indian homestead and ran it as a dairy farm until 1948 when Lynn's dad started raising beef cattle. Howard grew up on his own family's ranch just across the Flathead River from where they live today. This high-elevation ranch receives less than 15 inches of precipitation per year; however, irrigation from Flathead River tributaries make hay production and pasture irrigation possible, which gives the ranch a higher carrying capacity than other operations its size.

Recognized as leading commercial Hereford ranchers, Howard and Lynn maintain over 250 cows. By taking advantage of the superior Line One genetics, Howard focuses on raising replacement females that produce low birth weight, high weaning weights and good maternal characteristics. Howard's cows are also under strict guidelines to produce offspring that consistently perform well in the feedlot and yield a top-quality carcass.

Now that their three girls and two boys are grown, labor is a limited resource. Howard and Lynn work together organizing each facet of their operation to use time and effort to their best advantage. They calve the 2-year-old heifers in February and cows in March so heifers get the attention they need. Hay harvesting is done on a 50/50 share arrangement with a neighbor to reduce capital equipment investment and save labor for their demanding irrigation schedule.

How does your ranch differ from others in your area?

Situated within the Flathead Indian Reservation, agriculture in the area is dominated by tribal grazing districts. Curlew Cattle Company is unique in the area, not only for its straight-bred horned Herefords, but for its concentration on strictly producing cattle.



Howard and Lynn Moss raise Herefords near Dixon, Montana.

What has been your most effective management strategy in recent times?

The need to increase yields under the same or dwindling conditions and physical resources has forced the Curlew Cattle Company to remain on the cutting edge of an intense breeding program. Howard applies concentrated line breeding, paying attention to future industry needs and being ready to fill those needs when they arise. This requires diligent record keeping and research. Those efforts have paid off by producing modern uniform Hereford cattle that have notoriety within the breed and with crossbreeding operations across the United States.

The breeding program is only part of the equation, which also involves nutrition and marketing. High performance genetics work best with a scrupulous feeding program that meets the nutritional requirements of each age group and production level of the herd. Marketing brings it all together. The Mosses built a solid alliance with the Wilson family of Trout Creek, a neighboring commercial herd that also uses Line One genetics. Each family also has built an alliance with two purebred seedstock producers as their genetic suppliers, Holden Herefords and Cooper Herefords. Predictably superior cattle have been the result.

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Achieving excellence:

The MSU College of Agriculture's plan for Animal and Range Sciences

by MSU College of Agriculture Dean Sharron Quisenberry



We must support agriculture—Montana's number one industry—for our state's economy to maintain its viability. My vision for the Montana State University College of Agriculture and the Department of Animal and Range Sciences includes innovative education, cutting-edge research and effective outreach. The ARNR department's great potential for excellence is being realized through the programs and institutes described below.

Education

We continuously assess our courses and degree programs. Animal and Range Sciences undergraduates must complete an internship so they receive practical, hands-on experience. The department hopes to add a Ph.D. program, which would enhance its reputation and research capabilities. We re-established our livestock and meat judging teams, thanks to funding by the Montana Beef Council, and the livestock team has competed well in Phoenix and Denver. The revitalized Steer-a-Year program also will support the team. ARNR enrollment is growing, and

we know that trend will continue as the department's reputation for quality programs is enhanced.

Montana Beef Network

This program is a partnership between MSU (ARNR), the Montana Stockgrowers Association and Frontier Beef Systems. The foundation of the Network is Beef Quality Assurance training that helps producers provide a quality, safe and certifiable beef product. Producers in the Network also receive animal health and carcass information from feeders and packers, allowing them to modify their management practices to improve their beef products. As a result, beef cattle producers can expect premium prices for their products.

Undaunted Stewardship

This partnership program between MSU, the Bureau of Land Management, and agricultural and conservation organizations preserves Montana's history, scenic beauty, environmental quality and

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Beef Value Cuts, cont. from p. 1


options, we offer our consumers additional choices of beef that are priced to match other proteins available.

The Beef Value Cuts program will offer greater benefits to cattle producers when increases in demand for chuck and round enhance the value of the entire beef carcass. Demand numbers for this year are up approximately 4.8% over the same period last year, and the beef industry expects Beef Value Cuts to continue to fuel demand for beef in the meat case into 2002.

