

THE KANSAS CITY STAR.



BEEF'S **RAW** EDGES

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The Kansas City Star, in a yearlong investigation, found that the beef industry is increasingly relying on a mechanical process to tenderize meat, exposing Americans to higher risk of E. coli poisoning. The industry then resists labeling such products, leaving consumers in the dark.

The result: Beef in America is plentiful and affordable, spun out in enormous quantities at high speeds, but it's a bonanza with hidden dangers. Industry officials contend beef is safer than it's ever been.

By MIKE MCGRAW | THE KANSAS CITY STAR

SIoux CITY, Iowa

Margaret Lamkin doesn't visit her grandchildren much anymore. She never flies. She avoids wearing dresses. And she worries about infections and odors.

Three years ago, at age 87, Lamkin was forced to wear a colostomy bag for the rest of her life after a virulent meat-borne pathogen destroyed her colon and nearly killed her.

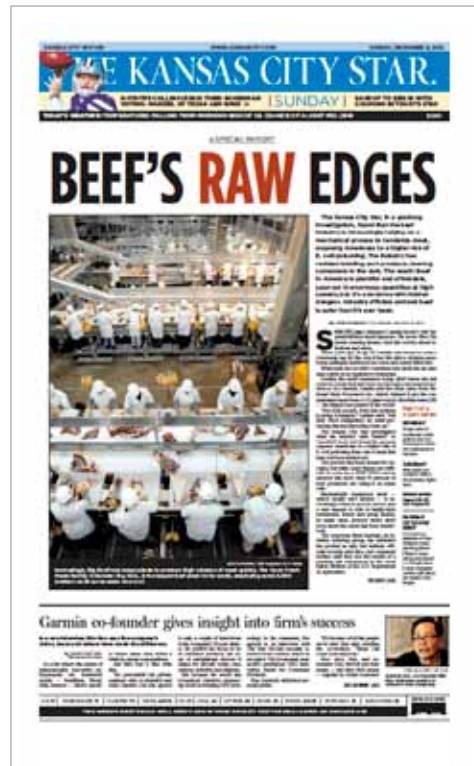
What made her so sick? A medium-rare steak she ate nine days earlier at an Applebee's restaurant.

Lamkin, like most consumers today, didn't know she had ordered a steak that had been run through a mechanical tenderizer. In a lawsuit, Lamkin said her steak came from National Steak Processors Inc., which claimed it got the contaminated meat from a U.S. plant run by Brazilian-based JBS — the biggest beef packer in the world.

"You trust people, trust that nothing is going to happen," Lamkin said, "but they (beef companies) are mass-producing this and shoveling it into us."

The Kansas City Star investigated what the industry calls "bladed" or "needled" beef, and found the process exposes Americans to a higher risk of E. coli poisoning than cuts of meat that have not been tenderized.

The process has been around for decades, but while



exact figures are difficult to come by, a 2008 USDA survey showed that more than 90 percent of beef producers are using it on some cuts.

Mechanically tenderized meat — which usually isn't labeled — is increasingly found in grocery stores, and a vast amount is sold to family-style restaurants, hotels and group homes. In many cases, grocery stores don't even know the meat has been tenderized.

The American Meat Institute, an industry lobbying group, has defended the product as safe, but institute officials recently said they can't comment further until they see the results of a pending risk assessment by the meat safety division of the U.S. Department of Agriculture.

Although blading and injecting marinades into meat add value for the beef industry, that also can drive pathogens — including the E. coli O157:H7 that destroyed Lamkin's colon — deeper into the meat.

If it isn't cooked sufficiently, people can get sick. Or die.

There have been several USDA recalls of the product since at least 2000, and a Canadian recall in October included mechanically tenderized steaks imported into the United States.

In a 2010 letter to the USDA, the American Meat Institute noted eight recalls between 2000 and 2009 that identified mechanically tenderized and marinated steaks as the culprit. Those recalls sickened at least 100 people.

But food safety advocates suspect the incidence of illness is much higher.

An estimate by the Center for Science in the Public Interest, an advocacy group, suggests that mechanically tenderized beef could have been the source of as many as 100 outbreaks of E. coli and other illnesses in the United States in recent years.

Those cases affected more than 3,100 people who ate contaminated meat at wedding receptions, churches, banquet facilities, restaurants, schools and in their own homes, the center said.

But that's just one of the key findings from The Star's investigation, which examined Big Beef's processing methods and the hazards they can pose for human health.

The Star examined the largest beef packers including the big four— Tyson Foods of Arkansas, Cargill Meat Solutions of Wichita, National Beef of Kansas City and JBS USA Beef of Greeley, Colo. — as well as the network of feedlots, processing plants, animal drug companies and lobbyists who make up the behemoth known as Big Beef.

What The Star found is an increasingly concentrated industry that mass-produces beef at high speeds in mega-factories that dot the Midwest, where Kansas City serves as the “buckle” of the beef belt. It's a factory food process churning out cheaper and some say tougher cuts of meat that can cause health problems. The Star's other key findings:

- Large beef plants, based on volume alone, contribute disproportionately to the incidence of meat-borne pathogens.
- Big Beef and other processors are co-mining ground beef from many different cattle, some from outside the United States, adding to the difficulty for health officials to track contaminated products to their source. The industry also has resisted labeling some products, including mechanically tenderized meat, to warn consumers and restaurants to cook it thoroughly.
- Big Beef is injecting millions of dollars of growth hormones and antibiotics into cattle, partly to fatten them quickly for market. But many experts believe that years of



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Increasingly, Big Beef runs mega-plants to produce high volumes of meat quickly. The Tyson Fresh Meats facility in Dakota City, Neb., is the largest beef plant in the world, employing some 4,000 workers on 26 acres under one roof.

overuse and misuse of such drugs contributes to antibiotic-resistant pathogens in humans, meaning illnesses once treated with a regimen of antibiotics are much harder to control.

- Big Beef is using its political pull, public relations campaigns and the supportive science it sponsors to influence federal dietary guidelines and recast steaks and burgers as health foods people can eat every day. It even persuaded the American Heart Association to certify beef as “heart healthy.”

Big Beef, industry critics contend, has grown too big for Big Government to lasso.

Indeed, the U.S. beef industry is twice as concentrated as it was when President Teddy Roosevelt took on and beat the old Armour, Swift, Cudahy and Morris beef trust in the early 1900s. The big four packers today slaughter 87 percent of all heifers and steers.

“Roosevelt,” remarked Montana rancher Dan Teigen, “would be spinning in his saddle.”

AMERICA’S CRUDE OIL

Thanks in large part to the Midwest’s grassy plains and ample row crops, the United States produces 26 billion pounds of beef a year from 34 million cattle — more than any other country.

Four of the seven largest beef slaughterhouses — each capable of killing 6,000 head a day — are in Kansas, which leads the nation in meat processing.

The big slaughterhouses are among the last vestiges of old-line American manufacturing, except that they take things apart instead of putting them together. Meat slaughter and processing employs 260,000 people, and Big Beef’s highly efficient plants supply a large share of those jobs in the Midwest.

As a result, despite recent price hikes, beef costs less in the United States than anywhere in the world. It has become America’s crude oil — in high demand worldwide, including faraway lands where a newly-minted middle class is acquiring a taste for more expensive protein.

But some independent ranchers, members of Congress and food safety advocates question the wisdom of processing so much beef at such speeds, arguing that “factory food” is more likely to trigger pathogen outbreaks.

Their reasoning: When processing speed and volumes rise, so do the chances for contamination to be introduced and spread widely from its source to other meat inside the plant and at other plants that process it further.

In fact, most of the lawsuits that Seattle attorney Bill Marler has filed against the meat industry — winning a total of \$250 million in judgments on behalf of children who suffered kidney failure by eating bad hamburger — were against big packing plants, where he said “the problem begins.”

E. coli O157:H7 is a potentially deadly bacterium that can cause bloody diarrhea, dehydration and, in severe cases, kidney failure. The very young, seniors and people with weak immune systems are most at risk.

A recent lawsuit against National Steak and JBS noted that there are an estimated 73,480 illnesses linked to E. coli O157:H7 infections from all food sources each year in the United States, leading to 2,168 hospitalizations and 61 deaths.

USDA data analyzed by The Star show that large plants until recently had higher rates of positive E. coli tests than smaller plants. Federal meat safety officials said the latest data show big plants are improving.

But the volume of meat a plant produces is a



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Most of the beef that Americans consume comes from plants such as Cargill's processing facility in Dodge City, Kan. Here beef is seen being trimmed on the processing line.

THE INDUSTRY'S RESPONSE

Beef industry spokesmen say that they have invested hundreds of millions of dollars and made great strides in reducing E. coli in the last 20 years with new technologies, including hide and carcass washes and steam cabinets.

Citing federal data, they say E. coli O157:H7 in fresh ground beef declined 72 percent between 2000 and 2010 and infections in humans from all sources declined 52 percent between 2000 and 2011.

They say government studies show large cattle slaughter plants have higher food safety ratings than small plants and that the industry performs thousands of E. coli tests daily to help ensure that U.S. beef is safe.

Big Beef does not try to force its agenda on regulatory agencies, they say, and reacts no differently than other regulated industries to such rules. Their participation in regulatory issues, says the American Meat Institute, is "part of the democratic process."

Industry officials say they strongly support the current USDA meat safety system (HACCP) as "the most significant food safety policy in the last 20 years ... and a key factor in the declines in pathogens on meat and poultry."

key issue. A USDA study published in March showed that from 2007 through 2011, E. coli positives at very small plants resulted, The Star found, in only 465,000 pounds of contaminated beef. A slightly lower rate of positive tests at large plants, however, produced more than 51 million pounds of contaminated beef.

Regardless, experts agree that most E. coli generally originates at larger slaughter plants,

where pathogen-laden manure is a bigger problem because that's where cattle are coming in from the feedlots.

Federal inspection records obtained by The Star under the federal Freedom of Information Act include hundreds of references to fecal contamination problems over the last two years at four of the largest beef slaughter plants in Kansas, Nebraska and Colorado. For example, at one

of Tyson's beef plants, inspectors noted: "massive fecal contamination; multiple carcasses with varying degrees of fecal contamination; periods of very significant fecal, ingesta and abscess contamination."

Another federal inspector at Tyson found "a piece of trimmed fat approximately 14 inches long with feces the length of it," and another noted, "fecal contamination ...was so great... couldn't keep up."

But Tyson officials said such reports only provide a "snapshot of beef production." The company said it has added two full-time safety technicians at the plant, as well as additional workers, to assess carcasses and make sure fecal contamination is eliminated.

Although the Food Safety and Inspection Service cautioned that no "consistent trend" has emerged in recalls of contaminated beef, the USDA and beef industry officials point out that E. coli illnesses have dropped dramatically in recent years.

"A miracle has occurred in the beef industry," said Janet Riley, senior vice president for public affairs at the American Meat Institute. "Beef is safer, more affordable and more plentiful than it ever has been."

James Marsden, a food safety professor at Kansas State University, agreed that the industry is improving, but said it could do a better job with mechanically tenderized steaks.

"E. coli is impossible to eradicate from beef cattle," he said. But a key to eliminating it in mechanically tenderized steaks is to use "interventions" such as spraying lactic acid on the meat to reduce or eliminate surface contamination. Some companies do that, he said, but the USDA does not require it.

None of that, however, prevented Lamkin's ill-

ness after eating beef that had been mechanically tenderized, according to a lawsuit she filed last year.

"I was amazed to learn how these steaks are processed," Lamkin said. "I never dreamed of anything happening like this."

ROBOBEEF

More and more, the beef industry is using machines with automated, double-edged blades to cut through muscle fibers and connective tissue to penetrate tougher cuts of meat.

Hollow needles are sometimes used to inject flavorings, or what the industry calls "digestive agents." Marinades added to meat can also contribute to contamination risks.

