

NJAA Members Speak Up For Industry

Wholly Cow

by Joanna Olson, Hereford, Texas

Holy cow! How many times have you heard that phrase? Well in this case I mean wholly cow as in the whole cow! In our world today we use the whole cow for many things. Let's find out why this critter on four legs is really a holy cow.

Most of us know that "Beef is What's for Dinner." This holy cow becomes a great source of nutrients found in the beef product and in cow milk products. Think for a moment, some of our favorite foods come from this holy cow. Ground beef, steak, cheese...ummm. It's enough to make one say "holy cow!"

There are some more edible by-products from the cow that might surprise you. When you see a Jello® commercial, do you know that the gelatin used as its main ingredient is from our cow. The marshmallows we love to roast to perfection over the coals of an open

fire also contain this gelatin. A cake mix is a wonderful convenience made possible by the plasma protein from a cow. We also find this protein in the pasta of our favorite Italian dishes. Other inedible by-products such as beef fat, protein and bone meal are used in feed rations of poultry, fish and pork.

It's a bird, it's a plane, no it's a wholly cow, again! Who would think that one could ride through the friendly skies on that whole cow. Well don't think I'm crazy, because it's the whole truth.

Fatty acids from inedible beef fats and proteins are used in airplane lubricants that keep the motor running and in hydraulic brake fluid that aids the landing gear as it brings the plane to a safe stop. Even the tires on the landing gear could not hold their shape were it not for the stearic acid in the rubber. And the cow's bone charcoal help make the steel ball bearings used throughout the plane.

By the way, have you ever tried out those leather seats that first class offers its

passengers? I mean they are enough to make one snore.

Where would pharmaceutical wonders be today if it weren't for the holy cow? Some of the insulin, so vitally important to diabetics, comes from this whole cow. Everything from bone marrow to bone meal, the pituitary gland and liver from this cow play an important role in the composition of medicines. Because cattle have great similarities in organic chemical structure to humans, our bodies accept medications made from the whole cow.

A house would be less of a home if it weren't for the holy cow. The whole cow could contribute to the color of the walls in a house and also the floor covering on which one walks. We couldn't get the wallpaper to stick to our walls if it weren't for the collagen-based adhesives used in the glue. Shaving creams, soap, deodorants, and even perfumes, wow, what all comes from this whole cow? Even the keys on a piano and the film in somebody's camera could have originated from the cow.

Your feet would really suffer if it were not for the hide of this cow used to make our boots and shoes. Where would America be today without "take me out" to the baseball, football, or basketball game? The leather from our whole cow is used to make the balls used in our sports today.

Anything worth doing is worth doing right! This is my dad's favorite phrase. And boy does that apply to raising black Angus cattle. The whole cow gives my family and many like us a way of life. My dad has taught me the right way to raise cattle in order to get a livelihood from the whole cow. Setting goals, taking proper care of the animals, keeping good records, marketing the animals effectively, and hard work are all active ingredients in doing it right

Setting goals gives me direction for my breeding program. Taking proper care of the animals ensures I get the most productivity out of them. Keeping good records through the Angus Herd Improvement Record (AHIR) program are an important tool in my cattle selection. Marketing the animals effectively is an important determining factor in the profit I receive from the whole cow. Hard work is the catalyst that brings all these factors together, producing what I feel is the most important by-product of the whole cow— you bet — net profit for my livelihood,

It doesn't matter if you eat the holy cow or ride the friendly skies or sustain life or paint your walls with the holy cow or just enjoy the livelihood that the whole cow provides, your life and my life are made full by that holy cow.



Winners in the NJAA speech contest junior division are pictured (l to r): Joanna Olson, Hereford, Texas, first; Garrett Lampe, Scott City, Kan., second; Kathleen Boggs, Brookings, S.D., third; Lindsey Weber, Dousman, Wis., fourth; and Angela Baird, Tipton, Iowa, fifth,

In the Public Interest

by Ryan Rash, Crockett, Texas

It's been called the greatest crisis to face the nation in the last 17 years -worse than the Gulf War, worse than the miner's strike, worse than the Faulklands.