These are great tasting tender cuts that we identified as diamonds in the rough. With consumer demand growing, we were able to find new ways for creating great tasting steaks outside the rib and loin.

Currently, NCBA, on behalf of the Cattlemen's Beef Board, is conducting focus groups in the Midwest and East Coast regions to come up with a consumer-friendly name for these new cuts of beef.

NCBA is also partnering with select retailers to test various aspects of the new, single muscle cuts including ideal price points, impact of various price points on volume movement and in-store merchandising strategies.

A new manual and video to supplement the Beef Value Cuts line shows processors, manufacturers and retailers how to create these new cuts using step-by-step instructions and supporting color photographs. The Montana Beef Council shared this information with Montana Meat Processors last year and will provide an update at their convention in April. Several Montana retail chains have provided workshops for their meat departments as well. 

Beef: Questions & Answers is a joint project between MSU Extension and the Montana Beef Council. This column informs producers about current consumer education, promotion and research projects funded through the \$1 per head checkoff. For more information, contact the Montana Beef Council at (406) 442-5111 or at beefcncl@mt.net

Animal and Range Sciences, cont.

rural economy by encouraging sustainable land stewardship and continued protection of historical sites on private agricultural lands. Montana's agricultural families have played a fundamental role in preserving the state's environment and scenic landscapes, including historic sites along the Lewis and Clark Trail. The landscape still looks much as it did when Lewis and Clark traveled here 200 years ago, largely due to the excellent stewardship by private landowners.

Montana Sheep Institute

This partnership program between MSU, the Montana Woolgrowers Association and the Montana sheep industry will develop and implement strategies to increase the competitiveness of Montana lamb and wool by lowering production costs, reducing lamb mortality and exploring nontraditional marketing opportunities. We are excited about research on nutritional and management technologies that improve newborn lambs' energetic status and immune competence. Also, the development of feeding strategies—such as using safflower oil to manipulate meat composition and improve human health benefits and consumer acceptability of lamb—shows tremendous promise.

Institute for Biobased Products and Food Science

The economic future of Montana and the region depends on developing value-added end-use products with a competitive edge in the global marketplace. A biobased agricultural economy can provide in-state manufacturing, product development, rural development and job opportunities. A biobased program will facilitate value-added commodity products, product development, food safety, marketing and science-based risk assessments of agricultural and environmental technologies (e.g., biotechnology, pesticides, etc.).

Wildlife Health Center

The proposed center in the Department of Veterinary Molecular Biology will investigate wildlife diseases that can affect the health of livestock and humans. As wildlife areas are encroached, livestock and wildlife are increasingly exposed to one another, and incidences of livestock diseases in wildlife (e.g., anthrax, bovine virus diarrhea, hantavirus, retrovirus, wasting disease, and bovine spongiform encephalopathy) are increasing, as well. Such exposure creates alternative disease reservoirs that can

eventually impact wildlife—as well as human—health. Our research will help us understand wildlife impunity and the epidemiological occurrences between wildlife, livestock and humans; develop management strategies to reduce loss; and create educational materials for the general public and health management partners.

Center of Excellence for Beef Cattle Production

The proposed Center of Excellence for Beef Cattle Production in the ARNR department will enhance the scope and reach of our research, education and development activities by positioning MSU as the visible leader in service to the beef cattle industry in the Northern Great Plains and Mountain West; fostering partnerships between MSU departments, state and federal agencies, beef industry organizations and private companies; attracting new funding from state and federal agencies, producer organiza-

tions and beef industry partners; and improving recruitment of faculty, visiting scientists and students.

The center will help Montana beef producers add value to their products, be better stewards of resources and enjoy higher profits. It also will serve as the coordinating nucleus for systems approaches to beef cattle research and education in Montana, linking technology and

information from a variety of scientific disciplines including genetics, physiology, nutrition, meat science, ecology, business management and marketing, and stimulate development of new production/marketing systems, partnerships and networks within the Montana beef industry. An endowed chair in beef cattle production will provide leadership for the center.

Animal Bioscience Facility

Fund-raising has begun for a state-of-the-science building that will provide an environment for cutting-edge education and research in the animal, range and biobased food sciences, including animal and range systems sustainability, food safety and security, product development, risk assessments and interactions among human, livestock and wildlife infectious diseases. Animal and Range Sciences, Veterinary Molecular Biology, and the Institute for Biobased Products and Food Science will form the core of the facility.

