WHAT IS SUSTAINABILITY?

The meaning of sustainability has been subjected to a variety of interpretations, but it is critical to understand that sustainability is a continuous journey, rather than a destination. For farmers and ranchers, sustainability is more than a buzzword. It is a promise to future generations that they will care for the land, air, water and livestock in a way that ensures their children can take over the family business if they so choose.

The topic of responsible and sustainable animal agriculture has received a lot of attention in recent years, but these concepts are nothing new to the American farmer. Given the rise of social media and increased interest in food production by consumers, the people asking questions about sustainability are not just neighbors, friends and relatives, but include audiences around the world. This puts animal agriculture under increased scrutiny and means that farmers have to put far more emphasis on the social side of sustainability than ever before.

This report highlights how the animal agriculture industry shares the same values as today’s consumer with its never-ending commitment to animal care, environmental stewardship, responsible antibiotic use, food safety and nutrition.
ANIMAL AGRICULTURE’S SUSTAINABILITY JOURNEY

Raising food is a way of life that requires dedication and a lot of hard work. Farmers and ranchers, the 2 percent of the population that works to raise the food we all eat, recognize this as both a duty and a privilege, whether for our country or abroad. No one can deny that raising food looks a lot different than it did 50, 25 or even five years ago. To feed a growing population safely and efficiently, and to prioritize the highest standards of animal care, the entire animal agriculture industry has worked tirelessly to identify areas for improvement. Whether it is making sure that animals are getting the best care possible, using antibiotics judiciously or making major strides in food safety and sustainability, the entire animal agriculture industry has improved to continuously meet consumer expectations over the years.

Today’s farm animals are raised by a broad network of dedicated people who care deeply about animal care. Farmers and ranchers have an ethical obligation to care for animals raised for food, and they take that responsibility seriously. Animal well-being is critical to providing the best quality food products, and is the highest priority for both large and small farms. Sustainability means using natural resources efficiently; caring for the land, air, water and wildlife; and producing safe, abundant food to nourish a growing population—the vast majority of whom enjoy a diet comprised, in part, of meat, poultry, milk and egg products. For generations, farmers have raised animals on farms and ranches across the country. American farmers have sought to farm not only in an ethical manner, but also in an environmentally sound and sustainable manner. After all, our farmers and ranchers want to ensure they can pass their farms on to the next generation.

Livestock production in the U.S. is a model for the rest of the world for several reasons: (1) we use advanced genetics; (2) we promote excellent veterinary care; and (3) we feed our animals optimal diets. Each industry has made tremendous improvements in all areas of farming, including environmental sustainability. Today, modern farms combine the best of traditional farming practices with the benefits of modern technology and agriculture science. Just imagine how far we will go in the future.
WHAT DOES ANIMAL AGRICULTURE BRING TO THE TABLE?

Farming and ranching is a way of life that not only gives meaning to many Americans, but food, fuel and fiber to millions of families around the world. While farm and ranch families comprise just 2 percent of the U.S. population, they strive to provide food to 100 percent of the people in their surrounding communities. Through innovation, determination and support they are responsible for the safest food supply in the world. As cliché as it may sound, feeding the world is no easy task, but the animal agriculture industry is up for the challenge. America’s farmers, ranchers, veterinarians, animal health companies, animal scientists, food processing facilities and everyone with a role in getting food from the farm to the fork not only understands their responsibility to produce safe, wholesome food, but has a passion for it.

The Dietary Guidelines for Americans call for nutrient-dense foods to be included in a healthy, balanced diet.

Meat, milk, cheese, yogurt, poultry and eggs provide different essential nutrients. The essential nutrients found in a 3 oz. serving of meat, a glass of milk and a single egg help support a healthy heart, brain, eyes, immune system, lungs, bones, muscles and much more.

Animal agriculture is a diverse community of professionals dedicated to producing safe, wholesome and nutritious food and the groups of people who support them.

Animal agriculture does contribute to GHG emissions, but not as much as critics want you to believe.

According to the Environmental Protection Agency, agriculture accounts for a total of 9 percent of U.S. GHG emissions while livestock production is 3.9 percent. Read more.

Cardiovascular Health
Brain Function
Immune System
Oxygen Use
Muscle Building
Bone Health

One U.S. farm is able to feed 165 people!

About 2.1 million farms are scattered throughout the United States with 99 percent of them operated by families. They aren’t always standing outside that romanticized red barn, but that doesn’t make them any less of a family farm. Today, more than 20 percent of all farmers are beginning farmers!

Today’s family farms look different.

Animal byproducts are used to make several things we use every day, such as tires, soaps, footballs, medicines and more!
Created in 2009, the National Dairy Farmers Assuring Responsible Management (FARM) Program provides consistency and uniformity to best practices in on-farm animal care and quality assurance through a nationwide, verifiable program. By participating in the FARM Program, dairy farmers demonstrate a commitment to quality farm practices and safe, wholesome dairy products. Program participation is open to all dairy farmers, cooperatives and processors. Participants follow rigorous guidelines to ensure the utmost social responsibility on our nation’s dairy farms, while recognizing there is always room for improvement. FARM creates a culture that inspires our dairy community to work every day toward positive change. Strong farm management practices paired with smart decisions are ethical obligations of any dairy business and are vital to ensure long-term success.