Surveys of beef producers by the USDA found that most use mechanical tenderization to improve quality, and the industry produces at least 50 million pounds a month.

For Big Beef, mechanically tenderized meat is all about bigger profits, according to food safety advocates. However, the beef industry doesn't widely publicize the process, and some food safety advocates say the reason is such labeling can lead to sales declines. The USDA is considering requiring such labels.

The American Meat Institute, citing a 2008 USDA study, has maintained that the risk of illness from E. coli O157:H7 in such products "is not significantly higher."

But a more recent study published last year in the Journal of Food Protection found that bladed and marinated steaks were two to four times riskier than those that had not been mechanically tenderized.

Some experts say Big Beef is relying on the process more and more because beef is getting

tougher.

Changes in animal feeding practices are causing cattle to come to market sooner, said David Theno, a beef industry consultant and leading food safety expert. Those animals often “have less marbling and may be less tender than animals that spend more time in feedlots...,” he explained.

Theno, who helped the Jack in the Box restaurant chain reform its practices after an E. coli O157:H7 outbreak in the 1990s, said problems with mechanically tenderized meat can arise because many consumers don’t want their steaks overcooked. But failing to heat them sufficiently can allow pathogens to survive.

Such risks have been identified “for quite some time,” said Carlota Medus, principal epidemiologist for Minnesota’s health department.

“We have seen it (mechanically tenderized meat) as a vehicle for outbreaks since 2003,” she said. “It’s not as risky as ground beef, but it is definitely riskier than an intact steak.”

USDA research also discovered an ominous phenomenon in mechanically tenderized and marinated meat. The 2011 Journal of Food Protection article warned that cooking highly-contaminated bladed steaks on a gas grill — even at 160 degrees like hamburger — might not kill all E. coli bacteria.

Those remaining living pathogens, ironically called “fortuitous survivors” by scientists, survive because of cold spots in the meat.

The American Meat Institute has said that blade-tenderized steaks are just as safe as other steaks if “the meat is properly cooked.” The institute also found that if researchers had allowed the steaks to “rest” and continue cooking for an additional three minutes before taking their samples, those remaining “fortuitous survivors” may

have been killed.

Food-safety advocates, however, point out that most consumers, restaurants and grocery stores don’t know they’re buying bladed meat and therefore don’t know it should be cooked more thoroughly. The Safe Food Coalition “strongly believes” such products pose “a serious and unnecessary threat to public health.”

All of the big four packers acknowledged mechanically tenderizing beef at some point in their production process.

Tim Klein, CEO of Kansas City-based National Beef said that, “If it is good meat, you don’t have to do something like that to tenderize it...” A company spokesman later acknowledged, however, that they do blade some steaks at their other facilities for customers who request them.

But Big Beef’s slaughterhouses are only the first stop in the meat distribution network, and mechanical tenderization can happen anywhere up to and including the point of sale, such as grocery stores.

“It doesn’t matter where in the process it occurs,” said Pat Buck, who co-founded the Center for Foodborne Illness, Research and Prevention after her 2-year-old grandson, Kevin, died from eating E. coli-contaminated ground beef.

“But once it occurs, whether it’s at processing, retail or somewhere in between, we believe it is the obligation of the person who does it to label it.”

Problems with contaminated mechanically tenderized beef are growing and becoming international in scale.

Just this fall, an estimated 2.5 million pounds of E. coli-contaminated meat, including mechanically tenderized cuts, quietly crossed the Canadian border into the United States before it was caught by inspectors.

The bad meat came from XL Foods Inc. and triggered the largest meat recall in Canadian history.

As of late October, according to the Canadian Food Inspection Agency, 17 people became sick in that country, including at least five who ate mechanically tenderized steaks. The Canadian recall came too late in the United States. Some of the meat already had been distributed in at least 30 states, including Missouri and Kansas, to retailers such as Walmart and Sam's Club.

By now, the contaminated meat has likely been eaten, frozen, or thrown away, and so far no illnesses connected with the outbreak have been documented in the United States.

But if you're reading about the contaminated Canadian meat for the first time, it's probably because the outbreak received scant attention in the United States.

Rather than recall the imported meat, the USDA issued what it called a "Public Health Alert" in late September. An alert is a lower enforcement action than a recall.

"While the Canadian Food Inspection Agency has actually issued recall announcements, (the U.S. government) is still releasing vague 'Public Health Alerts,'" said Wenonah Hauter, executive director of Food & Water Watch.

TRACKING BAD MEAT

E. coli outbreaks, for mechanically tenderized steaks and ground beef, can be difficult to trace to their source because the beef production system is complex and the food safety enforcement system is broken, according to food safety advocates and members of Congress.

The Star found that Robert Danell, a 62-year-old man with Down syndrome, died after he and

one other person at a group home in Sauk Rapids, Minn., fell ill as part of the same E. coli outbreak that made Lamkin sick.

Health officials were never able to pin down whether Danell or the other victim at the group home ate mechanically tenderized steak, contaminated hamburger also found in the same outbreak, or instead were exposed to the feces of those who did.

Danell was hospitalized on Jan. 9, 2010, suffering from bloody diarrhea. He died of kidney failure 10 days later.

Today, Danell's brother, Bill, can only wonder why the E. coli contamination couldn't have been prevented.

"They figured out it was E. coli, and by that time there was no way to treat it, and that pushed him into his early death," said Bill Danell, whose family didn't take legal action.

Even though his brother lived much longer with Down syndrome than anyone predicted, his death was unexpected. Now all his family is left with are memories.

"Sometimes he would take the bus downtown, transfer to another bus and go to the Army recruiting station and try to join up. He did that every day for a while," Bill Danell said.

In the end, victims such as Lamkin often must go to court to find out why they became ill.

Early last year, Lamkin sued Oklahoma-based National Steak Processors, the company that allegedly mechanically tenderized the beef that Lamkin ate. National Steak Processors declined comment.

Lamkin's claimed her steak was part of a USDA recall announced on Christmas Eve 2009. It in-



Robert Danell



Ever since a restaurant steak gave her an infection that cost her part of her intestines, Margaret Lamkin of Iowa has had to use colostomy bags that attach to an opening in her abdomen. Now age 90, she keeps a supply of the bags handy. “I never dreamed of anything happening like this,” she says.

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involved 248,000 pounds of meat from National Steak. Those steaks, and additional contaminated ground beef, sickened 25 people in 17 states, according to the Minnesota Department of Health.

Health department records show that 14 of the 25 known victims reported eating steak, some of which was mechanically tenderized, at one of several family-style restaurants.

Health officials believe, and lawsuits alleged, that the original source of the contaminated steaks was a JBS plant.

Those records indicate JBS’s Colorado plant may also have provided contaminated meat that was mixed into ground beef in Kansas and distributed in Minnesota and elsewhere.

But the USDA told Minnesota health officials

that “the trace back investigation was not considered sufficiently strong to conclusively implicate that company (JBS).”

USDA officials told The Star that JBS’s Greeley plant was “a supplier of interest,” but ultimately they “could not find information sufficient” to make that conclusion.

After Lamkin sued National Steak Processors, the company then sued JBS, alleging that JBS had provided them with the E. coli contaminated steaks in the first place.

JBS denied the allegation in court, but when Lamkin’s lawsuit was settled in August, JBS and National Steak both contributed to her settlement. The details of that settlement, which did not assign blame, are not part of the court record.

JBS told The Star that the settlement is not an acknowledgement that they sold the contaminated meat blamed for Lamkin's illness. Instead, spokesman Cameron Bruett insisted, it is an acknowledgement of the "potential costs and the uncertainty in any litigation claim like this. I think both us and National felt it was in the best interest of the consumer to...share the costs of this settlement."

As for JBS being the source of the additional contaminated ground beef identified in the same outbreak, Bruett said, "we've never seen any proof of that claim."

Applebee's, which was not named in Lamkin's lawsuit, said all the restaurant chain's menus include "an FDA-compliant consumer advisory reminding guests that consuming raw or undercooked meat may increase the risk of contracting a foodborne illness."

The statement added that "all of the quality meat products that Applebee's is proud to serve... are sourced from USDA-compliant suppliers."

Until now, E. coli has been primarily a concern with ground beef. Part of the problem is that some plants mix ground beef from different countries and different cattle, commingling the meat to get the right level of fat content.

Medus, the epidemiologist who directed the Minnesota investigation, said the case illustrates how difficult it is to unravel a "common source outbreak involving two different products (ground beef and mechanically tenderized meat)."

Although the contaminated steak was recalled, "bottom line, we didn't go to the next step, which would have been a recall at JBS," she said.

Earlier this year, the USDA proposed improvements in its system for tracing contaminated meat.

Some large packers agree more needs to be done.

"We believe there is room for improvement... that will lead to more timely actions and potentially fewer illnesses," Cargill officials told The Star.

LACK OF LABELING

Lamkin's and Danell's illnesses, and those of two dozen others, shouldn't have come as a surprise.

For years, the USDA has urged the industry to voluntarily label such products, but found in 2008 that few beef plants were doing so. Costco is among stores that do label such products as being bladed. Those labels advise consumers that "for your safety USDA recommends cooking to a minimum temperature of 160 degrees."

Not labeling mechanically tenderized beef jeopardizes consumers and puts health officials at a disadvantage if there's an outbreak, experts said.

"The meat associations do not want labeling on their products because they believe that it will cause confusion and reluctance to buy the product," said Buck of the Center for Foodborne Illness.

Pleas to the USDA to force the labeling of mechanically tenderized meat went unheeded for years.

One food industry group even complained that restaurants can't tell the difference between a regular steak and a mechanically tenderized steak, especially when it's frozen. The Conference for Food Protection asked the USDA in 2010 to require labels for it.

"Without clear labeling ... food retailers including restaurants and retail stores, and consumers

do not have the necessary information to safely prepare these products,” the conference said.

The recent Canadian E. coli outbreak prompted health officials there to consider labeling mechanically tenderized steaks and the Canadian government advised food preparers to cook them to 160 degrees.

In the United States there has been no such public advisory.

For now, the USDA recommends cooking all beef steaks — mechanically tenderized or not — to a minimum internal temperature of 145 degrees, then letting them sit for 3 minutes.

While slow to respond, the USDA has begun a complex and lengthy process that could eventually require more specific labels for mechanically tenderized beef steaks. As part of that process the beef industry, the public and consumer groups will have an opportunity to comment on the proposal, which could be changed, or even dropped.

The USDA's Food Safety and Inspection Service declined to discuss specifics of the proposal, including its risk assessment, because it's under review.

The American Meat Institute's position on the issue may be changing.

In 2009, after the outbreak that sickened Larkin and the others, a statement on the Institute's website called for an investigation, but noted that USDA research had found that mechanically tenderized steaks are “comparable in safety” to other steaks.

As a result, they added, “we don't believe that special labeling declaring the mechanical tenderization process will provide meaningful or actionable information to consumers.”

Today, Institute officials maintain that statement does not mean they oppose labeling those products.

“Our position...was the right position at that time,” Institute spokeswoman Janet Riley told The Star recently. “We are on the cusp of a great deal of new information (from the USDA) that will prompt careful review and, possibly, a change.”

However, Riley added, “Labeling is not a magic bullet. We know consumers often don't read labels or follow the instructions that are there.”

INSPECTION PROBLEMS

The USDA's Office of Inspector General reported in March that it visited six large beef slaughter plants and determined that “overall, industry was taking appropriate steps to help ensure that U.S. beef is safe from E. coli contamination.”

As the inspector general put it: “When positive test results were found, plants were conducting investigations to determine the cause and applied corrective actions...”

But the key phrase, critics point out, is “when positive test results were found.” Some meat processors, they suspect, don't look hard enough.

That's because the federal government's meat inspection program, called Hazard Analysis and Critical Control Points (HACCP), is implemented by meat producers, not government.