For more information about the MSU College of Agriculture and the Department of Animal and Range Sciences commitments to excellence in education, research and outreach, please contact the dean's office at (406) 994-3681 or agdean@montana.edu



Caring for hypothermic (cold stressed) newborn beef calves

by Ron Torell, Dr. Bill Kvasnicka and Dr. Ben Bruce, University of Nevada-Reno Extension Specialists

Mortality in beef herds from birth to weaning range from three to seven percent. The majority of this occurs within the first 24 hours of life, with slow and difficult births (dystocia) and cold stress (hypothermia) the leading causes of death. As prevention is the best cure, advice for care and treatment of hypothermic or cold stressed calves is given below. We will also review a case study conducted in Elko County, Nev. that examined the use of calf warmers to overcome hypothermia.

Types of hypothermia

There are two types of hypothermia: exposure (gradual) and immersion (acute). Exposure hypothermia is the steady loss of body heat in a cold environment through respiration, evaporation and lack of adequate hair coat, body flesh or weather protection. This type affects all classes of livestock but particularly affects young, old and thin animals.

Immersion hypothermia is the rapid loss of body heat due to saturated hair coat in a cold environment. Immersion hypothermia is often brought on during birth when the calf is born saturated with birthing fluids. Other causes may include being born in deep snow or on wet ground, falling into a creek or being saturated from heavy rains followed by chilling winds.

Symptoms of hypothermia

Faced with a cold environment, the body tries to defend itself in two ways: shivering, to increase muscle heat production, and blood shunting, to reduce heat loss by diverting blood flow away from the body extremities to the body core.

Mild hypothermia occurs as the body's core temperature drops below normal (approximately 100° F. for beef calves). In the early stages, vigorous shivering is usually accompa-

nied by increased pulse and breathing rates. A cold nostril and pale cold hooves are early signs that blood is being shunted away from the body's extremities. In the case of a newborn calf, severe shivering may interfere with its ability to stand and suckle. This sets the calf up for severe hypothermia. Erratic behavior, confusion and clumsiness are all signs of what producers often call "dummy calf." These are signs of mild hypothermia.

Severe hypothermia results as the body temperature drops below 94° F. Shunting of blood continues, manifesting cold and pale nostrils and hooves due to poor oxygenation of the tissues near the body surface. Decreased circulation also results in a buildup of acid metabolites (waste products) in the muscles of extremities. After the shivering stops, it is replaced by muscle rigidity. The pulse and respiration begin to slow as the body core cools to 88° F.

Below core temperature of 94° F., the vital organs are beginning to get cold. As the brain cools, brain cell metabolism slows, resulting in impaired brain function. The level of consciousness deteriorates from confusion to incoherence and eventual unconsciousness. Below 86° F., signs of life are very difficult to detect and the calf may be mistaken for dead. The pupils of the eyes will be dilated and fixed. The pulse may be undetectable. Occasional gasps of respiration at a rate as low as four or five per minute may be the

only clue that the calf is still alive. Heart failure may be the actual cause of death.

Treatment of hypothermia

The immediate concern is returning the calf's core body temperature to normal (100° F. for newborns). Maintaining the normal core body tempera-

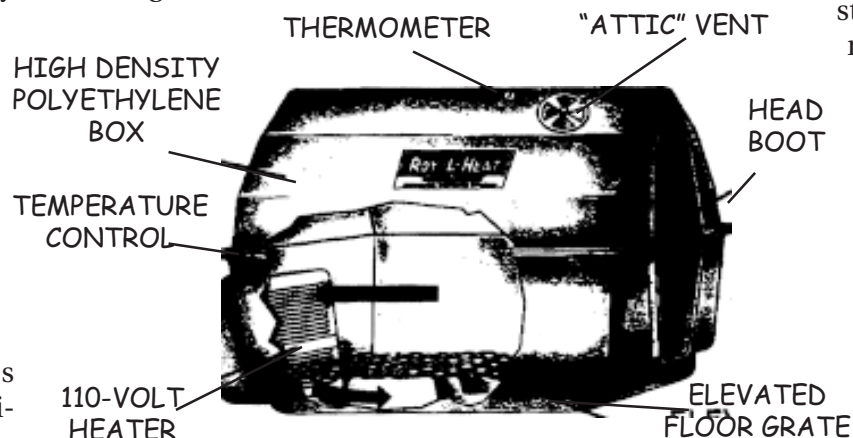


Figure 1. Roy-L-Heat Calf warming and drying box.