Every day, usually two or three times a day, dairy cows walk into the milking parlor. With cow comfort top of mind, farmers place the milking machine onto the cows’ udders. With modern technology, each cow is milked and on its way in about five to seven minutes on most farms. Over 98% of the U.S. milk supply comes from farms participating in the FARM Animal Care Program, demonstrating the commitment of U.S. dairy farmers and the broader dairy community to assuring the health and welfare of dairy cows through exceptional cow care.

Farmers work closely with veterinarians to ensure cows receive proper care. Day in and day out, dairy farmers provide the best in animal husbandry. There are occasions when animals may get sick and need antimicrobial therapy to overcome a specific disease challenge. Dairy producers strategically and prudently use antimicrobial therapy to help an animal that has been threatened with a disease. Farmers take this responsibility of prudent antimicrobial use seriously and take many precautions with their antibiotic-treated animals so that their milk or meat does not enter the food supply.

Since 2011, zero retail-ready milk products have tested positive for traces of antibiotics. All milk is screened for antibiotics and any load that tests positive for a drug residue is discarded and never sold. 52


dairy farmers use best management practices as outlined in the FARM Animal Care Program to ensure their cows are well-cared for by providing them with a nutritious diet, plenty of water and well-ventilated, well-lighted barns—all of which help keep cows healthy.

Many modern dairy farms today include free-stall housing, which allows cows to eat, drink and rest whenever and wherever they choose. Other farms choose open lots that allow for easy access to and from housing to open land.

Ear tags and rumination collars can help the farmer track important information for each cow, such as how often a cow is chewing her cud – which can help them figure out if a cow is not feeling well. They can also help track how much milk each cow gives.

Individualized calf care
Farmers make it a top priority to get their animals off to a healthy start. For dairy calves, farmers bottle feed the calves to make sure they receive good nutrition and use clean, dry individual pens to ensure the dairy calves receive the best care and are protected from harmful germs until their immune systems mature.
DAIRY ENVIRONMENTAL STEWARDSHIP

The dairy industry is a key part of the solution to the sustainable nutrition challenge— that is, the dual need to ensure food security and nutrition for a fast-growing global population while reducing the environmental impacts of agriculture. Dairy foods are nutrient-rich and accessible, and farmers are committed to responsible and sustainable production.

Cattle are great recyclers. Coproducts and byproducts from human foods that would otherwise go to waste become nutritious feed for cattle.

Dairy farmers are always evolving their feed management techniques to ensure cow health, realize production efficiencies and improve the environmental sustainability of their farms. While each farm is unique, most dairy cows eat nutritious feed that consists primarily of grass, along with some grain and natural byproducts such as almond hulls, canola meal or citrus pulp that humans cannot eat and would otherwise become landfill waste.

Through improved nutrition, animal care and genetics, dairy farmers have decreased their overall carbon footprint by 63 percent from 1944 to 2007. The U.S. dairy community continuously works to decrease its environmental impact. In 2012, it voluntarily committed to a carbon reduction goal of 25 percent by 2020.

Dairy farms can use anaerobic digesters to convert cow manure into usable energy. Even waste may not go to waste on a dairy farm!

U.S. dairy is committed to continuous improvement through the ongoing, science-based pursuit of solutions that provide affordable, accessible, nutrient-rich foods that nourish the world’s growing population while also protecting environmental resources. Dairy farms across the country are increasingly adopting conservation tillage, diverse crop rotations, and cover crops to improve soil health; precision feed management to achieve cow health and production efficiencies; and innovative manure management technologies to produce energy and reduce air- and water-quality impacts.

For generations, U.S. dairy farmers have used progressively fewer natural resources to produce milk. While U.S. dairy contributes only 2% of all U.S. GHG emissions, the dairy community is committed to conserving natural resources and further reducing its environmental footprint.
DAIRY NUTRITION AND FOOD SAFETY

Dairy foods like milk, cheese and yogurt provide essential nutrients that help nourish people and contribute to health. Eating dairy foods helps Americans meet recommendations for calcium, vitamin D and potassium, three of the four under consumed nutrients of public health concern identified in the 2015-2020 Dietary Guidelines for Americans. Milk provides nine essential nutrients and is also the number one food source of calcium, vitamin D and potassium for all Americans ages 2 years and older.

Most foodborne disease outbreaks associated with dairy products are due to the consumption of raw (unpasteurized) milk and products made from it. For instance, in 2016, the Centers for Disease Control identified 839 foodborne disease outbreaks, 19 of which were associated with dairy foods. All 19 of these outbreaks were due to the consumption of raw milk or raw milk cheeses that had not been properly aged.

When eaten as part of an overall healthy diet, dairy foods like milk, cheese and yogurt can be linked to reduced risk of cardiovascular disease and type 2 diabetes.

According to the 2015-2020 Dietary Guidelines for Americans, healthy dietary patterns, which include low-fat and fat-free dairy foods (milk, cheese and yogurt), are linked to reduced risk of cardiovascular disease and type 2 diabetes. Dairy consumption is also linked to improved bone health, especially in children and adolescents. In addition, milk, cheese and yogurt provide high-quality protein complete with all of the amino acids people need to help build and repair muscles.
VEAL CALF ANIMAL CARE

Most veal calves are raised on family farms, and veal farming families are proud to share more about their ongoing dedication to doing what’s right. The Veal Quality Assurance program is a set of science-based best practices and standards developed by farmers, veterinarians and animal care experts to ensure that veal calves receive quality care through every stage of life and are raised using production standards that result in a safe, wholesome, quality product that meets or exceeds regulatory and customer expectations.

Housing has changed for veal calves over the years.

