

Illinois

Ag Mag

An agricultural magazine for kids

# Beef

## BEEF BRIEF

**BEEF:** The meat that comes from beef cattle. Hamburger, steak and brisket are some examples of beef.

**BOVINE:** Cattle

**BULL:** A male cow used for breeding.

**BY-PRODUCTS:** All products, except for beef, that come from beef cattle.

**CALF:** Cattle less than one year old.

**COW:** A female cow that has given birth to a calf.

**HEIFER:** A female cow that has not produced a calf.

**HIDE:** Animal skin treated for human use, such as leather from cattle.

**ROAN:** An even mixture of white and pigmented hairs throughout the animals body.

**RUMINANT:** Animals, such as cattle, that have multiple compartments in their stomach.

**SILAGE:** Fermented corn, wheat or hay with the stalks and leaves that is chopped and fed to cattle.

**STEER:** A male cow not used for breeding.



The average American eats 62 pounds of beef each year.

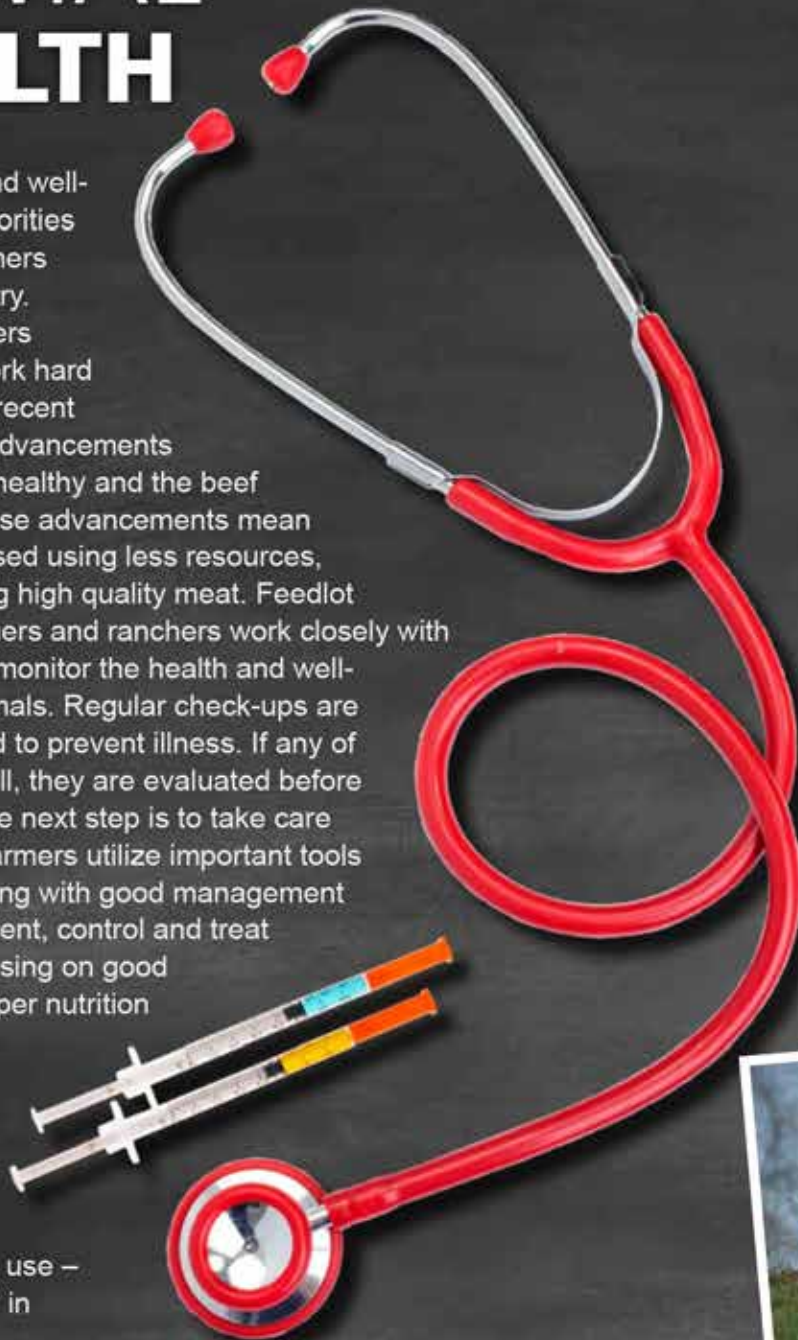




# ANIMAL HEALTH



Animal health and well-being are top priorities for livestock farmers across the country. That's why farmers and ranchers work hard to use the most recent science-based advancements that keep cattle healthy and the beef supply safe. These advancements mean cattle can be raised using less resources, while maintaining high quality meat. Feedlot employees, farmers and ranchers work closely with veterinarians to monitor the health and well-being of the animals. Regular check-ups are done on the herd to prevent illness. If any of the animals are ill, they are evaluated before deciding what the next step is to take care of the animal. Farmers utilize important tools like vaccines along with good management practices to prevent, control and treat disease. By focusing on good animal care, proper nutrition and disease prevention, livestock farmers and their veterinarians reduce antibiotic use – and save money in the process.



# BREEDS *of* BEEF CATTLE

Just as there are different breeds of dogs, there are different breeds of cattle. The most popular breed of beef cattle in the United States is Angus. Angus are solid black and are known for

the high quality meat they produce. Some other common breeds are Hereford, Shorthorn, Charolais, Simmental, Limousin, Maine-Anjou, Brangus, Chianina, Red Angus, and Brahman, which is the most popular beef cattle breed in the world. All of these cattle come in different sizes and colors including black, red, white, roan, gold, brown and gray. Today's family farmers combine scientific advances with time-honored family traditions to improve their herds through careful selection and genetics. This allows farmers to raise cattle with certain traits, such as easy calving, good mothering instincts, early maturity, heavy muscling and high quality meat. Improvements in cattle farming technologies have helped provide consumers with the lean beef they demand while using fewer resources. This allows America's farmers to provide safe, high-quality beef at an affordable price.