ture is a secondary objective. For years, producers have used floor board heaters of pickup trucks, submersion of wet calves in a warm bath, placing calves next to the heater in the house, or placing the calf under a heat lamp. Warming and drying boxes have also been used over the years with limited success. Some producers refer to them as “death boxes.” Most early warming boxes were a four-foot by three-foot plywood box where the hypothermic calf could be placed to dry and warm. Heat sources were often a heat lamp or propane heater. There was usually no fan to circulate warm air. Ventilation was not considered in construction. As the hair coat dried, the moisture raised the humidity within the box, setting the calf up for pneumonia. Oftentimes, the calf would be left unattended and suffer from heat stress or scorching.

The use of a thermometer is highly recommended. Often, a calf will not appear to be hypothermic. However, upon taking its temperature you may realize that the calf’s body temperature is below normal. This is often brought on by dystocia (slow births) which may have put the calf in a hypoxic state (lack of oxygen). A hypoxic calf is slow to dry off and nurse, allowing hypothermia to set in.

Feed the hypothermic calf warm colostrum as soon as possible to speed recovery and increase the probability of full recovery. Breathing the warm air from the calf warmer along with consuming colostrum will warm the calf from the inside out and provide the needed energy to overcome the trauma it just went through.

Case study

Recent design improvements have eliminated the problems of the early handmade warming boxes. In the winter of 1996, three Elko County, Nev. ranchers evaluated the effectiveness of commercial calf warmers for reviving hypothermic calves.

The “ROY-L-HEAT” calf warming and drying box (Figure 1)¹ features a 110-volt heater equipped with a circulating fan and automatic shutoff thermostat. The circulating warm air moves under the wet calf (the calf sits on a mesh screen elevated four inches off the floor), up the sides of the calf and is recirculated through the heater. Accumulated moisture escapes through the attic vent. The heater is protected in a separate enclosure attached to the rear of the box and removes easily for simple rinsing and disinfecting. The box is made of high density polyethylene. Its interior size provides adequate space for calves to lay down or stand. Opposite the heater is a rubber “head boot” that permits the calf to breathe outside air when desired, yet holds the warm air in at all times.

Cooperator Barry Anderson of Ruby Valley replaced the heater and fan on his calf warmer with a

12-volt RV heater. Barry powers the heater and fan with a 12-volt RV battery. The RV battery provides extended life over a regular 12 volt car battery.

“By using the 12 volt system, I can take the calf warmer right to the hypothermic calf in the field. The cow stays close by because she can smell the calf in the box as it dries off. Oftentimes when I return to check on the calf it has removed itself from the box, nursed and left with its mother,” said Anderson.


Cooperator Ed Sarman, owner and manager of Lee Livestock in Lamoille, Nev., uses the heat box predominately with his first-calf heifers.

“We calve our heifers in late February, one heat cycle prior to the mature cow herd,” he said. “The delayed delivery often associated with heifers and lack of experience to lick the calf and stand to let it nurse, all contribute to the increased incidence of hypothermic calves in our first-calf heifers. The calf warming box saves us time and labor. We place the cold calf in the box and are able to go on and do other things while the calf recuperates. We used to have to babysit the calf for fear of scorching. We find ourselves placing mild hypothermic calves that we used to let recuperate on their own at a slower pace, in the box for a short period of time. Getting the edge off of these slightly-stressed calves gets them off to a better start.”

Cooperator Tom Barnes of Jiggs, Nev. collected data on a few of the hypothermic calves he treated with the heat box.

“I was impressed with the recovery of one calf in particular,” says Barnes. “I found this calf at 1 a.m. on Feb. 27. There were six inches of frozen snow on the ground and it was 10°F. This calf was flat out. His body temperature was 86°F. I tubed the calf with warm colostrum and placed him in the warmer for six hours. This calf, from a first-calf heifer, weaned off at 500 pounds this fall. I know he would have died if I had not had the calf warmer.”