When dairy cows give birth to a bull calf, these calves can be raised for beef or veal. Veal farmers receive calves a few days after birth. They are raised in individual pens for the first 6-8 weeks because they have no immunity and could easily get sick. Then calves are moved to group pens where they have plenty of space to lie down, turn around and naturally groom themselves.³

Veal farmers support their fellow farmers in the dairy industry by raising male Holstein calves and using whey from local cheese plants to help calves meet their nutritional needs.

Veal farmers make sure calves get the nutrients they need.

The majority of veal calves are fed a milk formula twice a day as well as grain. The milk-fed calves are fed nutritionally-balanced milk diets. These specially-controlled diets contain iron and 40 other essential nutrients, including amino acids, carbohydrates, fats, minerals and vitamins.³

Barns are made for calf comfort.

Most modern veal barns are heated during cold months and have year-round ventilation to allow for clean, fresh air. All calves are provided with a dry, clean place to rest and the necessary food, water and care to protect the health and well-being of each animal.

Calves get regular checkups from veterinarians.

Veal farmers have an ethical obligation to provide each animal with appropriate quality care through each stage of life. Farmers work with a licensed veterinarian to diagnose, treat and manage herd health.

Family farmers take animal care seriously.

Good nutrition and comfortable facilities are essential to healthy calves that grow and thrive. If an animal becomes sick and needs an antibiotic, farmers work closely with a veterinarian to use antibiotics responsibly to treat and control the illness.

Dairy bull calves are purchased from dairy farmers or at auction markets when calves are just a few days old and weigh about 100 pounds. Milk-fed veal calves are raised for approximately six months and marketed at 500 pounds or more.

500 lbs
Veal is a lean choice for a healthy, balanced diet with about 166 calories per serving, a mere 8 percent of the recommended daily value. It is also a nutritional power source with most cuts being an excellent or good source of iron, zinc, niacin, vitamin B12, selenium, vitamin B6, phosphorus, choline and riboflavin. A 3-ounce serving of veal loin chop has just 135 calories and 3.8 grams of total fat.

Veal is a lean powerhouse with veal cutlets, loin chops, shoulderblade chops and foreshank osso bucos meeting the criteria for “extra lean” by USDA. Each of these cuts has less than five grams of total fat, two grams of saturated fat and 95 milligrams of cholesterol.

Veal has more protein per serving than any other meat!

A 3-ounce serving of grilled veal cutlet has 27 grams of protein, providing 54 percent of the recommended daily value. To get that much protein you’d have to eat four servings of tofu!

Veal provides 34 percent of the recommended daily value of niacin. Niacin supports energy production and a healthy metabolism.

Veal provides 29 percent of the recommended daily value of zinc. Zinc maintains immune function and plays a key role in growth and cognitive development.

Veal provides 23 percent of the recommended daily value of vitamin B12. Vitamin B12 helps maintain brain function.

A bit about veal food safety...

Once calves leave the farm, they are inspected by federal and state agencies throughout each step of the production process to ensure food safety. All state and federal meat inspection is overseen by the USDA FSIS, which regulates food safety standards for raw meat. FSIS inspectors work within meat processing and packing plants to ensure compliance. Only raw meat that meets the FSIS standards for safety, wholesomeness and labeling is given a USDA seal.
BEEF CATTLE ANIMAL CARE

Proper animal care is the responsibility of everyone in the beef industry. Cattlemen and women recognize ensuring animal well-being is the right thing to do and critical to the success of their individual operations. The Beef Quality Assurance Program (BQA) was created in 1987 and includes research, training and certification that help farmers and ranchers provide the best care to their cattle. The handling and care of more than 90 percent of cattle in feedyards today are influenced by the farmer- and rancher-created and veterinarian-endorsed BQA program.

Cattlemen consult with veterinarians to develop a health program for cattle designed to keep the herd healthy and protect the future use of antibiotics for human and animal health. The future effectiveness of these animal health tools is just as important to cattlemen as it is to consumers.

Currently, there are more than 700,000 cattle farms and ranches in the United States, with an average herd size of 40 cattle.

COW-CALF RANCH

Newborn calves weigh 60-100 pounds. For the first few months they live off their mother’s milk and graze on pasture.

STOCKING & BACKGROUNDERS

Cattle continue to grow by grazing on pasture. They receive supplemental feed including vitamins and minerals to meet their nutritional needs.

LIVESTOCK AUCTION MARKETS

Cattle may be sold at livestock markets to other beef ranchers, feedyards or processing facilities.

FEEDYARDS

Cattle are often moved to feedyards where they spend the last four to six months eating a grain-based diet. Cattle receive individual care from pen riders, veterinarians and nutritionists.

Cattle spend most of their lives on pasture. Cattle can be grass-finished or grain-finished, but nearly all cattle spend the majority of their lives on pasture eating grass. After spending the first 2/3 to 3/4 of their life grazing, grain-finished cattle will go to a feedyard for the last four to six months of their lives where they are under the supervision of cattle nutritionists. At the feedyard they will eat a grain-based diet with hay.
The beef industry is dedicated to growing beef demand by producing and marketing the safest, healthiest and highest quality beef to satisfy an ever-growing global population. All of this must be done while responsibly managing livestock and natural resources.

**BEEF ENVIRONMENTAL STEWARDSHIP**

If the rest of the world matched the U.S. cattle efficiency, carbon emissions would be much lower!