The government requires meat plants to verify that their food safety systems work, but it does not require them to actually test meat, nor does it set standards for plants that do.

For example, some in the beef industry acknowledge that they do not test their mechanically tenderized steaks for E. coli, as they do ground beef, because they believe the risk of illness is lower. JBS acknowledged they don't test those steaks.

Plants that do test meat must make results

available to federal inspectors if asked, but they are not required to alert the government of results that are positive for pathogens.

Indeed, some federal meat inspectors have sarcastically suggested that HACCP should stand for “Have a Cup of Coffee and Pray” or “Hardly Anyone Comprehends Current Policy.”

“Our food safety system is broken,” former U.S. Rep. Bart Stupak, a Michigan Democrat, declared during a 2008 congressional hearing after the USDA initiated 20 beef recalls in 20 months.

Although the scientific principles behind HACCP are sound, Stupak said, “many experts contend that it actually decreased federal oversight because of industry’s self-reliance on self-inspection.”

The internal USDA audit this year found that federal inspectors need to provide plants with better guidance. In some cases, plants were able to use their HACCP programs to “sidestep regulations.”

Such loopholes, the audit noted, led to problems such as a 2011 incident in which “a plant shipped about 80,000 pounds of beef after it received multiple positive E. coli tests...”

USDA officials told The Star they are always looking for ways to improve their oversight. One of those officials, who wouldn’t speak for attribution, said “there has been a whole shift in our focus, and we are much more a scientifically-based public health regulatory agency than ever before.”

When contaminated beef does hit the market, recalls are the primary tool the USDA uses to minimize risk to consumers. But their effectiveness is limited, federal data show.

For instance, an analysis by The Star shows that since 2005, nearly 18 million pounds of E. coli



Ashbrook

contaminated beef has been recalled. Of that, far less than half was recovered.

Yet another victim of the same E. coli outbreak that sickened Lamkin and Danell wishes today that the bad meat she ate hadn’t been on the market.

Ashley Ashbrook’s parents took her to dinner at Applebee’s in her hometown of Ashtabula, Ohio, in early November 2009, to celebrate straight A’s she earned during her senior year in high school.

Ashbrook, who was 17 at the time, ate a medium-rare sirloin steak that she did not know had been mechanically tenderized. She later contracted an E. coli 0157:H7 infection that was complicated by hemolytic uremic syndrome, the most common cause of kidney failure in children.

Ashbrook sued National Steak and JBS in a case settled Nov. 26 for an undisclosed amount, although both companies denied liability.

Ashbrook’s kidneys shrunk to half their normal size, her kidney function remains abnormal, and she suffers from high blood pressure and anemia, she said.

Eventually, she may need dialysis or a kidney transplant.

“I still have high blood pressure and I get very fatigued because of the anemia. I have to take a break going up the stairs of my apartment and I feel like an old lady sometimes,” said, Ashbrook, now 20 and a student at Kent State University’s Ashtabula campus.

“I had never heard of anything like this (mechanically tenderized steak) before...I went to a small restaurant recently — not a chain — and I asked the lady if it was blade tenderized, and she didn’t know. She said she had no clue, so I said ‘I’ll have it well done.’”

Inside America's largest beef factories

By MIKE MCGRAW | THE KANSAS CITY STAR

Small plants are disappearing, replaced by assembly lines built for speed and volume.

DAKOTA CITY, Neb.

The Tyson Fresh Meat plant — all 26 acres under one roof — is the biggest beef plant in the world.

Every workday, thousands of bawling 1,400-pound steers and heifers are stunned, bled, beheaded, de-hided and eviscerated.

Like most large modern-day meat plants, it's automated, computerized and roboticized. Still, there's no hiding the telltale odor of the killing floor.

Four thousand people work here, processing as many as 7,100 carcasses a day. From the catwalks above the processing floor, hundreds of multicolored hard hats bob above swinging knives, power saws and grinders.

Each day they pack 50,000 boxes of meat.

This is only one of a dozen large Midwestern beef plants owned by the big four packers, whose operations are spread across Nebraska, Kansas, Colorado and Texas.

Data analyzed by The Kansas City Star show that small plants are disappearing. From 2004 to 2009, an average of 19 plants per year ended ground beef production or went out of business.





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Cargill, with beef operations based in Wichita, Kan., runs a large production facility in Dodge City. Along the line there, cattle are stunned and then bled out. They then go through a “carcass wash” before their hides are removed and cut into pieces.

As smaller plants continue to close, these mega-plants have become America’s primary source of beef.

A persistent and growing movement among consumer and environmental groups in recent years is turning away from so-called commodity beef and “factory food” in favor of an expanding, but still niche, market for local, organic and grass-fed beef.

Yet the vast majority of meat consumed in America today comes from plants such as Tyson’s in Dakota City and Cargill’s in Dodge City, Kan.

The job descriptions in these plants are much the same as they were at the turn of the cen-

tury — featherbone buster, cheek puller, lipper, tongue trimmer, belly ripper and bung dropper — and they’re as well-oiled and almost as efficient as an automotive assembly line.

As cattle are herded through a rounded maze designed to keep them calm, they approach their last cognizant moment. This is the beginning of a process the beef industry calls “harvesting.”

A worker called a “knocker” uses a captive bolt gun to drive a steel rod through the skull, rendering the animal unconscious.

They are then hung by a back leg onto a rolling overhead trolley, the remaining back leg often still twitching.

With tongues protruding and hearts still beating, they are “stuck” in an artery just below the neck, and a cascade of blood pours into a trough.

The cattle are then exposed to “electrical stimulation” when carcasses are pulled into contact with specially designed electrically charged bars, a process Tyson says improves tenderness.

The cattle go through a “carcass wash” — a high-pressure bath much like a car wash, that cleans their hides of dirt and pathogen-carrying manure.

They are de-hided by workers using powerful pneumatic claws; then heads and feet are removed.

They are graded into prime, choice or select, depending on the amount and location of fat and meat. Only about 3 percent nationwide are graded prime.

From start to finish, it all takes about 35 minutes.

However, speed was cited as a contributing factor in the massive recall of E. coli-contaminated meat from a Canadian plant in October.

“Every plant is a heartbeat away from some food safety issue,” said Doug O’Halloran, the union president representing Canadian workers.

Tyson officials said the speed with which animals are processed in the United States is not a concern. The company uses the right number of workers to do the job safely, including giving workers time to sharpen knives and sanitize tools and other equipment.

To prevent cross-contamination with bacteria, cattle carcasses in the United States are split in half using one of two different high-powered saws. One is used on carcasses from cattle less than 20 months old that are exported to Japan — a huge importer of U.S. beef. Those carcasses are stamped with a large pink “J.”

The other saw is used on the remainder of the carcasses, most of which will end up in American restaurants and refrigerators.

The Japanese demand meat from younger cattle because it is less likely to have a disease called bovine spongiform encephalopathy, or BSE, more commonly known as “mad cow” disease.

They put the extra procedures in place after several U.S. cattle were found to carry the disease, which can cause degeneration of the brain and spinal cord. There have been BSE cases documented among humans in Europe, but none in the United States.

However, the U.S. beef industry insists the extra procedures are unwarranted, and the industry has been lobbying the Japanese for years to drop them, which could happen next year.

The work at the Dakota City plant is nothing like the turn-of-the-century conditions Upton Sinclair exposed in “The Jungle.” Tyson and the other big packers have spent heavily on worker safety, and injury rates are down.

But these automated plants have their own hazards, according to a computer analysis of workplace injuries by The Star.

Meat plant employees have died from falling

ABOUT THIS STORY

The Kansas City Star was given the rare opportunity to tour Tyson’s Dakota City plant, which processes as many as 7,100 cattle a day, and Cargill’s Dodge City plant, which processes 6,000 a day.

Tyson allowed access to all areas of the plant, except where cattle are killed. It also allowed a few photographs of the processing floor.

Cargill permitted full access to its plant but would not allow photographs of its “kill floor.”

National Beef did not allow The Star to tour a plant. JBS didn’t offer a tour until about a week ago, too late for The Star to take one.

into grinders and augers; asphyxiation; electrocution; and being kicked by semiconscious cows.

At the Tyson plant, 37-year-old Rodney Bridgett, a father of four young boys, was crushed to death March 14 by an elevated work platform he was repairing.

Federal officials in August cited Tyson for two “willful” workplace safety violations, and the company is facing fines of \$104,000.

“It is unthinkable that an employer would allow workers in and around dangerous operations without ensuring that sufficient safeguards are in place,” said Charles E. Adkins, the Occupational Safety and Health Administration’s Kansas City-based regional administrator.

Tyson officials said they were “saddened by the tragic death” of Bridgett and are working with OSHA to resolve agency concerns.

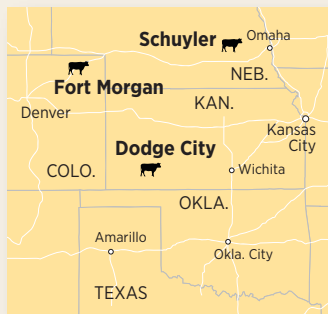
The Star’s Bob Cronkleton contributed to this report.



Cargill, the largest U.S. beef packer, produces animal feed, agrochemicals and biofuels. Cargill is the second-largest privately held corporation in America.

- Beef division headquarters: **Wichita**
- Daily slaughter capacity: **30,000 cattle**
- U.S. beef plants: **8**
- Feedlot ownership: **Yes, through its Caprock Industries.**

Large Cargill beef plants in the region



Source: Cattle Buyers Weekly



Tyson is the second-largest U.S. beef packer. It’s also the largest meat-processing enterprise in the world, and produces an estimated one-fourth of all the beef, pork and chicken sold in the United States.

- Beef division headquarters: **Springdale, Ark.**
- Daily slaughter capacity: **29,000 cattle**
- U.S. beef plants: **7**
- Feedlot ownership: **No**

Large Tyson beef plants in the region



JBS SA of Brazil is the largest single beef packer in the world. It’s U.S. subsidiary owns 8 plants in the United States.

- U.S. beef division headquarters: **Greeley, Colo.**
- Daily slaughter capacity: **29,000 cattle**
- U.S. beef plants: **8**
- Feedlot ownership: **Yes, through Five Rivers Cattle Feeding, largest feeding operation in the U.S.**

Large JBS USA beef plants in the region



With about 14 percent of total slaughter, National Beef, based in Kansas City, is the smallest of the big four packers.

- Headquarters: **Kansas City**
- Daily slaughter capacity: **14,000 cattle**
- U.S. beef plants: **3**
- Feedlot ownership: **No. National is actually owned by a network of feedlots.**

Large National beef plants in the region



FROM CALF TO KITCHEN: THE JOURNEY OF A BEEF COW

The demand for beef and the increased automation of the packing plants has accelerated the life of a typical beef cow. Today, a cow typically is slaughtered between the age of 14 and 20 months.

Graphic by DAVE EAMES and MIKE MCGRAW
THE KANSAS CITY STAR

1 A calf is born on a ranch in eastern Kansas. The calf will usually spend the first six months of its life in a pasture, eating grass.



2 Six months later, the calf is weaned and moved to a pen. The now 600-pound calf will spend the next couple of months learning to eat from a trough and tasting corn. This step is called backgrounding.



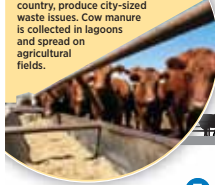
THE ISSUE: GROWTH HORMONES

Growth hormones, antibiotics and a diet of corn or other grains quickly fatten cattle for market. Today, it takes as little as 12 or 14 months to grow a beef cow to slaughter weight. That's about half the time it used to take.



THE ISSUE: MILES OF MANURE

Huge cattle feedlots, scattered mostly in the middle of the country, produce city-sized waste issues. Cow manure is collected in lagoons and spread on agricultural fields.