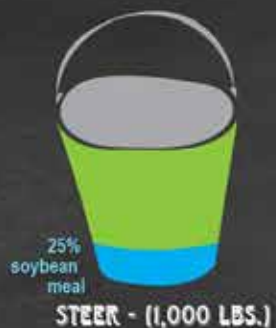
## BEEF CATTLE AND THEIR DIET

Our nation's food security depends on growing our own food. Illinois' economy depends on farms and rural communities that prosper. Each year, the Illinois livestock industry generates: \$3.5 billion in economic activity, \$292 million in state tax revenue, and 25,385 jobs.

Growing a larger Illinois beef and livestock industry is important. A strong livestock industry gives farmers a greater competitive edge in regulation, technology, transportation and strategic marketing. Livestock is also the strongest domestic market for Illinois corn. Each year, the state's livestock eats 118 million bushels worth of corn and 31 million bushels of soybean meal.

To learn more about the life cycle of a beef cow from birth to harvest, keep reading!

These are approximations based on sample diets. Trace minerals, vitamins and other supplements may also be added. Animals eat to meet their calorie (energy) needs each day—they do not overeat. Young animals that are actively growing have greater requirements for protein than older animals. As the animal gets older, the protein needs decrease. Illinois is part of the Corn Belt and ranks second in corn production, which makes it perfect for raising beef cattle and other livestock.



## More than “MEATS” the Eye



We get more than meat from beef cattle. You may be surprised to learn that paint is made from beef cattle—as well as many other products. These are called beef by-products. Because of these by-products, we are able to use 99% of every steer. Some examples of these by-products include candles, crayons, cosmetics, detergent, insulation, plastics, soaps, pet foods, piano keys, luggage, wallpaper, insulin for diabetes, car polishes, textiles for car upholstery, basketballs, baseballs, and footballs. In fact, 11 basketballs, 144 baseballs, or 20 footballs can be made from 1 cow hide. 700,000 footballs are produced annually for the NFL, which means around 35,000 cowhides are used for one single professional sport each year.

In 2017, there were  
**1.18 million**  
cattle & calves on Illinois farms, which ranks  
IL 27th in the nation.





Do you know  
YOUR CUT OF  
**BEEF?**



# Animal Identification

Farmers use many ways to identify their animals:

brands, tattoos, ear notches and ear tags. Animal identification allows farmers to observe each animal very closely when it comes to their growth, weight gain, offspring and even how much feed they are eating. Complete this activity to become more familiar with forms of animal identification.