The global cattle herd would shrink by 64 percent if the world followed our lead. Emissions from feed production and deforestation would also decrease.\(^6\)

Over their lifetimes, grain-finished cattle have a 18.5 to 65.7 percent lower carbon footprint than their grass-finished counterparts.\(^4\)

Cattle ranchers have made impressive progress in reducing their environmental impact. Since 1977, they have reduced their overall carbon footprint by 16 percent and as more science and technology become available, GHG emissions from beef production will continue to decrease.\(^7\)

How much does beef production contribute to GHG emissions?
Raising cattle does contribute to GHG emissions, but not as much as we might think. Beef production accounts for 6 percent of global GHG emissions, but approximately 2 percent of U.S. GHG emissions because of the industry’s unparalleled efficiency and dedication to stewardship.\(^6\)

Cattle help combat food waste!
There are advantages to both grain-finished and grass-finished cattle. Cattle help with food waste by acting as “upcyclers” in our food system by upgrading human inedible material like almond hulls, carrot tops and grasses into nutrients they can digest.

The industry’s commitment to productivity allows the U.S. to produce 20 percent of the world’s beef with only 6 percent of the world’s cattle.\(^6\)
Lean beef has 10 essential nutrients: iron, zinc, phosphorus, choline, niacin, riboflavin, selenium, vitamin B6, vitamin B12 and protein. These nutrients help your body use oxygen, support your nervous system, promote energy production and healthy metabolism, build strong bones and teeth, maintain a healthy immune system and more!

BEEF NUTRITION AND FOOD SAFETY

Lean beef is good for your body and mind. A 2014 study concluded that lean red meat’s inclusion in the diet supports cardiovascular health. The selenium in beef helps protect cells from damage while vitamins B6 and B12 help maintain brain function.

High-quality protein from lean beef helps preserve and build muscle! One 3-ounce serving of beef provides about 50 percent of your recommended daily value of protein. The riboflavin found in beef also helps your body convert food into fuel.

You would have to eat 600 calories worth of peanut butter or quinoa to get the same amount of protein in a 170 calorie serving of beef.

3 CUPS OF QUINOA
666 CALORIES
25 GRAMS OF PROTEIN

6.5 TABLESPOONS OF PEANUT BUTTER
613 CALORIES
25 GRAMS OF PROTEIN

3 OUNCES OF LEAN BEEF
173 CALORIES
25 GRAMS OF PROTEIN

A bit about beef food safety...

The beef industry has a long-standing commitment to providing safe beef products for the domestic and global market. According to the Centers for Disease Control, there has been more than 90 percent reduction in E. coli O157 for samplings in ground beef. In 2010, the illness rate associated with E. coli dropped to less than one case in 100,000 people - meeting the government’s Healthy People 2010 goal.
The industry's flagship education program for farmers and their employees is the National Pork Board's Pork Quality Assurance Plus (PQA Plus). As of January 2019, more than 72,000 farmers and farm employees were PQA Plus certified.

Pigs have nutritionally-balanced meal plans for each stage of life.

It is important that pigs are fed a nutritionally balanced diet that is age-appropriate. Every meal is the perfect balance of vitamins, minerals, and grains, such as soybean meal, corn, wheat and barley. With such nutritious ingredients, it’s no wonder they like to pig out!

Barns are made for pig comfort.

Pigs are typically raised indoors where they are protected from extreme temperatures, predators and parasites. Most barns have curtains that can be raised or lowered to let in fresh air and sunlight.

To ensure harmful diseases are not introduced to their pigs, farmers enlist biosecurity measures such as wearing clean coveralls and boots and showering before entering the pig barn.

Pig farmers take biosecurity seriously.

Farmers regularly visit the farm.

Farmers work closely with veterinarians to care for their pigs. While they work diligently to keep their herd healthy, sometimes pigs get sick and may need antibiotics to heal. Veterinarians and farmers use antibiotics responsibly - meaning they use only what is necessary for pig health.

Veterinarians regularly visit the farm.

Farmers make sure piglets get a healthy start.

During farrowing, sows (adult female pigs) give birth to piglets in special rooms designed to provide for the special needs of the animals. Farrowing stalls are used to reduce the number of piglets that are accidentally laid on or stepped on by the sow, while also allowing farmers to assist in the birth process. Farmers use heating lamps to keep the piglets warm and the sow cool.

Farmers collaborate with veterinarians.

Workers receive ongoing animal care training.

Herd health management plan.
PIG ENVIRONMENTAL STEWARDSHIP

The pork industry is committed to managing operations in the most environmentally responsible way possible. Conservation, recycling, land management, water quality, air quality and manure management are areas of priority for pig farmers for continuous improvement.

Farms collect pig manure to use as organic fertilizer. Nothing goes to waste on a pig farm - not even the waste!

Modern pig farms have slatted flooring, keeping the barn cleaner and allowing for the waste to be easily collected and moved to nearby manure lagoons. The manure is then carefully put onto crop fields as fertilizer.

By using natural manure fertilizer, farmers not only reduce their environmental footprint by decreasing the use of petroleum-based fertilizers, but also greatly improve soil quality. According to a recent survey of hog farmers, more than 60 percent say that crop production is part of their farm’s overall operation.

Pig farmers are always working to minimize their environmental impact. From 1960 to 2015, pig farmers decreased their overall carbon footprint by 7.7 percent!

In 1959, it took eight pigs—including breeding stock—to produce 1,000 pounds of pork. Today, it takes just five pigs.