5 The cows are transitioned to a daily diet of mostly corn and alfalfa. They are often treated with hormones and antibiotics at this stage.

4 At the feedlot, the cow joins thousands of others in enclosed pens.

3 At a year old, the cow is moved from the backgrounding pen to a feedlot. The cow is loaded onto a cattle hauler.



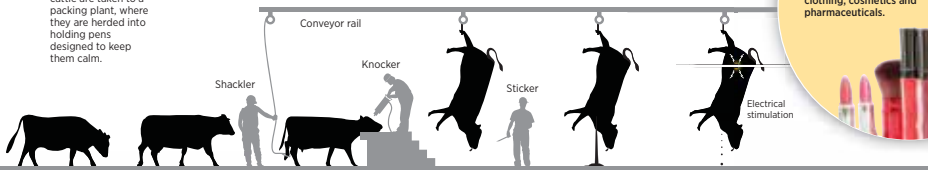
6 By now, the cow has grown to 1,200-1,400 pounds and is ready for slaughter. The cattle are taken to a packing plant, where they are herded into holding pens designed to keep them calm.

7 Cattle are herded through a serpentine chute toward the knocking box, where a worker using a pneumatic gun shoots a steel bolt into the skull, rendering the animal unconscious.

8 Next, a shackler attaches a chain around the animal's back leg and hoists it up to a conveyor rail.

9 The animal moves down the rail to a sticker who cuts the neck, draining its blood.

10 The animal, now dead, then makes contact with an electrical line used to improve tenderness.



THE ISSUE: MORE THAN JUST MEAT

Parts of the cow are used in a variety of products such as animal feed, soap, clothing, cosmetics and pharmaceuticals.



THE ISSUE: FECAL CONTAMINATION

Experts agree that E. coli generally originates at larger slaughter plants, where pathogen-laden manure can be a big problem.



14 A hide pulling machine helps skin the animal. The fresh carcass moves down the line.

13 The de-hiding process begins. The feet and head are removed. A worker cuts the hide along the belly.

12 During a critical step, a worker removes the animal's bung, attempting to avoid spreading contamination.

11 A high pressure washer rinses the carcass of dirt and manure.



15 A USDA inspector examines the carcass, looking for signs of pathogens and BSE (bovine spongiform encephalopathy). If contamination is found, the carcass is cleaned or removed.

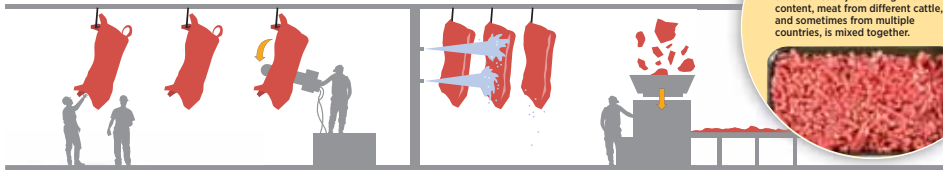
16 A large saw is used to split the carcass through the center of the backbone. The tail and the spinal cord are removed.

17 Just 15 minutes after they are stunned, the split carcasses are washed and left to dry.

18 Meanwhile, beef trim from other carcasses is prepared for ground beef production.

THE ISSUE: DIVERSE GROUND BEEF

Hamburger is ground at packing plants and other processors. In order to reach just the right fat content, meat from different cattle, and sometimes from multiple countries, is mixed together.



THE ISSUE: COOKING CAUTION

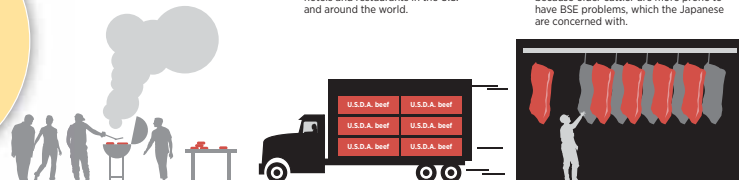
The USDA advises consumers to cook all steaks to an internal temperature of at least 145 degrees.



21 Whether it's ribs, steaks or burgers, the beef is ready for your tailgate at Arrowhead Stadium.

20 Finally, the carcasses are broken into primal cuts, including steaks and roasts. The fresh beef is vacuum-packed or boxed for sale to wholesalers, retailers, hotels and restaurants in the U.S. and around the world.

19 The carcasses are sent to a larger cooler room, where they are typically aged for two days. Carcasses from cattle 20 months old and younger are marked for export to Japan, because of their food laws. This is because older cattle are more prone to have BSE problems, which the Japanese are concerned with.



Sources: Industry and union officials

THE KANSAS CITY STAR

Costco's E. coli-testing procedures rival government inspection efforts

By MIKE MCGRAW | THE KANSAS CITY STAR

Company checks for contamination at its plant as beef arrives and leaves, but that doesn't prevent all its problems.

TRACY, Calif.

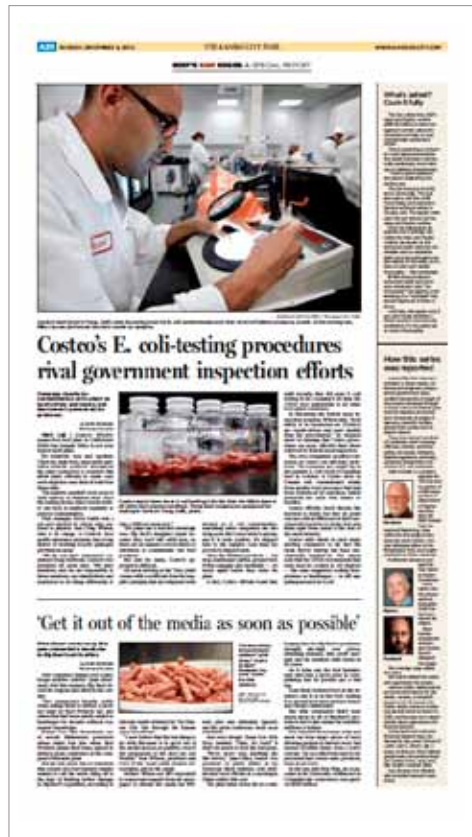
Costco's 250,000-square-foot beef plant in California's fertile San Joaquin Valley is not your typical meat plant.

It's relatively new and spotless. There are high-tech, hand-wash sanitation stations scattered throughout the plant connected to counters that allow plant officials to make sure each employee uses them at least four times daily.

The massive meatball cook room is built entirely of stainless steel. Even the loading docks, where trucks deliver raw beef, is sanitized regularly to prevent contamination.

Plant manager Kevin Smith was a pre-med student in college who majored in physics. And Craig Wilson, who is in charge of Costco's food quality assurance program, has a long history of working to solve pathogen problems in meat.

"We do not have customers," explained Doug Holbrook, Costco's vice president for meat sales. "We have members, and we are responsible to those members, our shareholders and employees to do things differently, to take a different approach."





PHOTOS BY KEITH MYERS | THE KANSAS CITY STAR

Costco's beef plant in Tracy, Calif., tests incoming meat for E. coli contamination and then tests its finished products, as well. In the testing lab, Mike Caccam performed bacteria counts on samples.

The plant has a decided advantage over Big Beef's slaughter plants because they don't kill cattle here, so there are no manure-covered hides or intestines to contaminate raw beef products.

But just the same, Costco's approach is different.

All meat arriving at the Tracy plant comes with a certificate from the supplier pledging that pre-shipment tests showed no E. coli contamination, something other companies are also doing now. But Costco tests it anyway, and if it tests positive, it's shipped back to the supplier. Less than one percent is shipped back.

Then the finished products — hot dogs, hamburger patties, ground beef, Polish sausages and meatballs — are tested again before they leave

the plant.

In fact, Costco officials boast that, until recently, they did more E. coli testing in the company's lab than the USDA does nationwide at all other beef plants combined.

In discussing the federal meat inspection program, Wilson said, "food safety is an oxymoron... we (Costco) are results-driven and more nimble than the government." He stopped short of claiming that Costco procedures are more effective than those enforced by federal meat inspectors.

Yet, even companies as safety-conscious as Costco can still have problems. The company got caught up in the massive E. coli recall of Canadian beef in October. A Costco store in Canada sold contaminated steaks from another beef pro-

cessor that had been tenderized by machines, which penetrate the meat with blades or needles.

Costco officials won't discuss the incident in detail, but they do point out one critical difference in their mechanically tenderized steaks that sets them apart from much of the rest of the meat industry.

Costco adds labels to such meat, alerting consumers to the fact the steak they're buying has been mechanically tenderized. The labels note that the USDA recommends that such meat be cooked to 160 degrees — the same suggested cooking temperature as hamburger — to kill any pathogens such as E.coli.



Costco says it does more E. coli testing in its lab than the USDA does at all other beef plants combined. These beef samples are prepared for testing in Costco's Tracy, Calif., plant.

What's safest? Cook it fully

The Star called the USDA's Meat and Poultry Hotline (888-674-6854) to learn the agency's current advice for consumers on how to cook mechanically tenderized steaks.

That is, assuming a consumer could determine whether the steaks had been mechanically tenderized, since there are no labeling requirements.

"That's a good question," the person answering the hotline said.

The Star was put on hold, twice. Eventually, The Star was told to call the USDA Food Safety and Inspection Service technical center in Omaha, Neb. The expert there said The Star should call the Meat and Poultry Hotline.

After the newspaper explained that it already had called the Meat and Poultry Hotline, the expert at the technical center said that the needles used to tenderize beef can push pathogens into the interior of the meat, so it's best to cook such steaks thoroughly — like hamburger.

While some producers voluntarily label such products, the expert said, "unfortunately" the agency is still working on a "mandate" that would require all of them to do so.

Until then, the expert said, if you don't know whether a steak has been mechanically tenderized, it's the safest bet to cook it thoroughly.

BUILDING BIGGER CATTLE: AN INDUSTRY OVERDOSE

Doctors say Joplin case offers rare window into human antibiotic-resistance problems related to use in livestock. Big Beef says worries are overblown.

By **MIKE MCGRAW** | THE KANSAS CITY STAR

Two kids seriously injured in the Joplin tornado in May 2011 showed up at Children’s Mercy Hospital in Kansas City suffering from antibiotic-resistant infections from dirt and debris blown into their wounds.

Physicians tried different drugs, but at first nothing seemed to work.

Blame the overuse of antibiotics in livestock, according to the doctors familiar with their cases.

“These kids had some really highly resistant bacteria that they clearly had not picked up in a hospital,” said Jason Newland, director of the Children Mercy’s antibiotic stewardship program.

Newland and other doctors believe those infections may be part of the price we are paying for a half century of overusing antibiotics in cattle and other meat animals in the United States.

“If you look at tonnage, 80 percent of the total

of all the antibiotics we use in the states is used in meat animals,” Newland said.

As in humans, bacteria growing inside animals that are given antibiotics can develop a resistance to the medicines, Newland explained. That resistant bacteria can then be transferred to the soil through animal waste.

During severe storms, such as the EF5 tornado which killed 161 people in Joplin, that contaminated soil can end up in open wounds, and even modern medicine is challenged in combating the serious infections that can occur.

“We are increasingly treating kids with antibiotic-resistant infections who were at the last antibiotic we could possibly use on them,” Newland said. “In the next 20 years will we see antibiotics resistant to everything?”

A yearlong investigation by The Kansas City Star found a multimillion-dollar-a-year pharma-





PHOTOS BY KEITH MYERS | THE KANSAS CITY STAR

Antibiotics that pass through cattle can wind up in their manure, which is often spread as fertilizer — such as on this field near Garden City, Kan. Drug-resistant bacteria are showing up in America’s soil, posing health risks for humans.

ceutical arms race in the beef industry is not just about curing sick cows.

It’s also about fattening cattle cheaply and quickly, driven in part by efforts to maximize profits, according to food safety advocates. In fact, the same number of cattle today are producing twice as much meat as they did in the 1950s because of genetics, drugs and more efficient processing.