The U.S. supplies 19% of the world's beef with 9.4% of the world's cattle.



## Packing Plant, Food Service & Retail

Once cattle reach market weight, (typically 1,200-1,400 pounds and 18-22 months of age) they are taken to the processor by semi trucks. Once the meat has been processed, it is inspected to ensure it is safe, wholesome and correctly labeled and packaged. The final beef products are shipped to retail and food service establishments for consumers to purchase.

## BIRTH — TO — WEANING

cow-calf farmer who maintains a breeding herd of cows that raise calves every year. When a calf is born, it weighs 60-100 pounds. Beef calves are weaned at 6 to 10 months of age when they weigh 450-

The gestation (pregnancy) period for cows is 9 months. Beef production begins with a

700 pounds. After the calves are weaned, some are sold at an auction market. A cow-calf farmer may also choose to keep the best females to add to the breeding herd. Younger or lighter weight calves may be sent to a backgrounder or stocker who continues to graze them on grass or other forages until they are 12 to 16 months old. They may also go directly from the cow-calf farmer to the feedlot or from the backgrounder/stocker to the feedlot.



# FEEDLOT



Most beef cattle spend approximately four to six months in a feedlot, just prior to harvest, where they are fed a grain-based diet. At the feedlot (also called feedyard), cattle are grouped into pens that provide space for socializing and exercise. They receive feed rations that are balanced by a professional nutritionist. Feedlots are efficient and provide consistent, wholesome and affordable beef using fewer resources. The time cattle spend in a feedlot is often called the "finishing phase." All cattle spend the majority of their lives grazing on grass pasture.



The top 5 counties in Illinois for beef cattle production are:  
Jo Daviess, Adams,  
Fulton, Hancock  
and Henry.







Beef is a good source of ZIP: Zinc, Iron and Protein. Beef also provides B-complex vitamins such as niacin, riboflavin, thiamine and vitamins B6 and B12, among others. B-VITAMINS work to promote growth and maintain health. You need essential B-vitamins to release the energy in food. Beef is one of the best sources of many essential B-vitamins.

## BEEF has 10 ESSENTIAL NUTRIENTS



### IRON

helps your body use oxygen.



### CHOLINE

supports nervous system development.



### PROTEIN

helps preserve and build muscle.



### SELENIUM

helps protect cells from damage.



### ZINC

helps maintain a healthy immune system.



### PHOSPHORUS

helps build bones and teeth.



### NIACIN

supports energy production and metabolism.



### RIBORGALVIN

helps convert food into fuel.



### VITAMINS B6 and B12

help maintain brain function.



# Beef Timeline

Christopher Columbus took cattle to Hispaniola (now Haiti and the Dominican Republic) on his second voyage to the New World.

Union Stock yard's transit Company or "The Yards" was the meat packing district in Chicago until 1971. It processed more meat than any other place in the world. The Union Stockyards gate was designated a Chicago Landmark in 1972.

The National Cattle Growers Association of America was formed. This was the first known attempt to form a national group of cattle producer organization.

6500  
B.C.

Cattle were first domesticated.

1493

The town council of Mexico City ordered the formation of a cattleman's association to control theft and preserve their monopoly. Mesta became the first known livestock association in the Americas.

1529

1611

The English were the first to bring large numbers of cattle to the United States when they founded Jamestown Colony.

1825

The year that colonel William S. Hamilton took the first herd of cattle from Springfield, Illinois through Chicago to Green Bay, Wisconsin.

1865

Mechanical refrigeration was first used making a lasting impact on the cattle and beef industry.

1880

1883

The first national gathering of cattlemen in Chicago took place.

1884

1890

The first Meat Inspection Act became effective.

The National Livestock Association became the first successful national organization and is known today as the National Cattlemen's Beef Association.

The Agriculture Adjustment Act was the first attempt by the government at supply management. It paid farmers to reduce acreage or supplies of basic commodities. Congress approved \$63 million for a purchase-and-slaughter program.

The "Gooseneck Trailer" for transporting livestock was invented.

Total beef production in the United States is over 23 billion pounds. Each person consumes about 62 pounds of beef each year.