The relative contribution from swine production to the overall national greenhouse gas inventory is extremely small, at just 0.46% according to figures from the U.S. Environmental Protection Agency’s annual greenhouse gas reports.
PORK NUTRITION AND FOOD SAFETY

Today’s pork is 16 percent leaner and 27 percent lower in saturated fat compared to 20 years ago. Seven cuts of pork meet the USDA guidelines for “lean” by containing less than 10 grams of fat, 4.5 grams of saturated fat and 95 milligrams of cholesterol per 100 grams of meat.23

Farmers eat the food they produce too. They want it to be safe for your family and theirs.

Pork producers ensure safe food by focusing on three main areas: (1) using good management practices; (2) managing the health of the herd; and (3) employing new and better technology.

A 3-ounce serving of pork is an “excellent” source of thiamin, selenium, protein, niacin, vitamin B6 and phosphorus, and a “good” source of riboflavin, zinc and potassium.23

A 2014 study found the inclusion of pork in the diets of young women is associated with the reduced consumption of energy-dense, nutrient-poor foods.28

Lean pork helps you reach and maintain a healthy weight by keeping you satisfied longer.

Pork is both a good source of protein and also provides several important vitamins and minerals.

A 3-ounce serving of pork is about the size of a deck of cards!
BROILER CHICKEN ANIMAL CARE

To assist farmers and the companies who produce and process chickens for food, the National Chicken Council (NCC) developed the NCC Animal Welfare Guidelines and Audit Checklist, which have been widely adopted within the chicken industry. These guidelines were updated in 2018 to cover every phase of the chicken’s life and offer science-based recommendations for humane treatment. NCC’s broiler and broiler breeder welfare guidelines have been certified by the Professional Animal Auditor Certification Organization, a leading authority on animal welfare auditing which provides high quality training and certification credentials for auditors and audits.

There’s a number of factors that go into getting chickens to a healthy size – nutrition tailored to each stage of the chicken’s life, coordination between farmers and veterinarians, and optimized living conditions – from temperature, to lighting, to litter – all contribute to healthy growth of chickens. Read more.

The health of broiler chickens in the U.S. continues to improve with scientific advancements in genetics, management and nutrition.

Birds go through a medically advanced screening process to ensure the healthiest and strongest go on to create the next generation of chickens. Selection for health and welfare traits is important not only to animal welfare, but also to improve husbandry. The screening includes:

• A DNA test to check any genetic disorders down the line
• A blood oxygen level test to ensure heart and lung health
• An ultrasound station to examine the birds’ breast muscles
• An x-ray of the bird’s joints, to look at the bone formation and joints of each bird to have a precise evaluation of leg health

Chickens get the right nutrients at the right time with close coordination between farmers and nutritionists.

Monitored by licensed veterinarians

Raised by farmers trained in animal welfare

Never raised with added hormones or steroids

Raised in large barns with room to interact, eat, drink and rest

Chicken farmers use technology to care for their birds.

Most farmers receive remote alarm notifications through their phones, pagers or other devices which alert them if the chickens are too hot or cold or need more food or water!
BROILER CHICKEN ENVIRONMENTAL STEWARDSHIP

America’s broiler chicken companies and the 30,000 farm families that raise broiler chickens are committed to the responsible production of food that is safe, affordable and abundant for consumers in the United States and around the world. The industry is more diligent and innovative than ever in pursuing environmental improvements.

With the help of technology, modern breeding, nutrient management, feed conversion and improved animal husbandry practices, chicken farmers have significantly reduced the use of natural resources. In fact, producing the same amount of chicken today as 1965 has 50 percent less impact on the environment!

HOW MUCH GHG EMISSIONS COME FROM POULTRY?

According to the Environmental Protection Agency, producing chicken, turkey and eggs accounts for 0.08 percent of the total U.S. GHG emissions.48

Chicken farmers are always working to minimize their environmental impact. From 1965 to 2010, chicken farmers decreased greenhouse gas emissions by 36 percent.20

Poultry litter can be one of the most valuable assets on the farm. Unless there is a biosecurity concern, poultry litter is cleaned and reused in between flocks. The litter is ultimately recycled as organic fertilizer for cropland and when managed effectively, can benefit soil health and crop growth.

The U.S. Poultry and Egg Association offers several training programs for environmental stewardship. Each year they recognize facilities and family farms for their environmental efforts through two award programs: the Clean Water Award and the Family Farm Environmental Excellence Award.

In recent years, there has been interest in slower-growing chicken, but this is not a smart choice for environmental stewardship. If only one-third of broiler chicken producers switched to a slower growing breed, nearly 1.5 billion more birds would be needed annually to produce the same amount of meat currently produced – requiring a tremendous increase in water, land and fuel consumption.45 Read more.
CHICKEN NUTRITION AND FOOD SAFETY

Chicken is the cornerstone of a healthy and well-balanced diet. Whether you choose to spend your food dollars on traditional chicken, organic or chicken raised without antibiotics, you can be confident in its wholesomeness and safety.

The data for chicken shows tremendous strides in food safety!

Chicken farmers are committed to innovation, and the work that farmers and veterinarians are doing to ensure the safety and health of their flocks – and thereby our food supply - creates a vast amount of choice for consumers. The USDA FSIS monitors salmonella on a routine basis. In the last five years, salmonella in whole chickens has decreased by 66 percent. Tests for salmonella are at an all-time low for both whole and ground chicken with 98.5 percent of tests being negative for whole chickens at large processing plants. 39

Skinless, boneless chicken breast is protein-packed and a low in fat.