Despite decades of warnings, the federal government has failed to pass meaningful regulation of animal drug use, failed to adequately monitor the harmful residues they leave behind, and failed to stop the consumption of meat contaminated with such substances.

Consider:

- Based on sales data alone, the amount of drugs used in livestock is increasing, and beef samples are showing greater numbers of antibiotic-resistant pathogens.
- Last year, an Arizona lab discovered a strain of antibiotic resistant MRSA in meat that can infect humans. Other strains of MRSA staph infections sometimes race through hospitals.
- Many U.S. veterinarians who specialize in treating cattle said in a recent survey that they were concerned about the overuse and improper use of antibiotics and other drugs. Some blamed salesmen intent on making more money.

In its investigation, The Star examined the larg-

est beef packers including the big four— Tyson Foods of Arkansas, Cargill Meat Solutions of Wichita, National Beef of Kansas City and JBS of Brazil — as well as the intertwined network of feedlots, processing plants, animal drug companies and lobbyists who make up the behemoth known as Big Beef.

Today’s ever-larger feedlots use an intensive antibiotic regimen, even though the USDA acknowledges that such practices can contribute to antibiotic resistant bacteria in humans.

But Big Beef maintains that concerns about antibiotic overuse in livestock are overblown. The Animal Health Institute, the lobbying arm of the animal pharmaceutical industry, said there’s not enough data to compare antibiotic use in animals and humans, citing a Food and Drug Administration statement that said it is “difficult to draw definite conclusions.”

The industry said antibiotics are needed for the humane treatment of sick and suffering animals and added that there is no “provable connection” between the cases in Joplin and livestock antibiotic use.

BULKING UP

Before cattle are slaughtered, they’ve been fed, tagged and injected with millions of dollars of hormones, growth promoters and antibiotics.

Every year, about 29 million pounds of antimicrobial drugs are used on cattle, pigs and poultry, government data show.

But the government doesn’t make public how much of those drugs are used in cattle, or any other meat animals, because it considers that information a “trade secret” and its release might give one company a competitive advantage over another.

A public interest group, however, sued the FDA on Wednesday to force the release of additional data on antibiotics used in food animals.

“How can we truly know the extent to which these drugs are causing harm if we can’t even access the information,” said Amanda Hitt, director of the food integrity campaign at the Government Accountability Project, a whistleblower protection group.

The group sued when the FDA refused to release the data under a Freedom of Information Act request.

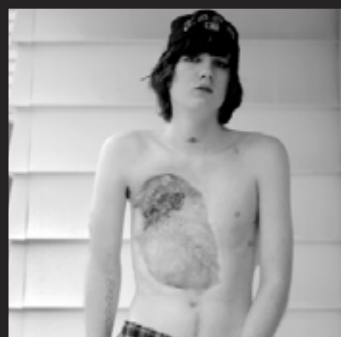
The Animal Health Institute said that data it collected voluntarily from its members until 2007, showed that about one-third of the compounds used in food animals are not used in humans and therefore “cannot in any way contribute to the burden of antibiotic resistance in humans.”

So why does Big Beef keep using them?

Cattlemen have known for decades that antibiotics cause digestive changes in cattle that help



One Kansas veterinarian’s shelf is filled with drugs, including antibiotics, he says are used in cattle.



After being seriously hurt in the Joplin tornado, teenager Steven Weersing developed an antibiotic-resistant infection that doctors believe came from the use of drugs in livestock.

DAVID EULITT |
THE KANSAS CITY STAR



PHOTOS BY KEITH MYERS | THE KANSAS CITY STAR

Big piles of manure stack up in a cattle feedlot in Kansas. Doctors believe antibiotics used in cattle and other livestock result in the animals developing bacteria resistant to the drugs. That bacteria then enter the soil through animal waste and can be spread to humans.

them efficiently convert corn into added weight.

And that saves money.

Before the 1940s, most cattle primarily ate grass and some grains until they were slaughtered. But after World War II, farmers learned they could feed large numbers of cattle on less acreage by using more corn.

However, there were unintended consequences.

Animals in confined spaces spread diseases. Cattle on high rations of corn develop acid build-up, which can deteriorate the gut lining — similar to an ulcer in humans — and cause gas, bloating and lameness.

Corn can eat away part of a cow's stomach, said Allen Williams, a former feedlot owner and cattle specialist at Mississippi State University. Cattle can actually discharge part of their stomachs through their rectums, he said.

Big Beef soon discovered antibiotics controlled both problems.

Not only do such drugs help control diseases among closely-confined cattle, they also counteract the acid buildup from corn. They relieve bloating, allowing cattle to eat more.

Beef industry officials said they had no research to back up that claim. But Cargill acknowledged that antibiotics are used in part to treat liver abscesses in cattle that result from high concentrations of corn they are fed.

Williams, who now consults with grass fed beef producers, said pressure to keep using higher levels of antibiotics and other drugs on cattle is all about bigger profits.

“It's pressure from pharmaceutical companies. They are making money...and they don't want it to stop,” he said.

That's inaccurate, industry officials contend. "Farmers and ranchers have complete freedom to purchase or not purchase products based on animal needs," according to the Animal Health Institute.

Improved genetics along with antibiotics, hormones and growth promoters — many of them developed in and around Kansas City's burgeoning animal health corridor — allow the beef industry to raise a calf to slaughter weight in a little more than a year, half the time it used to take. Studies also show that animal drug residues in the beef people eat, and in cattle waste runoff that occasionally enters public water systems, can cause human illnesses.

Yet both sides in the debate over limiting the use of animal antibiotics remain entrenched and cite scientific studies to back up their point of view.

"There's no question that routinely administering non-therapeutic doses of antibiotics to food animals contributes to antibiotic resistance," said Donald Kennedy, former commissioner of the FDA and president emeritus at Stanford University.

Not true, said Mike Apley, a veterinarian and Kansas State University professor.

"We have zero data to say that growth promoting uses of antibiotics in animals is a major con-

THE INDUSTRY'S RESPONSE

Beef industry spokesmen say antibiotics and growth promoters used in cattle "help improve the way we raise beef...and help reduce the amount of natural resources" required to do so.

That includes the "responsible use" of Food and Drug Administration-approved antibiotics and growth promotants that are used in a way that "never compromises the health and safety of consumers."

They say all pharmaceuticals used in cattle are approved by the FDA, and the United States Department of Agriculture oversees a monitoring program to help ensure "that withdrawal periods are followed where required and that residues are not present."

They say animal pharmaceutical firms focus on educating veterinarians and their clients about how to properly use their products "for the optimal health and well-being" of meat animals and those companies "generally have codes of conduct that guide how to interact with medical professionals with integrity."

tributor to the overall problem of antibiotic resistant bacteria," said Apley, who acknowledged that some of his studies are funded by pharmaceutical companies.

VEXED VETS

Some concerned ranchers aren't using antibiotics anymore, at least for growth promotion. And meat packers, including some of the largest ones, offer antibiotic-free beef.

Bill Haw, a former banker who grazes his herds in the Flint Hills of Kansas, doesn't use antibiotics in feed.

"Given the potential problems, it is crazy to do so," Haw said.

Veterinarians who specialize in cattle also are speaking out against antibiotic overuse.

When the American Association of Bovine Practitioners surveyed its members in March, they tapped into a deep vein of frustration. Of the 389 veterinarians who anonymously answered the survey, 344 said they want guidelines for the judicious use of drugs in cattle.

Some ranchers have begun relying on free advice from "roving veterinarians" who sometimes

ride shotgun with drug distributors, one veterinarian said.

"There is tremendous pressure from pharmaceutical companies to push different products

through rebates,” said Ken Winter, who operates a feedlot in Dodge City, Kan. “They cater to big outfits and give away discounts...I hate that.”

Those kinds of practices, according to many veterinarians surveyed, contribute to the misuse of some drugs.

“Illegal performance of veterinary procedures and sale of prescription supplies are rampant in the industry,” said one veterinarian. Stopping such practices “would be a benefit to the veterinary food animal industry,” he added.

Human antibiotics are not as freely dispensed as antibiotics are to cattle, wrote another veterinarian, adding physicians “also don’t write blanket prescriptions to include every family member, and we should not either.” The survey showed that cattle veterinarians want a clearer definition of their role in modern day beef production, said Gatz Riddell, the American Association of Bovine Practitioners’ executive vice president.

He added that some of the practices, such as drug company veterinarians writing whole-herd prescriptions, are questionable.

“Some of our members are frustrated over marketing channels for products that don’t require a veterinarian,” Trudell said, including what he said are some Internet pharmacies that provide prescription-only drugs without a script.

“Veterinarians and beef producers have an obligation to provide the safest product we can, and



“There is tremendous pressure from pharmaceutical companies to push different products through rebates,” says Ken Winter of Winter Feed Yard in Dodge City, Kan. “They cater to big outfits and give away discounts...I hate that.”

given their schooling, veterinarians should be part of the animal health distribution scheme,” he pointed out.

DECADES OF INACTION

Today, there is overwhelming evidence that non-therapeutic use of antibiotics in food animals contributes to antibiotic resistance, according to Stuart Levy, a world-renowned expert who co-authored a study last year at Tufts University.

The World Health Organization also is worried, warning that the speed at which antibiotics are becoming ineffective outpaces the development of replacement drugs.

“One of the most powerful measures globally to prevent antimicrobial resistance has been the ban of the use of antibiotics as growth promoters in livestock in the 27 European Union countries since 2006,” the WHO said last year.

Numerous strains of antibiotic resistant bacte-

ria already have begun cropping up. Earlier this year, a lab in Arizona discovered a strain of antibiotic resistant MRSA in retail meat. MRSA, a staph infection, can cause abscesses and lesions.

The lab, the Translation Genomics Research Institute, published a study which showed that bacteria jumped from humans to livestock and back.

“Our findings underscore the potential public health risks of widespread antibiotic use in food animal production,” the study noted.

In Joplin last year, 13 of the 900 people injured in the deadly tornado suffered from fungal and other infections after contaminated dirt and debris was blown into their wounds, according to a study published Thursday in the *New England Journal of Medicine*. Five of the 13 died, and three of those deaths listed fungal infections as a “primary or contributing cause,” the study said.

Two survivors, a 16-year-old boy and a 13-year-old girl, were treated at Children’s Mercy Hospital in Kansas City for multiple injuries and multiple antibiotic-resistant infections, not just those related to fungi.

Both are subjects of another article by Children’s Mercy doctors and others published in *The Pediatric Infectious Disease Journal* in June.

The children were not named, but the boy is Steven Weersing, whose story appeared in *The Star* after his injury.

Weersing dropped to 106 pounds during his treatment. He said he now has three titanium ribs as a result of his injuries and will be undergoing more surgery at Children’s Mercy in March.

According to the *Pediatric Journal* article, the antibiotic-resistant bacteria found in both children were linked to “agricultural antibiotic use, release of heavy metals, organic pollutants and spillage of fecal and pathogenic microorganisms.”

“What’s different about our patients is that they were impaled with foreign bodies, similar to what has been reported in tsunami victims,” explained Mary Anne Jackson, chief of the infectious pediatric’s disease division at Children’s Mercy who contributed to the *Journal* article. “We were pulling gravel and dirt and other foreign material from their wounds weeks after their injuries.”

But she said doctors’ efforts also were hampered by antibiotic-resistant infections in those wounds.

“These were not typical organisms, they were many in number and they were strikingly resistant (to antibiotics),” Jackson said.

The most compelling explanation for that, she said, given the kinds of infections found and the level of livestock production in that area, is that the use of antibiotics may have led to soil contamination with antibiotic resistant bacteria.

Some of the world’s largest cattle feedlots are a few hundred miles west of Joplin, and the town is home to one of the nation’s largest cattle auction centers.

Dirt from those areas could easily have blown into Joplin over the years, according to a meteorologist at the federal storm prediction center in Norman, Okla.