Conclusion

Severe hypothermic calves can be revived and saved. However, they often are set back from the experience, and their body defense system can be compromised. This sets the calf up for pneumonia, scours and other calfhoo problems. The incidence and severity of hypothermic calves can be reduced through preventative measures. A separate paper on preventing hypothermia in beef calves is available by calling 702-784-1624. 

¹ ROY-L-HEAT calf warmer is manufactured by Smucker Manufacturing, Inc., 22919 N. Coburg, Harrisburg, Oregon 97446 (800-333-4503). Reference to a company or trade name does not imply approval or endorsement by the University of Nevada, Reno or by the Montana State University Extension Service.

Making sense of ultrasound and carcass measurements

by Mike Tess, Animal & Range Sciences, Montana State University-Bozeman



U. S. beef production and marketing systems are changing. Production segments are becoming more coordinated; sometimes by formal business alliances, sometimes by improved information transfer and measurement of value. Systems are becoming more product-oriented than commodity-oriented. As a consequence, cattle producers have incentives to make genetic changes in carcass traits. A variety of genetic tools are available to help beef producers tailor cattle to specific markets and environments. EPDs are the most effective for making directed genetic improvement within breeds.

Compared to most growth traits, traditional performance and progeny testing for carcass merit is more difficult to complete. Carcass traits cannot be measured directly on potential parents, i.e., the measurements made on a chilled carcass cannot be duplicated on live animals. Carcass measurements on progeny or other relatives of potential parents are expensive to collect. Ownership of calves can change several times prior to slaughter, and cattle are typically moved to different locations during their lifetime; hence, maintaining animal identification and information feedback to cow-calf breeders are difficult tasks. Nevertheless, carcass traits are moderate to highly heritable.

Problems associated with direct measures of carcass quality have motivated searches for measurable traits on potential parents that could provide carcass quality information. Real-time ultrasound has proved to be an effective technology to meet this goal. Currently, many breeders use ultrasound to identify differences in carcass merit among young cattle. Yet, I sense that confusion exists over how this information relates to the actual carcass measurements made on cattle after slaughter.

Though difficult, such information is desirable because an ultrasound measurement made on potential breeding stock raised under ranch conditions (e.g., yearling bulls or heifers) is not exactly the same as the direct measurement made on carcasses from animals grown in a feedlot, but a genetically correlated trait (see sidebar). Due to this genetic correlation, the ultrasound measurement explains (or ac-

Understanding Genetic Correlations

A genetic correlation is a statistical measure of the degree of association between two traits. Generally genetic correlations are the result of several genes affecting both traits. For example, the genes carried by the calf affecting growth rate before birth also affect growth after birth. Hence, there is a genetic correlation between birth rate and yearling weight.

Like other types of correlations, genetic correlations range in value between +1.0 and -1.0. Correlations near the extremes indicate very strong relationships, while correlations near zero suggest little or no association. Positive genetic correlations suggest that genetic increases in one trait will be accompanied by genetic increases in the second trait, while negative genetic correlations indicate that genetic increases in one trait will be accompanied by genetic decreases in the second trait. For example, birth weight has a positive genetic correlation with yearling weight, but a negative correlation with direct calving ease. Selection for increased yearling weight is expected to increase birth weight but decrease calving ease.

counts for) *some but not all* of the variation in the carcass trait (see Figure 1 below). For example, an ultrasound ribeye area measured on a yearling bull is useful in predicting the ribeye area EPD for that bull, but not as useful as a direct measurement would be.



Carcass Trait Phenotype

Figure 1. Part/whole relationship between ultrasound and carcass EPD. Just as EPD account for part of the differences among animals in phenotype, ultrasound measurements account for part of the differences in carcass trait EPD.

Ultrasound and carcass data, cont.

Estimates of genetic correlations between carcass measures and ultrasound measures are needed before EPD for carcass traits can be computed from ultrasound data. Accurate estimates of these statistics are not easy to obtain. Therefore, breed associations have taken one of four approaches to computing EPD for carcass traits:

- 1) using carcass data to compute carcass EPD,
- 2) using ultrasound data to compute ultrasound EPD,
- 3) computing separate EPD for carcass and ultrasound and publishing both, or
- 4) using carcass and ultrasound records to compute a single carcass EPD – i.e., via the genetic correlations.