One 3-ounce serving of skinless, boneless chicken breast has 126 calories, 25 grams of protein and only 2.9 grams of total fat. Drumsticks are another popular choice with just 156 calories and 20 grams of protein! 27

One serving of chicken has nine essential nutrients.

Chicken is a source of niacin, riboflavin, vitamin B6, phosphorus, selenium, zinc, vitamin B5, potassium and vitamin B12. It is considered an excellent source of niacin as one serving has 87 percent of the recommended daily value! 27

Yes, broccoli is healthy, but you would have to eat 10 cups of chopped broccoli to get the same amount of protein in one serving of chicken breast. Our advice...eat your chicken with a side of broccoli! 28

A 3-ounce serving of chicken has nearly the same amount of potassium as one cup of orange juice! 30
Sheep animal care

Farmers and ranchers who raise sheep in the United States take great pride in the care they provide for their animals. The Sheep Care Guide, sponsored by the American Sheep Industry Association, was originally published in 1996. The 2017 edition was updated and expanded to include new research findings regarding animal care.

Shearing sheep is nothing more than a haircut and helps the animal stay comfortable and healthy. Sheep also provide us with warm clothing!

As long as there are sheep, shearing must be practiced for the health and hygiene of each individual animal. Unlike other animals, most sheep are unable to shed. If a sheep goes too long without being shorn, a number of problems occur:

- Excess wool impedes the ability of sheep to regulate their body temperatures
- Sheep with large amounts of wool can become immobilized
- Urine, feces and other materials become trapped in the wool

Farmers keep detailed health, nutrition and wellness records. Regular monitoring of health, body condition and growth rates allows farmers to evaluate the adequacy of flock nutritional programs.

Understanding sheep behavior improves animal care and handling. The instinctive nature of sheep to move into the wind is considered when determining the location of working facilities and watering sites.

Farmers pair their flocks with dogs, llamas or donkeys to keep them safe from coyotes!

Lambs are vulnerable to many predators including coyotes, wolves, mountain lions and bears. Farmers protect their flocks with the help of guard dogs, donkeys and llamas.
SHEEP ENVIRONMENTAL STEWARDSHIP

Sheep farmers are dedicated to not only their animals, but the environment in which they raise them. Sheep's natural grazing skills bring many benefits to the environment in which they live.

**Prevent wildfires and manage noxious weeds**
Sheep's natural grazing skills make them ideal for controlling weeds naturally and for preventing fires by clearing undergrowth in forests and woodland areas.4

**Improve land quality**
Sheep improve pasture and rangeland quality by recycling nutrients back into the soil, minimizing erosion and encouraging native plant growth.4

**Have you heard through the grapevine...**
Many vineyards are using sheep to manage weeds without the use of herbicides. Read more.

**Enhance wildlife habitats**
Sheep grazing is a promising tool for enhancing wildlife habitats. Sheep foraging habits help create and maintain biological diversity.4

**Promote healthy forests**
In California, Oregon, Washington and Canada, sheep grazing in forest plantations can double the number of healthy trees and increase each tree's growth by 30 percent compared with areas not grazed.3

**Sheep help us reduce waste in our environment!**
Numerous waste materials contain nutrients that sheep need to thrive. Among these are crop residues, grass clippings and food processing byproducts that would otherwise be considered garbage. Some waste management experts estimate that 60 percent of landfill waste are organic substances from the yard. Feeding select wastes to sheep can help reduce the burden on the nation's overflowing landfills while converting the refuse into products such as wool, meat, manure, lanolin and milk for cheese.4

**Sheep can even help clean up oil spills!**
Wool products for oil-spill cleanups have been promoted in Europe and Australia since 1990, but have just begun to break into the U.S. market.4
LAMB NUTRITION AND FOOD SAFETY

Lamb is a nutrient-rich food and an excellent source of vitamin B12, selenium, zinc and niacin. It is also a great source of healthy, unsaturated fats with nearly 40 percent of the fat in lean lamb being heart-healthy monosaturated fat. Lean cuts of lamb include the leg and loin.³²

Leg of lamb is lean with about 150 calories per serving.

The classic leg of lamb comes from the hind quarter, is the most versatile cut, and also one of the most economical. Providing lots of cooking options, leg of lamb can be butterflied, cubed (for kabobs), or cut into sirloin chops or steaks. Bone-in leg of lamb makes an impressive dish for a celebratory meal. Read more.

A serving of lamb provides 30 percent of the recommended daily value of zinc which supports a healthy immune system.³²

Lamb also provides 27 percent of the recommended daily value of niacin which aids in many metabolic functions.³²

One serving of lamb has 38 percent of the recommended daily value of selenium which helps protect your cells from damage.³²

A 3-ounce serving of lamb provides 37 percent of the recommended daily value of vitamin B12.

Vitamin B12 is only found in animal products and supports many important metabolic functions. Vitamin B12 deficiency may lead to anemia or neurological problems such as difficulty walking, memory loss and disorientation.³²

Sheep and lamb farmers are not only committed to providing a quality fiber, but a wholesome food supply. All lamb is either USDA inspected for wholesomeness and quality or inspected by state systems equal to the federal government standards.
LAYING HEN ANIMAL CARE

Hens under the United Egg Producers Certified program account for 95 percent of all the nation’s laying hens. Egg farms under this program are independently audited annually based on guidelines recommended by a committee of world-renowned scientists in areas of food safety and animal welfare. Though in recent years many grocers, manufacturers, and restaurants have announced a transition to cage-free egg production, the layer industry has made considerable advancements in all major housing systems – conventional cages, enriched colony cages and cage-free barns.