But the Animal Health Institute maintains it’s all mere speculation.

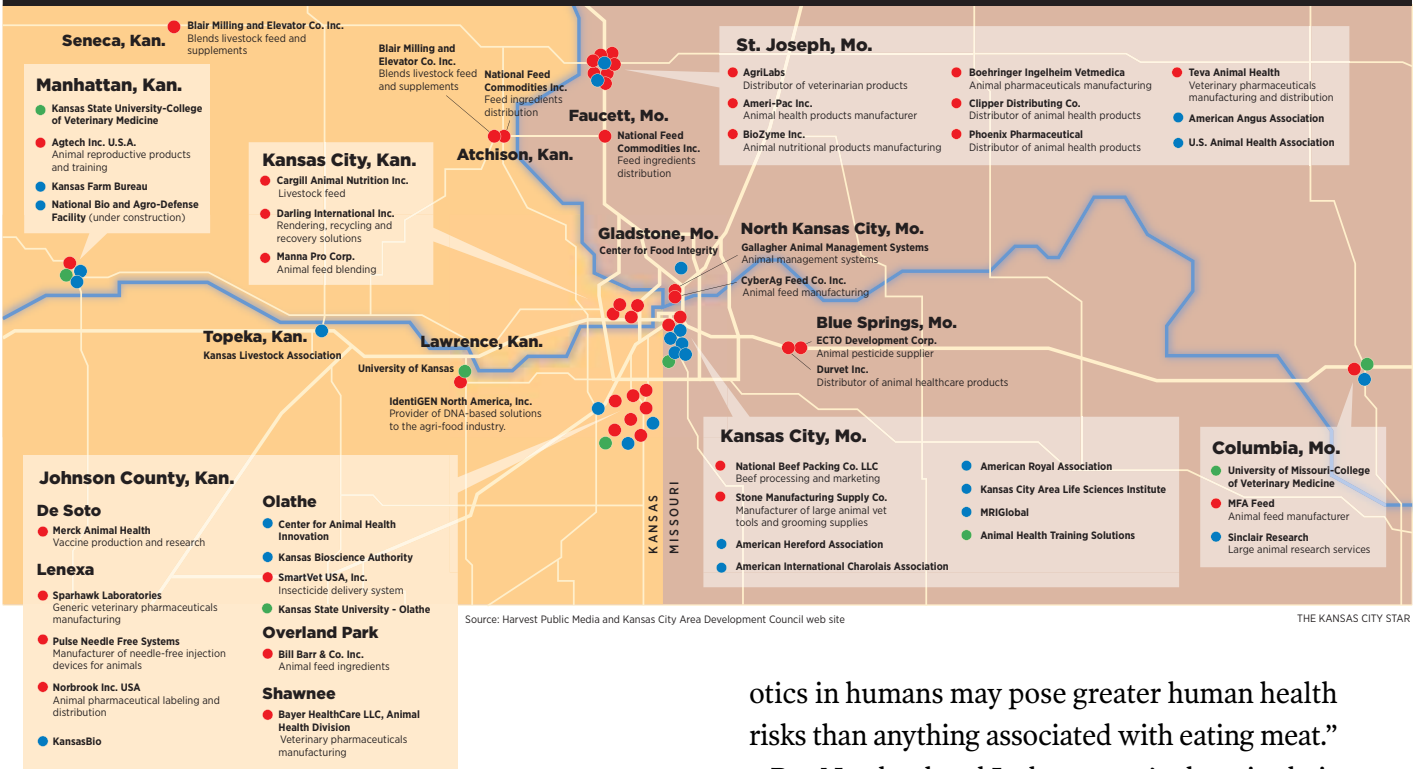
“The article states that the infections were caused by a soil fungus,” Animal Health Institute officials said after reviewing it. “...the antifungal medicines used for the patients’ treatment are not approved for use in beef cattle production...In this instance, the speculation about food animal sources is quickly discarded once data driven analysis is applied.”

Jackson said the Animal Health Institute oversimplified the findings in the article, and she add-

BEEFED UP CORRIDOR

The Kansas City Animal Health Corridor, which stretches from Manhattan, Kan., to Columbia and St. Joseph, has the largest concentration of animal health industry assets in the world, according to the Kansas City Area Development Council. Many of the companies and organizations doing business in the corridor have beef industry connections. Among them:

● COMPANIES ● EDUCATIONAL INSTITUTIONS ● TRADE GROUPS/ RESEARCH ORGANIZATIONS



ed that antibiotic use in cattle and other meat animals can have broader consequences beyond just one drug.

Newland said that he and other doctors also are seeing more children with antibiotic-resistant salmonella, which is found in beef and other foods.

“This has to be from the animal industry and their antibiotic use,” Newland said. “And the thing about it is that if a 5-year-old child gets a salmonella infection that becomes invasive, then you need antibiotics to treat it, and that’s where it gets a little scarier for us.”

Numerous studies have found antibiotic-resistant strains of foodborne pathogens in meat.

However, “so-called antibiotic resistance from eating meat has not been scientifically linked,” Cargill officials told The Star. “Overuse of antibi-

otics in humans may pose greater human health risks than anything associated with eating meat.”

But Newland and Jackson aren’t alone in their concerns.

In July, 45 hospitals and medical societies, as well as 359 doctors and other health care professionals, urged the FDA to finally take action to limit antibiotic use in animals.

THE POLITICS OF HEALTH

Rep. Louise Slaughter, a New York Democrat and the only member of Congress who is a microbiologist, has felt the power of Big Beef’s lobbyists.

Slaughter has been pushing legislation for years that would limit agricultural uses of seven antibiotics considered critical in humans, including penicillin.

Her bill, the Preservation of Antibiotics for Medical Treatment Act, has never passed.

Pharmaceutical trade groups and other agricul-

tural lobbies have staunchly opposed it.

They argued that Slaughter's bill would prohibit veterinarians from preventing disease in livestock and "would ultimately harm animal welfare, animal health, food safety, and food security."

Slaughter isn't buying it.

In February, she tried another approach. Slaughter sent a letter to 60 fast food companies, producers, processors and grocery chains asking them to disclose their policies on antibiotic use in meat production.

Big Beef processors replied that they opposed stricter regulations and maintained that the industry would be better off continuing to police itself.

One of the big four packers wrote to Slaughter: "We respectfully disagree with the premise of your position on antibiotic use in animal agriculture."

Margaret Mellon, a scientist who has been battling for antibiotic restrictions far longer than Slaughter, conceded that it's nearly impossible to overcome industry lobbying.

"They kick butt on (Capitol) Hill and they have blocked every single effort at oversight," said Mellon of the Union of Concerned Scientists.

"They would prefer that the public not know the quantities of antibiotics they are using and for what purposes, which is why they also oppose more data collection by the government," she added.

The Animal Health Institute said that Mellon is forgetting that it collected data from members on a voluntary basis and made it public until 2007. The lobbying group said they stopped doing so when Congress mandated that the FDA collect more of that data.

In the Kansas City area alone, various animal

health firms account for nearly 32 percent of the \$19 billion global animal health market, which includes drugs for pets. And some of those firms spend tens of millions of dollars lobbying Congress on regulatory issues.

Pharmaceutical companies also spend lavishly entertaining potential customers. Bayer AG, a German company whose Bayer Animal Health division is based here, sponsored "Cowboy's Night at the Opry and Barn Dance" this year at the National Cattlemen's Beef Association convention in Nashville.

Bayer and Boehringer Ingelheim Vetmedica, based in St. Joseph, are among five animal health companies that are "gold level sponsors" in the cattlemen group's Allied Industry Partners program. They contributed \$500,000 to the group.

The National Cattlemen's Beef Association said there is nothing unusual about that kind of financial support. "Companies that support NCBA support many state and national organizations," an official said.

The Star asked both Bayer and Boehringer for information and tours of their manufacturing facilities early this year. The newspaper also submitted questions about antibiotic resistance.

After several additional inquiries, Bayer sent a short letter and a copy of an industry-sponsored book about the history of U.S. animal pharmaceutical firms.

Eventually, Bayer also sent a written statement indicating they "strongly support the responsible use of antibiotic medicines and the involvement of a veterinarian whenever antibiotics are administered to food producing animals."

Boehringer also said it believes veterinarians also have an "important role to play in the well-being of herds."



KEITH MYERS | THE KANSAS CITY STAR

Some cattle receive drugs to fatten them while others do not. Most cows are slaughtered barely a year after birth.

FDA MAKES ITS MOVE

After years of pressure, the FDA in April finally took limited action on animal antibiotics. But instead of the mandatory limits long advocated by public health groups, the federal agency sought only voluntary reductions.

“We are pleased that FDA has resisted unscientific calls to completely ban the use of antibiotics and antimicrobials in cattle and other livestock species,” said Tom Talbot, chairman of the National Cattlemen’s Beef Association’s Cattle Health and Well-Being Committee.

Talbot said he remains concerned, however, that regulatory actions could eventually “set the precedent to take animal care and health decisions out of the hands of veterinarians.”

Specifically, the FDA asked cattle feeders to voluntarily stop using antibiotics to enhance growth or feed efficiency.

That “guidance” specifically refers to “medically important” antibiotics, especially those used to fight increasingly antibiotic-resistant foodborne pathogens found in meat.

Medical use of the drugs for sick animals would not be affected, except that the agency is urging greater veterinarian oversight on those “therapeutic” uses as well. The FDA won’t evaluate those efforts until later, when it “may” consider further action.

But one bovine veterinarian said he was “conflicted and cynical about (voluntary efforts)” in his comments on this year’s survey by the American Association of Bovine Practitioners. “I am afraid as long as these drug use issues are all voluntary, there will never be adequate compliance.”

The FDA has acknowledged, at least internally, that the voluntary effort has its limitations, according to internal agency records obtained by The Star. The documents noted that “FDA collects insufficient data on drug use...to measure the effectiveness of the strategy.”

Public health groups and environmentalists also are dubious. As a result, they took their battle to court last year, where a federal judge took more action in a few months than the FDA has in decades.

The Natural Resources Defense Council, the Union of Concerned Scientists and others sued the FDA in March 2011 to force it to go beyond a voluntary effort and actually ban the use of antibiotics as growth promoters.

Research has shown for years, their lawsuit noted, “that the use of antibiotics in livestock leads to the development of antibiotic-resistant bacteria that can be...transferred from animals

to people through direct contact, environmental exposure, and the consumption and handling of contaminated meat and poultry products.”

Earlier the judge in the case ordered the FDA to withdraw approvals for penicillin and tetracyclines in animal feed, unless drug manufacturers can prove they are safe.

In August, the court also ordered the FDA to “stop dillydallying” and hold regulatory hearings about the use of those drugs in livestock production.

The agency appealed those rulings.

ASLEEP AT THE SWITCH

Critics contend Americans can't depend on the government to ensure the meat on their plate is free of residues from antibiotics and other drugs because the monitoring system is hopelessly broken.

Even the USDA's own audits agree.

“The national residue program is not accomplishing its mission of monitoring the food supply for harmful residues,” according to a 2010 USDA audit.

Federal agencies charged with monitoring harmful substances in meat have failed to set limits for pesticides and heavy metals such as copper and cadmium, some of which can be left behind by veterinary drugs, according to the USDA's inspector general.

The audit found that has resulted in contaminated meat being distributed to the public.

Even when federal regulators set tolerances and find harmful residues, they don't always prevent consumers from eating it.

Between July 2007 and March 2008, for example, the USDA found meat from four carcasses had higher-than-allowed residues of veterinary drugs, such as antibiotics and anti-parasite medicines. Even though the residues could cause stomach, nerve, or skin problems, the agency took no action.

Under federal law, recalls are voluntary on the part of meat packers. In order to pressure a plant to do so, the USDA has to prove that a single serving is likely to make someone sick.