Confusion may arise when bulls have both ultrasound EPD and carcass EPD. It's possible that these EPD may rank bulls differently. First, we must remem-

ber that these are different, although genetically correlated traits. Another likely contributor to this problem may be different amounts of progeny data for ultrasound measurements versus direct carcass measurements – both among the bulls evaluated and among the bulls' ancestors.

Because ultrasound measurements are made on potential parents, one might predict that future carcass trait EPD will be essentially based on ultrasound measurements. However, electronic animal identification, animal tracking networks, and web-based data transfer might facilitate a different course. If this electronic technology is widely adopted, and if the expense is low, direct carcass measures might eventually be the dominant source of genetic information on carcass traits. 🐮

Rancher profile, cont. from p. 2

What is the biggest challenge to your operation?

Even the most progressive producers realize that a line breeding program progresses faster with a greater number of cows. Herefords' high fertility helps with the number of offspring per female per year, but reality is that cattle have a long generation interval. Maintaining a cow herd large enough on limited resources and increasing quality is constantly a challenge.

Though the cost of hired labor is significant, the biggest challenge is finding willing and qualified employees on a seasonal basis. The work is certainly available, but in the Dixon area, there are a finite number of hireable people. This makes for extremely long hours and the need for efficient planning in order to maintain the attention to detail with which the Moss family operates Curlew Cattle Company.

What do you think are the biggest challenges to the livestock industry?

Although Howard and Lynn are positive about the future, Howard points out "hazards to the cattle industry's health:" issues that need to be monitored to protect cattle producers' interests,



Agriculture in the area of the Curlew Cattle Company, situated within the Flathead Indian Reservation, is dominated by tribal grazing districts.

such as the North American Free Trade Agreement (NAFTA) and how the Endangered Species Act laws can affect private landowners. He mainly highlights the challenge to react positively to consumers, stating that the cattle industry as a whole is making progress in this direction, but a higher level of awareness and sensitivity must be taken. Meeting the consumer's needs, likes and demands, leads to repeat purchases and perhaps beef loyalty.

"Let's not let any facet of the industry dictate how beef should be produced, processed, prepared or presented that doesn't appeal to the consumer," he said. 🐮

What's Hot and What's Not

Beef Trends in the Supermarket

by Gary C. Smith, Colorado State University, from a presentation at the Wakefern Food Corporation Seminar

In December, Beef: Questions & Answers included some of Dr. Gary Smith's comments on beef trends. Following are more excerpts from that article.

Feedstuffs Magazine (Nov. 21) reported Japanese consumers are frightened over the link between BSE and a human form of the disease, variant Creutzfeldt-Jacob Disease. They are inexperienced with beef, a Japanese market that has only developed in the last 10 years. Beef sales in Japan have plunged 50 to 80 percent since the first case of BSE was reported, and U.S. beef exports to Japan plunged 40 to 70 percent, according to the U.S. Meat Export Federation (MEF).

MEF officials said it may take three to four years to re-establish the beef market in Japan, which represents a critical market for the American beef industry. Ten percent of American beef is now exported, with Japan accounting for half of those exports, or five percent of production: \$36 per head to producers.

Excerpts reprinted here from Dr. Smith's lecture address important questions about food safety.

Should supermarket operators fear that "Mad Cow Disease" may occur in the USA?

Experts on the subject say it is extremely unlikely to occur here and—even if it does—it will be quickly contained. Cattle producers, feedmill operators and packing plant personnel are working closely with government (USDA, FDA) officials to keep this disease out of the U.S. and to prevent spread of the disease should it ever occur here. MCD can affect human health and its effects on beef sales—should it appear in America—would be devastating to the beef industry.

Should supermarket operators fear that "Foot and Mouth Disease may occur in the USA?

Again, experts on the subject now believe we will dodge this bullet. Government officials acted very quickly in response to recent outbreaks of this disease in the United Kingdom and in Argentina and have programs in place to prevent entry of the disease into our country as well as to quickly contain it, if it does. FMD almost never affects humans, so it is not considered a human health or food safety issue. FMD occur-

rence in America would affect sales of beef, pork and lamb, decrease profitability of farming and ranching, and prevent the U.S. from exporting meat and offal to other countries.

What are the greatest vulnerabilities of supermarket meat departments to foodborne pathogens?