Egg farmers, farm employees and veterinarians take biosecurity seriously. They work together to keep flocks healthy by taking simple steps to protect bird health.

Farm workers and visitors must wear special suits to protect the birds from germs. Trucks entering the farm are disinfected and parked away from the barns. Farm workers and visitors must wash their shoes or wear designated boots. Farm workers and visitors must wash their hands before entering the barn. Farm employees are not allowed to have birds at home. Farm workers and visitors cannot go to other farms within 48-72 hours of each other.

Barns are specifically designed for hen care and well-being.

Hens are raised indoors to protect them from predators and illnesses they may catch from wild birds. Hens have access to feed formulated by animal nutritionists and enough space based on scientific recommendations.

Enriched colony and cage-free barns have areas for birds to exhibit natural behaviors such as nesting, perching and dust bathing. Read more.
LAYING HEN ENVIRONMENTAL STEWARDSHIP

The egg industry has made great strides in environmental stewardship over the years and is always working to continuously improve their practices to become more efficient and environmentally friendly.

Egg farmers understand they have an ethical obligation to care for the environment.

Improvements in hen housing and manure management have helped egg farmers reduce their energy use and emissions. Egg farmers have a 31 percent lower cumulative energy demand and 65 percent lower acidifying emissions compared to 1960.38 They have made impressive achievements in the last 50 years and are working to reduce their environmental impact even more over the next 50 years!

In comparison to 1960 technology, today’s egg farmers are able to feed 72 percent more people.

Today’s hens are living longer and producing 27 percent more eggs per day because of better health, nutrition and housing. Although they produce more eggs, they are using less than 50 percent of the feed to produce a dozen eggs.38 Egg farms are using fewer resources and producing less waste too!

38 Water Use

 Compared to 1960, egg farmers have made significant strides in minimizing their environmental impact with the help of technological advancements and improved animal husbandry practices.38

38 Feed

The amount of CO₂ reduced by egg farmers since 1960 is equivalent to taking 5.2 billion cars off the roads for a year!34

38 Carbon Footprint

The amount of water egg farmers have conserved would fill 3,716 Olympic-sized swimming pools!34

38
EGG NUTRITION AND FOOD SAFETY

One large egg has varying amounts of 13 essential vitamins and minerals, six grams of protein and only 70 calories. With a package like that, it’s no wonder they are considered nature’s multivitamin!

While the egg white has some protein, selenium and riboflavin, most of the egg’s nutrients are in the yolk!

An egg’s yolk has choline which is important for pregnancy as it aids in healthy brain development of the fetus. Other key nutrients in eggs are vitamin D, which is crucial for bone health, and lutein, an antioxidant which helps prevent cataracts.

A bit about egg safety...

Egg farmers with conventional, cage-free, free-range and organic housing systems have been working toward reducing pathogens like Salmonella Enteritidis (SE) on the farm for more than 10 years. After the initial inspections in 2011, only approximately 2.5 percent of the environmental samples nationwide were positive for SE for egg farmers.

Myth: Eggs have too much cholesterol.

Although eggs do have cholesterol, the most recent nutrition data shows it is lower than previously recorded. More than 40 years of research shows that healthy adults can enjoy eggs without impacting their risk of heart disease.
Each year, about 250 million turkeys are raised on about 2,000 independent farms across the United States. The National Turkey Federation published its first animal care guidelines in 1990 and has continued to update its members with new information, with the latest update occurring in 2016.

Farmers walk through the barns to check on the turkeys every day.

Farmers look for clean feathers, round, prominent eyes and that the turkeys are following them through the barn to signal the birds are healthy. Turkeys are raised in scientifically-designed, heated houses that provide maximum space and protect them from weather, insects, rodents, predators and people who might spread disease, such as Avian Influenza. Except for breeding and transportation purposes, turkeys are allowed to roam freely within their house.

Farmers work closely with their veterinarians to ensure all birds receive great care on the farm.

Today, all poultry farms are under a health program designed by a licensed veterinarian. But just like people, animals sometimes get sick, and treating illness is a responsible part of animal care. When this happens, farmers work with animal health experts and veterinarians to determine if an antibiotic is needed. The vast majority of the antibiotics that are used to treat turkeys are never used in human medicine, and the industry is taking steps to phase out those most critical to human medicine.

Turkey farmers make sure everything is just right for when the turkeys arrive.

On the day that poults (baby turkeys) arrive to the farm, the barn is set at a tropical 85 degrees! The temperature is gradually lowered to about 70 degrees by the fifth or sixth week.
Turkey Environmental Stewardship

Turkey farmers make sure their birds have a healthy living environment inside the barns while also taking care of the land outside of the barns. The turkey industry values the proper use of natural resources. Using modern technology helps them to provide safe, affordable and healthy foods to feed families across the world.

Farmers recycle turkey litter as fertilizer for nearby soybean and corn fields.

Minnesota is home to 450 turkey farmers who raise approximately 42 million turkeys each year. With that many birds there is also a lot of manure! The soybeans and corn that go into turkey feed come from nearby farms - some turkey farmers raise turkeys and grow crops. Farmers take the litter (manure + turkey bedding) and carefully apply it to cropland as organic fertilizer.

Careful management ensures that litter is used in accordance with the nutritional needs of crops, so that nutrient enrichment of groundwater and surface water is eliminated or minimized.