“The audit was an impetus to improve a lot,” one top official of the USDA's Food Safety and Inspection Service, told The Star. In July this year, more than two years after the audit, the department announced reforms.

Officials said they shifted toward “a more public health-based sampling approach” that includes more screening for veterinary drugs, pesticides, and arsenic, a residue of some drugs. The agency, however, still is not testing for copper.

The inspector general's office hasn't scheduled a follow-up audit, but told The Star, “it is a topic that (the agency's watchdog group) will consider...for additional review.”

The consequences of antibiotic overuse in humans and animals — and the residues they leave behind — are dire, warned Margaret Chan, the director general of the World Health Organization.

If something isn't done soon, Chan said it could mean “the end of modern medicine as we know it...and things as common as strep throat or a child's scratched knee could once again kill.”

USING MONEY, SCIENCE TO WIN OVER STOMACHS

Big Beef tries to shape U.S. Dietary Guidelines, saying it wants to fill 'information gaps.'

By ALAN BAVLEY AND MIKE MCGRAW | THE KANSAS CITY STAR

FRAMINGHAM, Mass.

It was here in this prosperous New England town that America's love affair with beef started to lose its sizzle.

It was here a half century ago that obesity, high blood pressure and high cholesterol levels were all identified as risk factors for heart disease.

Indeed, it was here that scientists coined the term "risk factor," triggering the deluge of nutrition research that keeps beef from being "what's for dinner" in many households.

The study's impact has been profound for Big Beef over the last few decades. As consumption has fallen, Big Beef has fought back, winning some

and losing some.

The industry has funneled millions into a public relations campaign to cast steaks and burgers as something akin to health food — something you can eat every day, even twice a day.

In its yearlong study of the issue, The Kansas City Star found that Big Beef is:

- Attempting to influence the next rewrite of the federal government's Dietary Guidelines in 2015. Big Beef wants them to include new research the industry paid for that promotes a beef diet intended to lower cholesterol and blood pressure. It also has paid for advertising and promotions, for example, getting lean cuts certified by the Ameri-





JOSH REYNOLDS | SPECIAL TO THE STAR

The Tosti family of Massachusetts has participated for decades in the Framingham Heart Study, a research project that provided some of the first evidence connecting cholesterol and heart disease. At Thanksgiving dinner this year, the extended family filled their plates; among them were 82-year-old Dorothy Tosti (center) and her 82-year-old husband, Joe (behind her). Their typical food choices? Dorothy still loves steak; Joe is more inclined to seafood.

can Heart Association as “heart-healthy” food.

- Spending even more money influencing the nation’s dietitians, treating them to junkets and dinners. The industry arranges continuing education programs for nutritionists immediately after beef-sponsored research is published in scientific journals.

- Stifling criticism of food or its production methods through what are called “veggie libel” laws now in effect in 13 states. The laws were promoted by the American Feed Industry Associa-

tion, whose members include large beef packers and animal pharmaceutical firms.

In an effort to maintain market share, the beef industry has gone on the nutritional offensive. Its own marketing research shows that concerns about nutrition, and fat in particular, remain a major disincentive to consumers from buying beef as voraciously as they did a generation ago.

The average American maxed out on beef in 1976, eating a record 67.9 pounds that year. Since then, beef consumption in the United States has

fallen by about a third. Chicken surpassed beef as the nation's most popular meat nearly a decade ago.

"Everybody is competing for the same calories. The only way you can sell your product is by giving it a health aura," said Marion Nestle, a professor of nutrition and food studies at New York University and a regular critic of the food industry.

Despite a seemingly endless onslaught of medical research that implicates beef and other red meat in heart disease, cancer, diabetes and weight gain, the beef industry remains hopeful, citing marketing data that 94 percent of us eat beef at least once a month.

Industry-sponsored research, such as the beef diet study, is designed to "address important information gaps," Shalene McNeill, a registered dietitian and executive director of nutrition research at the National Cattlemen's Beef Association, told The Star.

Yet other nutrition experts remain skeptical of the continuing marketing push to burnish beef's public image.

"There's just so much evidence that beef is related to heart disease," said Michael Jacobson, executive director of the health advocacy organization Center for Science in the Public Interest.

The beef industry can "add a little confusion to the health message of eating less meat," Jacobson noted. "But their propaganda and lobbying and advertising haven't been that effective. They're fighting a rear-guard action."

That tectonic shift in America's diet attitudes arguably began in Framingham in homes like the Tostis'.

HEART STUDY

Dinner at the Tosti household always was a big production. Joe, Dorothy and their five children gathered round the table every evening for a huge spread.

And in the 1950s and '60s that meant beef practically every other day — roast beef, steaks and, true to their Italian heritage, meatballs.

That was then. Today, as has been the case for many health-conscious Americans, seafood, chicken, vegetables and even tofu have replaced most of the beef on the Tostis' table and on the tables of their adult children.

"You kids all got older and realized that wasn't a healthy diet," Dorothy Tosti said as she chatted recently with her two daughters, Barbara Tosti and Paula Cuneo, at the offices of the Framingham Heart Study.

Since 1948, the heart study has used this middle-class town about 21 miles west of Boston as a virtual research laboratory. The Tostis and thousands of other people — continuing to this day into a third generation — have been surveyed about their lifestyles and undergone regular comprehensive medical exams.

Early findings from the Framingham Heart Study, and from other research at that time, helped set off the nation's turbulent relationship with food and fat — and turned prime rib into a prime suspect.

The basic message has always been that having high cholesterol levels raises our risk of heart disease. And eating saturated fats — which are found in animal products such as meat and dairy — raises those levels.

Americans know a lot more about diet and health now than they did when the first studies started coming out of Framingham. And more nuanced nutritional messages are beginning to get through:



JOSH REYNOLDS | SPECIAL TO THE STAR

The topics of science and diet aren't far from the minds of the Tosti family, given their participation in long-term studies. At Thanksgiving dinner this year at a son's house in Ashland, Mass., Joe Tosti (from left) and Dorothy Tosti chatted with daughter-in-law Christine Tosti and their son Chris Tosti.

Not all fat in your diet is bad for you. Not all the cholesterol in your blood is unhealthy, and the cholesterol in foods such as meat and eggs generally isn't the biggest contributor to the cholesterol in your blood.

Red meats like beef no longer are Nutrition Enemy No. 1 — that role has been assumed by sugary drinks, white bread and french fries. Refined carbohydrates can wreak havoc with heart health.

But that doesn't mean red meat has won a total reprieve.

"Meat has got to be a rare experience, and whenever you can eat a plant protein over an animal

protein, you're better off," is the advice William Castelli, former director of the Framingham study, gives his patients.

Big Beef, as might be expected, will give you different advice.

Beef is a different food from what it was in the 1960s, the industry maintains. It's a lot leaner. On average, a well-trimmed sirloin steak has 34 percent less fat, 17 percent less saturated fat, than it did 49 years ago.

Beef is not only a good source of iron, zinc and B vitamins, its high-quality protein helps maintain muscle mass and keeps you feeling full between

meals. There's industry-sponsored and other research to back up these claims.

There's even a scientifically tested diet plan — Beef in an Optimal Lean Diet, or BOLD — to lower cholesterol levels in your blood while serving up modest portions of lean beef every day for lunch and dinner.

The BOLD diet has become the centerpiece of industry efforts to promote beef as heart healthy food.

And its development, *The Star* found, illustrates just how closely Big Beef is tied to both academic researchers and to the health professionals who advise people on what to eat. It also suggests just how sophisticated industry strategy has become for gaining beef some leverage in the federal Dietary Guidelines.

BOLD VS. DASH

The BOLD diet is a direct response to another diet plan with a catchy acronym, DASH (Dietary Approaches to Stop Hypertension), that has become a mainstay of doctors and dietitians who want to lower their patients' blood pressure or cholesterol.

One of DASH's recommendations calls for curbing consumption of red meat.

The *Star* found that after DASH made its way into the federal Dietary Guidelines in 2005, Big Beef started planning BOLD.

The guidelines “really pushed people toward choosing a dietary pattern that looked like DASH,” McNeill of the cattlemen's association told members of the industry during a Jan. 19 webinar on BOLD that *The Star* found online.

“Why couldn't we also have, for lack of a better word, a ‘beefy’ DASH diet?” she suggested.

The Dietary Guidelines for Americans, first pub-

lished in 1980 and updated every five years by the USDA and the Department of Health and Human Services, may be the nation's most influential food document.

The guidelines are used to determine nutrition standards for school lunch programs, how much assistance is provided through food stamps, and what goes on food product labels. They're also used to write educational materials for schoolchildren and the curriculum of doctors and registered dietitians.

“They are the basis of everything where nutrition guidance is needed,” said Robert Post, deputy director of the USDA's Center for Nutritional Policy and Promotion.

Big Beef set out to make the new guidelines friendlier to the industry.

Planning for BOLD began in 2006 “so that we can be prepared for future dietary guidelines and future advocacy,” McNeill explained during the webinar. They're aiming for the next revision of the guidelines in 2015.

The *Star* found that to get the science it needed to back up a BOLD diet, the cattlemen's association approached Penny Kris-Etherton, a prominent Penn State University nutrition expert.

“We knew that she was open to beef,” McNeill said during the webinar. “We went to her ... and said can you help us design a rigorous study of DASH and compare a beefy DASH diet to the DASH diet?”

Penn State researchers engineered BOLD to include amounts of calories, fat, cholesterol and fiber comparable to those in DASH.

But where the DASH diet skimps on beef, different versions of BOLD average 4 to 5.4 ounces per day. That means meatballs or chili for lunch and beef fajitas or pot roast for dinner.

Kris-Etherton put 36 people with above-normal

blood cholesterol levels on a series of diets: BOLD, DASH and something called a “healthy American diet,” which was low in beef but had more fat and less fiber than the other diets.

The researchers found that, compared to a “healthy version” of a typical American diet, BOLD diets lowered cholesterol just as well as DASH. BOLD diets with the most beef also lowered blood pressure.

Kris-Etherton said that the source of her funding doesn’t affect how she conducts her research.

“As a scientist I wouldn’t do that. I design studies that make sense, that follow dietary recommendations,” she said.

There will be more findings coming out of the BOLD research, McNeill said, “to keep this story alive for longer than just the study of the day.”

DIETARY GUIDELINES

There have been plenty of skirmishes between Big Beef and federal officials who try to suggest that people eat less meat, including a recent dust up over a “Meatless Monday” campaign suggested by lower level USDA bureaucrats.

When the USDA released its Eating Right Pyramid for the first time in 1991, the beef industry wasn’t comfortable with meat wedged near the top of the pyramid next to dairy, and just below fats, oils and sweets.

Shortly after the pyramid was announced, representatives of the National Cattlemen’s Beef Association confronted newly appointed USDA secretary Edward Madigan at a meeting that had been scheduled well in advance.

“The beef people were after me,” Madigan said at the time. “This cowboy stands up and says, ‘Where the hell did this come from?’”

The USDA quickly pulled the pyramid. After a

‘THE INDUSTRY’S RESPONSE

The industry-sponsored BOLD diet is “a great example of research that fills a scientific gap and should be considered by the scientists who make recommendations for the U.S. Dietary Guidelines,” according to the National Cattlemen’s Beef Association.

While the DASH diet is recognized as a gold standard diet, “we were interested in learning whether beef could be a significant source of protein in such a diet. No one had studied the cholesterol-lowering effects of including beef in a low-saturated fat DASH-type diet. This research study helps contribute to the overall body of scientific evidence on healthy dietary patterns and provides a research foundation for increasing dietary variety in heart healthy diets through the inclusion of nutrient-rich lean beef.”