Ground beef—because it may contain *E. coli* O157:H7—remains a concern, but packers have done such a marvelous job of dramatically reducing incidence of foodborne pathogens on carcasses, cuts and trimmings that this is now almost a "back burner" issue at retail. Peg-board meat items can be infected with *Listeria monocytogenes*, but processing microbiological interventions (e.g., use of sodium lactate and sodium diacetate in formulations) have reduced most of the vulnerability in these products. Service counters and deli operations that sell hot foods, fully-prepared items and/or cold-sliced ready-to-eat meats can—if improperly managed relative to sanitation—be vulnerable to problems with *Salmonella* spp., *Campylobacter jejuni*, *Yersinia enterocolitica*, *Staphylococcus aureus* and *Listeria monocytogenes*. Managing food safety in meat departments requires a mind set and complete dedication to following Good Manufacturing Practices.

Where is the supermarket industry on case-ready fresh meats?

Most assuredly, the industry is moving in the case-ready direction. Wal-mart has moved forcefully, using both Thomas E. Wilson and National/Farmland case-ready beef and pork steaks, chops, roasts, thin meats and ground meats. Some divisions of Kroger are selling case-ready beef and pork cuts supplied by the Excel Corporation. Many supermarkets still put most of their fresh red meat items on foam boards, overwrapped with PVC film, but have other cuts (veal, lamb, variety meats, high-lean beef grinds, slow-moving Natural/Organic cuts, etc.) in case-ready packages. Back-room labor issues have hastened the move to case-ready meats in geographic areas where

cont. next page

Supermarket trends, cont.

there are shortages of personnel and slowed the move to case-ready fresh meats in geographic areas where union contracts preclude use of such technology. A second concern is that of storage-life/caselif of case-ready fresh meats. Depending on whether such cuts are prepared at packing plants or satellite centers, distribution and display times necessitate storage-life of six to 11 days; to accomplish that, beef needs to come from cattle fed Vitamin E in the feedlot or rosemary extract needs to be added to the blend during grinding. The issue of “high-oxygen” or “low-oxygen” modified atmosphere packaging (MAP) of case-ready fresh meats is company/operation-specific; proponents of “high ox” MAP give up some storage-life to avoid having to peel “low ox” packages and weigh/price/label at retail.

McDonald’s, Burger King and Wendy’s have succumbed to pressure on animal rights; will supermarket companies be next?

People for the Ethical Treatment of Animals (PETA) has forced the three largest quick-service restaurant companies to develop animal management and welfare guidelines for its suppliers of beef, pork, poultry, seafood and dairy products. While a McDonald’s spokesman said the company’s program was not one directed at animal rights (PETA believes that humans and animals have equal rights) but at animal welfare (assurance that animals are free from abuse, cruelty and neglect), it is obviously a concession to the “McCruelty To Go” campaign of PETA. Could the same pressure be applied to supermarkets? It could, and it probably will. Safeway is working with Dr. Temple Grandin, an animal behavior/well-being expert, to develop a farm-to-fork animal welfare program with objective, practical and rational measurement systems and quality assurance audits.

Will consumers pay a premium for beef promoted as lean, tender, nutritious, Natural or Organic?

They will pay a premium for lean in ground beef. If 73:27 (lean:fat) ground beef sells for \$1.46 per pound, 80:20, 90:10 and 95:5—on a point-of-lean basis—ground beef products should sell for \$1.60, \$1.80 and \$1.90 per pound, yet actually sell for \$1.98, \$2.69 and \$3.89 (June 2001 example prices).

Studies conducted by National Cattlemen’s Beef Association, Kansas State University, Texas A&M University and Colorado State University demonstrate that, with USDA Quality Grade held constant, consumers will pay 50 to 60 cents per pound premium for “guaranteed” or “verified” tender beef. There is little

or no premium for beef sold as “Natural” if the claim is made solely in compliance with the USDA requirements (minimally processed; no additives) for use of the term, but there are premiums of 50 cents to \$3 per pound for “Natural” beef for which production-practice claims (no hormones; no antibiotics; fed vegetarian diets) are made.


Lack of availability of beef labeled “Organic” has not allowed adequate testing of retail price-points for such products but premiums of \$2 to \$4 per pound might reasonably be expected from the tiny portion of the people in the consuming public who would purchase Organic beef. “Nutritious” beef would not command a premium price at retail; beef is expected to be nutrient dense.