Depending upon the way it is resolved, it could lead to the cancellation of somewhere between \$2.5 to \$8 billion worth of business and the destruction of four million cows,

And what is this catastrophe which has consequences that are mind boggling?

It is Mad Cow Disease, scientifically named Bovine Spongiform Encephalopathy and dubbed BSE by people all over the world.

BSE is a brain disease well known in sheep as Scrapie. Creutzfeldt-Jakob disease, the human form of BSE, has been loosely linked to the consumption of beef. But although a direct link has not been established, and many scientific theories point to very little possibility of a link between the two, the British beef industry today lies in shambles.

BSE was first detected in England in 1985. Unable to diagnose anything specifically wrong with some sick cattle, an investigative veterinarian began a series of blood tests on the affected cows. The

investigation pointed to a "new scrapie-like syndrome":

In November of 1986, English veterinarians confirmed the first case of BSE, or Mad Cow Disease.

Experiments were conducted to see if BSE could be transmitted to offspring and other species. By December of 1987 government studies concluded that ruminant derived meat and bone meal was the only viable cause of BSE. In other words, only certain cattle organs could possibly transmit BSE.

Cattle with Mad Cow Disease were slaughtered. BSE was made a notifiable disease. Cattle were tested for BSE and if identified as having BSE, they were destroyed. Over the next six years there were other developments in the BSE scenario, but none were earth shattering. Then in October of 1995, after two unusual cases of Creutzfeldt-Jakob were diagnosed, the Advisory Commission on BSE ordered an investigation. In December, the committee announced that there was no evidence that eating beef causes Creutzfeldt-Jakob disease in humans.

But 10 new cases of Creutzfeldt-Jakob discovered this spring led to further speculation on the cause, and the Advisory Commission decided to meet with government ministers to discuss any developments in the new cases of CJD. And here is where the crisis was born.

The media sensationalized the

committee findings and public concern began to rise.

Did the committee find indisputable evidence that Mad Cow Disease is linked to the new cases of Creutzfeldt-Jakob? On the contrary. In fact, research done at Smith Kline Beecham, a company that specializes in these matters, found evidence which pointed to a genetic link. Other scientists presented research that more people than was previously believed died from Creutzfeldt-Jakob disease years before it struck Britain's farms in the mid-1980s.

But on March 19 a staff member from the agricultural ministry leaked a story to the press the possibility of a link had been discussed and a media frenzied was born.

"British Beef Could Kill You" screamed the headlines of the International Express.

In the 10 short days from March 19 to March 29, these developments took place: British beef was banned from France. Five other European communities followed suit. A dozen countries around the world banned British beef. McDonald's announced its suspension of the use of British beef. The European Community proposed slaughtering Britain's older cattle, and the Prime Minister of Britain talked about costs ranging to \$550 million pounds a year for five years as the price for such an event.

With such hysteria, and the possible ruination of an entire industry, one would think there must have been concrete evidence that it is relatively easy for humans to contract Creutzfeldt-Jakob from the consumption of beef. Right? Wrong!

There are five (and possibly more) factors that must be satisfied before it is a possibility that a human being could possibly contract this disease from the consumption of beef.

First, the animal must carry BSE—and most beef cattle never have.

Number two, the animal must be sent to a rendering plant for slaughter. This is unlikely given the price paid for animals taken to rendering compared to animals taken to other markets.

Third, infected parts from an animal must find their way into the human food chain, which the government has taken steps to prevent by banning certain organs from going into the food chain.

Fourth, those infected parts must survive food processing: tinning and roasting is likely to destroy any prion protein.

And, finally, whatever infection remains must be able to affect humans... and the evidence for that link remains very circumstantial.