The association said “the importance of having the latest science about food and nutrition is critical to evidence-based practice (by dietitians). We work with health professional organizations to ensure that

dietitians and other health professionals who want to consider beef as part of a healthy diet for their patients have access to the latest science and information about beef nutrition. Any continuing education supported by the Beef Checkoff must be peer reviewed and meet the standards established by a credentialing agency, such as the Commission on Dietetic Registration.”

Meanwhile, The American Meat Institute hasn’t taken a position on “veggie label” laws. But Institute spokeswoman Janet Riley said that meat plant layoffs and misinformation in the uproar over lean finely textured beef (dubbed pink slime) illustrates how much damage can be done by inaccurate statements about food.

She said the industry should be able to expect fairness and the laws “may have a place in that those who publish so called facts about products, whether food or other products, need to be responsible and accountable with respect to their assertions.”

flood of protests from health and advocacy groups, it was re-released the following year with minor revisions. Meat’s position on the pyramid didn’t change.

The first version of the Dietary Guidelines in 1980 advised people to “avoid too much fat, saturated fat and cholesterol.”

“The goal, frankly, was to tell people to eat less meat,” said Carol Tucker-Foreman, a consumer advocate who was then USDA assistant secretary for food and consumer services.

Beef producers, who didn’t want the government telling people to avoid eating anything, realized that and mounted a counteroffensive.

“The Cattlemen went after the department and me,” Tucker-Foreman recalled. “We were attacked as anti-farmer, as anti-food. They were infuriated that USDA was involved with it.”

Soon after the guidelines appeared, then-Missouri Sen. Tom Eagleton, who was up for re-election, called Tucker-Foreman to his office.

“He was just furious. He pretty much made it clear to me that he was being beaten up by the cattlemen in Missouri, who were quite powerful. They were all over him because of the Dietary Guidelines. Much of it was stated to me as ‘why are you doing this in an election year?’” she said.

When it comes to the Dietary Guidelines, Big Beef hasn’t been so pugnacious in recent years, Tucker-Foreman said, but just as effective.

“They’ve very subtly gotten exactly what they want in them over the years,” she said.

The guidelines have always emphasized eating lean meat and limiting consumption of fats, but they were slow to offer advice about specific foods.

It wasn’t until the 2010 guidelines that these connections were made more explicit. The guidelines now include advice to substitute some of the meat in your diet with fish and seafood. And unlike the 2005 guidelines, which talked about the DASH diet in general terms, the 2010 version makes it clear that DASH means eating less red meat.

As federal food programs have become tied more closely to the Dietary Guidelines, the panels of experts who write the recommendations “seem to be doing more for the public than the industry’s bidding,” Tucker-Foreman observed. “I think they’ve grown more and more responsible.”

And more tied to scientific research, often paid for by food industries, The Star found.

In recent years, the cattlemen’s association and state beef councils have funded nutrition scientists

at more than a dozen universities, including the University of Colorado, Cornell, Tufts, Purdue and the University of Arkansas. In its 2011 fiscal year, the association budgeted \$1.2 million for nutrition research and had committed about \$504,000 of it to studies.

Dependence on industry may lead to biased research, said Lenard Lesser, a researcher at the Palo Alto Medical Foundation Research Institute.

When Lesser reviewed scientific articles about the health effects of soft drinks, juice and milk, he found that those funded by industry were almost eight times more likely to have favorable conclusions than the reports with no industry funding.

Lesser thinks food industries are likely to sponsor only studies destined to produce positive results, “and there are definitely ways to design a study to get a positive result.”

Heather Leidy, an assistant professor of nutrition and exercise physiology at the University of Missouri in Columbia, said the beef industry had no say in how she conducted her research. A beef program grant helped pay for her research on how girls made it through the day when they skipped breakfast or started with a high-protein meal.

Leidy’s study ended up showing that the girls ate fewer high-fat snacks in the evening when they had a high-protein breakfast of an egg and beef burrito or an egg waffle with a beef sausage patty compared with when they skipped breakfast or just had a bowl of cereal.

But no matter what the results, Leidy said, the industry doesn’t control what she publishes about her work.

“It can have a positive connotation. It can have a negative connotation. They know that,” Leidy said. “They chose to do with it what they want as far as giving it to consumers.”

However, one consequence of food industry

funding is reluctance among nutrition researchers at universities to speak out on controversial issues, said Walter Willett, chairman of the department of nutrition at the Harvard School of Public Health. Willett saw that happen when he tried unsuccessfully to rally his colleagues to oppose a powerful food manufacturer.

“They were all silenced,” he said.



CHUCK KENNEDY | MCT

Carol Tucker-Foreman recalls when the USDA's Dietary Guidelines first came out: “We were attacked as anti-farmer, as anti-food.”

GETTING DIETITIANS ON BOARD

The Star found that the beef industry also invests heavily in the nation's dietitians. Indeed, it spent close to \$700,000 in its 2011 fiscal year to reach dietitians and others who influence what we eat.

The National Cattlemen's Beef Association and the industry's promotional fund have been loyal sponsors of the dietitians' professional society, the American Academy of Nutrition and Dietetics, appearing regularly on the list of major donors — \$10,000 or more annually — to its foundation.

In 2000, the academy's foundation gave the cattlemen its “Corporate Award for Excellence” in recognition of its long financial support and its work with dietitians.

Big Beef has good reason to seek them out. Registered dietitians are the health professionals who provide nutrition advice to the media, schools, hospitals and patients who have chronic conditions, such as heart disease or diabetes and have to watch their diets closely.

And it seems to be working.

Nestle, the professor of nutrition and food stud-

ies at New York University, said that the “dietetics profession has completely sold out to the food industry. The (food) companies are shameless and the dietitians eat it up.”

The Star found that, even before the Penn State BOLD study made it into print on Jan. 1, the National Cattlemen's Beef Association had conceived a marketing campaign: The “BOLD Strategy” to “disrupt conventional thinking about beef and heart

health,” according to the association's webinar presentation.

As soon as BOLD was published by the American Journal of Clinical Nutrition, press releases went out from the cattlemen's association, Penn State and the nutrition journal. The study was quickly picked up by the Reuters news service and a WebMD blogger. The online version of Shape magazine posted an article by one of the BOLD researchers.

The message the cattlemen were getting out, said Julie Sodano, the organization's food and nutrition communications director, is that “contrary to conventional wisdom, beef can be good for heart health.”

On Valentine's Day this year, Kris-Etherton presented BOLD during a cattlemen's webinar for dietitians that provided them with continuing education credit.

“Because beef is a source of saturated fat, in many health professionals' minds it has been translated to the following message: You can't include red meat and beef in particular on a blood cholesterol lowering diet because you won't be able to meet saturated fat targets,” she said. “You'll

see today that's not the case."

Nutrition experts such as Nestle and others are quick to point out, however, that there's really nothing special about the cattlemen's BOLD plan. Any well-balanced diet that's low in fat and has the right amount of calories will be better than what most Americans eat. It's not surprising that BOLD might have health benefits.

"So much about what healthy diets are about is proportion," Nestle explained. "From my standpoint, I wish everyone would just relax and eat less."

The cattlemen's association also is involved in several dozen regional seminars per year for dietitians and other health professionals. One was held in May in Kansas City, Kan., when the Kansas, Missouri and Nebraska beef councils sponsored a three-day "Nutrition Adventure" for several dozen dietitians from about 10 states.

A visit to a cattle ranch near Tonganoxie, Kan., and a beef and wine pairing class at Kansas City's Pierpont's restaurant in Union Station were on their itinerary. Another recent seminar took New York University students and dietitians to a farm in the scenic Hudson Valley for a talk about the beef industry and a hay ride through the rolling hills.

"I think it's important to stress that the academy doesn't support any companies, products or services," said Jeannie Gazzaniga-Moloo, a member of the nutrition faculty at California State University in Sacramento and a spokesman for the American Academy of Nutrition and Dietetics. "All the propaganda out there by (the food) industry is not going to sway us."

About 5 percent of the academy's \$33.9 million in revenues came from various food industry sponsors, not just beef, during the fiscal year that ended May 31, 2011.

Even Kris-Etherton is concerned that her message about a healthy, balanced diet may "get all mixed up" if people interpret the BOLD findings for lean beef as a license to eat any and all beef.

"What is the main beef people eat? High-fat hamburgers," she said. "Look at all the monster burgers out there with cheese and bacon, and 22-ounce Porterhouse steaks."

Yet that's something suggested by the cattlemen's association's own market research.

"Lean serves as a 'halo' word for beef, increasing the consumer's comfort in eating beef frequently," according to a recent cattlemen's report. Like companies that offer both light and higher fat ice cream, "smart marketers sell a lean product, and an indulgent product."

All of which exasperates nutrition researchers such as Barry Popkin at the University of North Carolina.

"Why don't they sell just lean beef? We'd be a hell of a lot healthier," Popkin said. "But that's not happening. They don't want to do that. Their business is to sell more beef."

STIFLING BEEF'S DETRACTORS

Big Beef's fight to rebuild its public image isn't only being fought in academia and research laboratories. In recent years it has spilled over into the nation's courtrooms and state legislatures, where the industry is confronting criticism of food and production methods.

In September, Beef Products Inc. sued ABC News and several whistle-blowers for allegedly maligning its lean finely textured beef product, described as "pink slime" in news reports earlier this year.

The \$1.2 billion suit was originally brought under South Dakota's "veggie libel" law, which makes

it illegal to disparage “agricultural food products.” The suit is pending.

South Dakota is one of at least 13 states with “veggie libel” laws, along with Alabama, Arizona, Colorado, Florida, Georgia, Idaho, Louisiana, Mississippi, North Dakota, Ohio, Oklahoma and Texas.

The laws were pushed by the American Feed Industry Association. The nonprofit trade group calls itself the “world’s largest organization devoted exclusively to representing the business, legislative and regulatory interests of the U.S. animal feed industry and its suppliers.”

The American Feed Industry Association distributed drafts of model veggie libel bills to numerous states.

The “pink slime” case is “exactly the kind of situation these laws were designed to address,” said Steve Kopperud, a senior vice president at the association.

He said the goal behind the legislation was to force activists to think twice about their attacks on the food industry and to hold animal rights groups accountable for their claims, Kopperud said.

The laws prohibit “knowingly making any materially false statement about an agricultural product” and allow food producers to recover damages.

Texas’ law was used to sue Oprah Winfrey in 1998 over statements made on her talk show by an animal-rights activist, and Winfrey’s statement that the comments “just stopped me cold from eating another burger.”

Winfrey spent about \$1 million fighting the suit and finally won when the court ruled that the beef industry hadn’t proved its case, although critics contend the ruling left the issue of its constitutionality murky.

Janet Riley, a vice president at the American Meat Institute, acknowledged that on their face, such laws may sound “counterintuitive” for a meat

industry that is trying to be more transparent with consumers.

But Riley added, “Look what happened with lean finely textured beef. We should be able to reasonably expect fair treatment, and this industry did not get fair treatment on lean finely textured beef at all.”

TOSTIS AND TOFU

Big Beef’s battle to reclaim its place on America’s dinner table is hardly over.

To be sure, the Tostis are still eating beef in Massachusetts; it’s served at some family gatherings. However, health concerns have kept it from recapturing that central place it used to have in their diets.

Daughter Barbara Tosti eats beef two or three times a month. Usually though, it’s fish or chicken.

Her sister, Paula Cuneo, serves beef regularly once a week. “My husband is not crazy about red meat. He feels healthier when he has salmon, instead of steak tips, which I love,” she said.

One of their brothers is married to a vegetarian. “Poor thing, he’s so thin,” Barbara Tosti said. Another brother is always on a diet. And the third is married to the daughter of a doctor, so they watch what they eat.

For their parents, Joe and Dorothy Tosti, it’s that decision everyone faces between what might be good for us, and what’s really good.

“Now, my choices are more scallops, fish,” Joe said. “I might as well eat something that helps me.”

“He’s so saintly,” Dorothy answered. “And I’m so devilish. I order the most expensive steak on the menu.”