How many kinds (by grade or brand) of fresh beef are being offered and/or are ideal for U.S. supermarkets?

Ten years ago it was rare to see more than two kinds of fresh beef in self-service cases of supermarkets. Supermarkets usually offered beef of the USDA grade featured by that store plus either a high-quality product (e.g., Chef’s Exclusive) or a “Natural” product (e.g., Maverick Lite Beef). Now supermarkets offer five kinds of fresh beef (steaks, roasts, thin meats, grinds); two or three of those in self-service cases (e.g., U.S. Select, Nolan Ryan’s Tender Aged Beef, store brand Angus beef) and two or three in service cases (e.g., U.S. Prime, Certified Angus Beef, Sterling Silver). Obviously, decisions regarding how many kinds of beef to offer at a supermarket depend on shopper demographics, but the ideal mix at present appears to be a “Natural” beef line, a high-quality beef line and one other—a company brand, a USDA Select or a USDA Choice line.

How can new capabilities for bar-code scanning improve profit performance in supermarket meat departments?

More complete data from out-scanning product (at the check-out stands) greatly improves the ability of meat market managers to run a more profitable operations. When fresh meat is sold exclusively in case-ready product form, the real benefits of scanning will be realized. That is so because every package of meat can then be in-scanned (on delivery) and out-scanned (at sale) allowing inventory controls useful for controlling “shrink.” Minimization of shrink may well be the greatest potential benefit of moving to case-ready fresh meat.

Sources: <http://ansci.colostate.edu/>; www.feedstuffs.com 

Fallon Carter 4-Her raises bucks for rodeo

A teenager from Baker has found a new way to make a difference by combining creativity with community service. Sara Berger raised \$400 for the Montana State University rodeo team at the Cowboys and Candlelight banquet and auction held Feb. 16 in Bozeman. Berger, a 17-year-old junior at Fallon County High School, donated several art pieces to the fundraiser, which she attended with her parents and her brother, Ryan.

When Berger took ceramics as a self-determined project with the New Horizons 4-H club, she didn't know it was going to turn into a community service opportunity. She developed a technique for painting western ceramic greenware sculptures to look like real bronze. When she exhibited the unique work at the Fallon County Fair, she was asked if she ever sold or donated them, and an idea was born.


Berger has participated in several benefit efforts in the Baker area in the last year, raising money for people in need from a cancer patient to the victims of a house fire. Local adults often donate quilts and other handwork to these



benefit auctions, but "I'm about the only teenager who does it," says Berger.

Sara's brother Ryan, a sophomore in Animal Science at MSU in Bozeman, is involved with the rodeo team doing video and computer work. When he asked Sara about donating some of her ceramic "bronzes" for the team's fund raiser, she stepped up to the plate.

She supports rodeo, but as far as being a participant, Berger says the closest thing she does is show cows. For her 4-H beef breeding project, she shows Black Angus and Limousine cattle in Fallon, Carter and Yellowstone counties and in Bowman and Williston, ND.

"4-H helps you decide what you want to do, because there are so many opportunities you can take," says Berger. "You can find a project that suits you." 



Sara Berger of Baker sets up one of the ceramic sculptures she donated for the MSU rodeo team fund-raiser.

Solutions now!

Attend the 51st annual Montana Nutrition Conference, May 7 and 8 in Bozeman.

Topics include:

- **What do the cow-calf producers want from the packer and what does the packer want from the cow-calf producer? A debate and question-and-answer period**
- **When will the drought end and what can we do about it?**
- **Summary of recent research**
- **Cull cow feeding**
- **And many other topics**

All participants will receive a CD of all the presentations, a library of drought information articles. Call 994-3414 for info.



Beef: Questions & Answers is published every winter through the Montana State University Extension Service. To subscribe, change your address, suggest article ideas, or for more information, call (406) 994-3415.



John Paterson MSU Extension Beef Specialist
and newsletter editor,
MSU-Bozeman
(406) 994-3415
johnp@montana.edu

MSU events

Montana Nutrition Conference. May 7 and 8. Bozeman Gran Tree Inn. Topics include recent research findings, drought management strategies, cull cow feeding and many others. Guest speaker: Taylor Brown, Northern Broadcasting Network. Registration is \$30 per person or \$50 per ranch or couple. Register by phone at (406) 994-3414.

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