1898

The first public livestock auction opened in Union, Iowa.

1904

The first motor truck delivery of livestock occurred in Indianapolis, Indiana.

1911

1921

The Packers and Stockyards Act was passed, which we still use today. It regulated national and foreign trade in livestock, and livestock products and prohibited packers from manipulating prices and creating a monopoly. Today, the Act's scope has expanded to regulate the activity of livestock dealers, market agencies, live poultry dealers and swine contractors as well as meatpackers.

1934

1946

1988

The third referendum by the American National Cattlemen's Association passed to approve \$1 per head check-off. Since then, the industry has had almost \$80 million a year for research, education, promotion and producer information.

2017



# CAREERcorner

## Doug Hanks

Meat Processor

Thrushwood Farms Quality Meats, Inc.  
Galesburg, IL

### 1. Tell us how you became involved with the beef industry.

I have been very fortunate with parents that both grew up on grain and livestock farms. I thoroughly enjoyed showing cattle and pigs and being involved with the local meats judging team. I was very active in 4H meats judging and FFA, which is where my love of the meat industry really blossomed. I attended the University of Illinois and was active in Hoof N Horn, Alpha Gamma Rho and on both the University's Meats and Livestock Judging teams. It was the people that I met at the U of I that really fostered my love of the meat industry and livestock.

### 2. What is your specific role with Thrushwood Farms?

I am in charge of operation and sales. I work with our customers to determine what products they need made and go over ideas for new options that we can produce for them. I assist with coordinating the production, cooking and packaging of the meat sticks. One of the areas I enjoy most is developing new products.

### 3. Tell us about Thrushwood Farms.

Thrushwood Farms is a family owned business that was started in 1978 as a small town butchershop. We harvested animals for local farmers and for our retail store. We did this primarily until the early 2000's. Our company has always been known for our smoked hams, bacon, all beef summer

sausage and dried beef. I joined my parents in 2004 after receiving my Bachelors of Science degree from the University of Illinois in Animal Science.

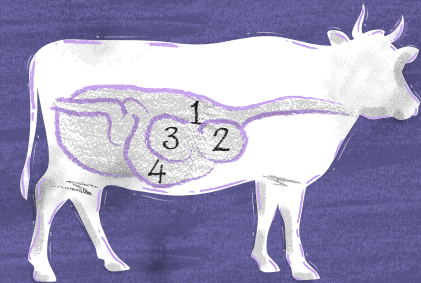
In 2007, we became a federally inspected meat plant which opened a lot of new markets for us to sell our products. That was also around the time at which we started to focus on shelf stable snacks such as snack sticks, jerky and other meat products. Our two bestselling snack sticks are our all beef stick and our sweet teriyaki snack sticks. In 2012, we doubled the size of our facility which is over 27,000 square feet of meat processing.

### 4. Technology is becoming very important to farming, how is technology used at Thrushwood Farms?

We use technology every day at our facility. We now have packaging machines and smokehouses that can be logged into from halfway around the world to provide technical assistance. We will continue to see more automation and technical advances in our family's business.



## Four Parts in One



Cattle, sheep and goats are called ruminants. They have a special kind of stomach which allows them to digest very tough food. It has four compartments called the rumen (1), reticulum (2), omasum (3) and abomasum (4). Ruminant animals first chew their food to soften it, swallow it, and then return it to their mouth for continued chewing. This is called chewing the cud. After chewing the cud, it is swallowed a second time, broken down further, and digested. Cows will spend up to eight hours a day chewing their cud.



# CAREERcorner

**Alan Adams**  
Beef Producer  
Sandwich, IL



**1. Tell us about your farm and how you became involved with the beef industry.**

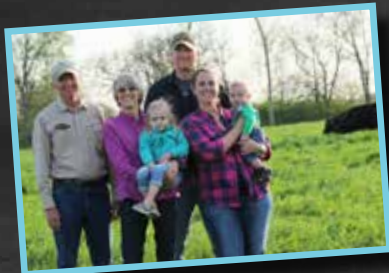
My wife JoAnn and I live on a family farm near Sandwich, Illinois. We have a 55 cow herd that produce calves each year and graze the pastures on our farm. We also have a beef feedlot where we buy young cattle and raise them to market weight. I started in the beef business when I was eight and by the time I graduated from high school, I was part owner of the cattle we fed each year on our farm. When I was a senior in college, a neighboring farmer retired and I asked to rent the farm. I borrowed money, from a bank, to pay for seed, fertilizer and feed for some feeder cattle and pigs. My parents let me use their farm equipment in return for helping them on their farm. I enjoyed working outside and caring for the cattle and because my farm had a lot of pasture land, I concentrated on increasing the cattle operation to take advantage of all the grass and hay I could produce.