Winners in the intermediate division are pictured (l to r): Ryan Rash, Crockett, Texas, first; Michael Considine, Middletown, Md., second; Jennifer Scharpe, Arlington, Minn., third; Rebecca Scharpe, Arlington, Minn., fourth; and Jamie Meyer, Douglass, Kan., fifth.

Yet, despite the need of all five of these steps, despite evidence which casts doubt of a link between CJD and Mad Cow Disease, the entire world has heard press releases which question the safety of British beef and has threatened to ruin an entire industry.

In Northumberland, farm families watched a cattle sale which had gone on for 30 years be cancelled for lack of buyers.

British supermarket SainsburyPic reported that the BSE crises had cost its company alone eight million pounds as of May 8.

What is the correct balance between a free press which protects the public's interest and a media witch hunt?

With only 45 suspected or confirmed cases of Creutzfeldt-Jakob syndrome found in a population which exceeds 70 million, it seems that the amount of attention given Mad Cow Disease is totally out of proportion. Would the attention spent on Mad Cow Disease not be better focused on AIDs, breast cancer or cigarette smoking? Yes, but that was old news, and this was new. Stories "believed to be true" have been hurting many businesses for years. Because agriculture does not have one unified voice to defend it in situations like this, it's an industry that is particularly vulnerable.

There is already media speculation about its spread here. Although there has never been one single case of BSE diagnosed in this country. Daily papers have noted that there are still 32 cows that have not been found that were imported from Britain and "technically" could possibly carry BSE. An Oprah Winfrey show televised in April questioned the safety of beef and caused an expression of outrage from the National Cattleman's Beef Association.

At a time when America's cattle industry is already facing depressed prices and rising feed costs, any hint of undermining consumer confidence in the industry could be a catastrophe.

This spring, Mad Cow Disease took the world by storm. The problem was not cows; it was the media and the politicians. But next summer, it, or a problem similar to it, could be ours.

What is in the public interest and who determines that? Sadly to say, it is a problem that you and I will have to grapple with for years to come. One thing is abundantly clear, agricultural interests are certainly not currently being served.

The Secret for Success from the Cutting Edge

by *Melissa J. Sanders, Harrod, Ohio*

Pst!! Mr. Farmer. Pst!! Over here. Do I have the secret for success for your farm. I can tell you how to increase the quality and quantity of your beef herd without costing you an arm and a leg or forcing you to buy the world's best cow.

You think this sounds impossible. Well, let me tell you Mr. Farmer, it's not and during the next few minutes lending me your ear will be worth your money and herd quality down the road. The technology I am talking about is embryo transfer. Let me explain how it works.

In the last 10 years, there has been a steady increase in the number of embryo calves born in the beef industry, thanks to the cutting edge of genetic research. An embryo calf is one that is conceived during superovulation and placed into a recipient cow after the eggs are collected. What is superovulation and how do you transplant the embryo?

The first step in embryo transplant is selection of a donor cow. This cow should be superior in production, with a highly regarded pedigree. Next a recipient cow must be chosen. This can be any cow of sound reproductive condition.

These qualities make embryo transplant such a great asset to any herd. Farmers can use cows already in the herd for both donor cows and embryo recipients. Also high quality pedigree calves can be purchased at a lower price in the embryo stage than as a calf.

In order to properly retrieve and transplant the egg, the two selected cows must have their estrous cycle synchronized, so they will enter heat at the same time. For synchronization to be accomplished a hormone treatment is administered.

Normally 12 hours after heat, a single non-fertilized egg is released from one ovary. This is the perfect time to breed a cow, but superovulated cows can be bred 12 to 20 hours after heat. Superovulated eggs are released 28 hours after heat and the injection will result in approximately 10 eggs instead of one. How is this accomplished? Donor cows are injected with a FSH hormone which increases the number of eggs produced in one heat cycle.



Melissa Sanders, Harrod, Ohio, placed first in the senior division of the prepared public speaking contest.