**2. What is your favorite part about your job?**

My favorite part of my job is taking care of baby calves. We must watch the mother cows very closely to make sure the calves are born safely. Occasionally, we need to assist the cow to help her have a smooth delivery. The young calves also need attention to make sure they get off to a good start. It's important that they start getting their mothers' milk immediately. It's hard work but watching the new calves as they start to grow makes it all worthwhile!

**3. How do you ensure the quality, safety and health of your beef cattle?**

The quality, safety and health of our cattle is the most important job on our farm. An important part of ensuring the health of our cattle is getting a veterinarian to advise us on the many health procedures that must be done to ensure our cattle stay healthy. They prescribe medications if one of our animals get sick. We are all trained to spot diseases and try to check on each animal's condition every day.



**Rebecca Atkinson, PhD**  
Associate Professor/Department of  
Animal Science, Food and Nutrition  
Southern Illinois University,  
Carbondale, IL

**1. Describe your background and how you became interested in animal nutrition.**

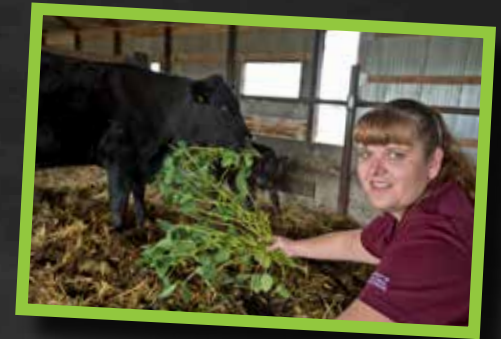
I am a native of Wyoming and grew up on a cattle ranch. I started my Master's in nutrition and was completely fascinated with all aspects and immediately knew that I wanted to be a ruminant nutritionist. After completing my PhD, I started working at SIU and conducting applied research and sharing that knowledge with the students and cattle farmers. I learn something new every day and thoroughly enjoy hearing when cattle farmers try something I have done and have success.

**2. Tell us a little bit about your job and what you enjoy most.**

I teach, conduct research, and serve cattle farmers by supervising the Beef Evaluation Station. I enjoy the variety and love seeing students putting the knowledge they obtained in the classroom to use out at the farms. I enjoy sharing research with the beef farmers, learning from them, and helping them troubleshoot issues. Lastly, I enjoy helping beef farmers through performance testing their bulls at the station.

**3. What special research projects have you worked on or are currently working on related to beef cattle?**

I enjoy investigating the use of alternative forages to extend the grazing season and/or reduce the use of harvested feeds. I also have an



interest in the use of by-products in all segments of the beef industry to help reduce costs and increase profit. With my research, I try to determine the sustainability and economic benefits.

**4. How does your research benefit livestock farmers?**

Extending the grazing season has many benefits but it may not be feasible to do. However, if my research concludes that it will reduce costs, increase profit, and/or is sustainable then I share my findings so that farmers can have the tools necessary to implement it. I also discuss the pros and cons so they can decide if it is a good fit for them or if it is too high risk.

**5. What subjects helped prepare you for your career?**

Animal science and biochemistry were essential, but at the end of the day "doing it" was the best preparation! I was very fortunate to grow up on a ranch and learned a lot. I am a firm believer in hands-on learning, so every chance I get my students will apply what they learn in the classroom at the university farms.



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**Information in this Ag Mag may be linked to the following Illinois Learning Standards:**

Common Core Standards: CCSS.ELA-Literacy.RI.4.1; 4.2; 4.3; 4.5; 4.7; 4.10

Next Generation Science Standards: 4-LS1-1; 4-LS1-2

Illinois Social Science Standards: SS.G.4.5; SS.H.3.4

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