At this point the donor cow is bred to a bull using the popular technique of artificial insemination.

Once a bull is selected, the donor cow is bred and the eggs are fertilized, then they must be retrieved from the donor cow by a veterinarian specializing in embryology. The National Cattleman's Beef Association recommends using someone who specializes in embryology because they do this procedure everyday, producing more accurate results.

Once the embryos have been recovered there are two common methods of dispersement. The first option is a direct implant into a recipient cow. This is the less risky option because there is no preservation of the embryo. However, more often than not embryos are preserved because there are more embryos recovered than recipients available or the owner wishes to sell the embryos. The most common way embryos are preserved is by cryopreservation, similarly to how semen is preserved and transported. Embryos can be stored for an almost infinite amount of time before they are placed into a recipient. Most embryos are transplanted with some of the same techniques as Artificial Insemination.

The cryopreservation of semen and embryos has greatly affected the beef industry in the last 20 years. Once breeders were limited to animals which they could afford to purchase and one calf per cow per year. With the technology available through embryo transplant, an Angus breeder in Ohio can purchase semen from a bull in Colorado to breed his cow and take the embryos from the cow and sell them to breeders in Florida, California and England. All of this is accomplished and not one single breeder had to haul any animal more than an average of 50 miles for embryo transplant.

Embryo transplant has also aided in improved genetic quality of cattle around the world. It gives breeders in England, Canada and across the United States the opportunity to select a combination of America's high quality bulls and cows and import the offspring into their herd by transporting a few straws. Embryo transfer also allows them to do this at a fraction of the cost of transporting the animal to, from, or around the United States.

Through embryo transfer, breeders can purchase genetics they could not get otherwise. For example, let us say Angus breeder A has the grand champion heifer at the North American International Livestock Exposition and Angus breeder B has the champion bull at the National Western Stock Show. These two breeders can choose to mate the prize winning animals, even if they are thousands of miles apart. These two animals will never come into contact, but through embryo transfer many breeders can take their high quality genetics and produce even better genetics at a much lower cost and easier convenience.

Since heifer A produces one calf per year, breeder A will not be able to fill this demand. Through embryo transplant, he can flush his heifer and receive 10 to 12 eggs which can be sold to those breeders who wish to add the heifer's genetics to their herd. Flush is the term used by breeders when a donor cow has embryos removed.

So now, how much does this cost? Well, it all depends on the genetics of the donor parents, but the average cost is around \$500 to \$1,000. This is a reasonable price, but there are also risks involved. One-third of donors do not respond or give infertile eggs. A donor cow might not be stimulated or the embryos retrieved might not be fertilized. An embryo may not be accepted by the recipient cow resulting in miscarriage. An embryo might survive term, but the mother might not accept it and the calf will need special care. Will the calf be a heifer or a bull? If you are hoping for the opposite of what you get, then it could be a problem.

On our farm, we have had extremely successful results. Our embryologist, Dr. Brown, is excellent. He has never implanted an embryo that hasn't stuck and all of the calves were accepted by their mother. Others are not so lucky. One friend had five embryos placed and all were miscarried. So he was out quite an investment. Still, if you have the money and recipients available, this cost is much less than the \$1,500 or

more breeders spend to purchase one calf.

Embryo transplant is a good management practice if a breeder has several cows that are of superior quality. Since cows will only have 12 to 14 calves naturally in their lifetime, breeders can increase the number of calves produced if they are flushed.

The success rate for embryo transplants is fairly high. It was around 60 percent in the early 1990's, according to the University

of Colorado. Today, this trend is becoming more and more widely used. Especially on farms that cannot afford the high cost of cattle with superior genetics.

As scientific breakthroughs find new ways to preserve the embryos retrieved, embryo transfer will become as popular and successful as artificial insemination. But for now, thanks to the cutting edge of genetic research, farmers around the world are able to share genetics and improve their herds and breeds using the secret for success from the cutting edge.