Improvements in genetics and nutrition have helped turkeys grow healthier and reach market weight faster - using fewer resources!

It once took 29 weeks for a tom turkey (male turkey) to reach a live weight of 35 pounds. Today, the turkey tips those scales in just 18 weeks reaching 38 pounds.

Now

Then

Lower feed requirements reduce the demand for corn and soybeans. This efficiency also aids in lowering the fuel consumption and exhaust emissions of the tractors and trucks that harvest and bring the grain to market.
Turkey is a favorite during the holidays, but it is a healthy, convenient and affordable choice all year. Delicious, versatile and available in a variety of cuts, turkey is naturally low in fat and provides immune-boosting nutrients like iron, zinc and potassium. It’s also packed with lean protein to keep people feeling full longer and satisfy their appetite for health and fitness.

A bit about turkey safety...

In turkeys, the USDA FSIS reported salmonella continued to decline to 1.7 percent in its most recent analysis updated in 2015. Since fall 2011, the National Turkey Federation has continued to aggressively drive down the occurrence of salmonella, to achieve the lowest count possible among raw poultry products.

Turkey is a great source of 10 essential nutrients.

A 3-ounce serving of boneless, skinless turkey breast contains just one gram of fat and no saturated fat. Turkey also has 10 essential nutrients which help build strong bones, support a healthy nervous system, promote thyroid function and more. Read more.

One serving of turkey gives you 50 percent of your recommended daily value of protein!

A 3-ounce serving of turkey provides 26 grams of high-quality protein. Protein helps keep you full longer, which can prevent overeating.
Aquaculture is the breeding, planting, rearing and harvesting of plants or animals in man-made ponds, outdoor raceways, indoor tanks or raceways, or confined to cages, net bags or sea cages in coastal waters and oceans. Today, aquaculture is the fastest growing segment of agriculture in the United States with America’s farmers growing a variety of freshwater and marine fish, shellfish, crustaceans (shrimp and crab), reptiles, aquatic plants, seaweeds, and other invertebrates (corals) for seafood, bait, recreational fishing, aquariums and water gardens, wetland mitigation, or to control nuisance aquatic plants. Read more.

Good nutrition is important to promote optimal fish growth and health.

Fish can be fed by hand or with automatic feeders. Farmers monitor the feeding of fish every day to ensure they are healthy. Fish feed can either be made to float or sink, depending on the preference of the fish it is made for. For example, shrimp only like feed that sinks, but most other fish will eat floating feed. U.S. grown soybean and corn are important fish feed ingredients.

All fish feed is formulated with just the right amount of vitamins and minerals, including vitamins A, D, E and C, choline, riboflavin, biotin and niacin. Vitamin C is one of the most important vitamins for fish as it helps enhance their immune systems. Read more.

Fish can be raised in man-made structures like ponds and tanks or in ocean pens.

Farm-raised fish start in hatcheries and are then moved to ponds, raceways, tanks or net pens, depending upon the species. A catfish pond is typically 10 acres or less with a depth of 5 to 10 feet. Read more.

The U.S. ranks 16th in aquaculture production.

In 2016, estimated freshwater plus marine U.S. aquaculture production was 633 million pounds with a value of $1.45 billion.

93 percent of U.S. farm-raised catfish is raised in Alabama, Arkansas, Mississippi and Texas.

72 percent of U.S. farm-raised trout is raised in Idaho.

Normally when people think Idaho, potatoes come to mind, but the vast majority of farm-raised trout also comes from the state. Idaho’s success is linked to a vast system of aquifers and springs! Read more.
AQUACULTURE ENVIRONMENTAL STEWARDSHIP

Experts agree that the future of sustainable seafood must involve both farm-raised and wild-caught fish. Sustainable seafood is seafood caught or grown in a manner that satisfies the nutritional needs of the current generation without reducing the ability to satisfy the needs of future generations.

Aquaculture operates under strict environmental protections.

U.S. fish farms operate under some of the world’s most robust environmental protections, producing environmentally safe and sustainable sources of seafood. To prevent the release of uneaten feed or nitrogen and phosphate compounds, farmers closely monitor feed consumption, provide feeds that are efficiently converted to protein and treat production water that may be released from the farm to meet or exceed strict state and federal water quality protections.

Fish farms are always working to reduce, reuse and recycle their water.

Fish farmers understand their ethical obligation as stewards of not only the land, but the water. They are continuously working to use water efficiently, make sure their farms are environmentally friendly, and when water is used to grow the fish and returned to streams and rivers; it is returned cleaner than when it entered the farm.

Aquaculture can help balance marine ecosystems.

According to the National Oceanic and Atmospheric Administration, marine aquaculture in the United States contributes to seafood supply, supports commercial fisheries, restores marine habitats and at-risk species, and maintains economic activity in coastal communities and at working waterfronts in coastal states.

Oysters improve water quality and protect other organisms in their ecosystem.

When it comes to environmental stewardship, oysters, clams, mussels and scallops are natural filters. By feeding on phytoplankton and nutrients, these shellfish purify water and help clean coastal waters. Shellfish can also act like reefs, providing habitats and protection for other organisms such as juvenile fish, crabs and lobsters. Read more.

A 2020 study concluded that on average, fish populations around the world are healthy or improving.

62 percent of our seafood will come from aquaculture by 2030.

To prevent the release of uneaten feed or nitrogen and phosphate compounds, farmers closely monitor feed consumption, provide feeds that are efficiently converted to protein and treat production water that may be released from the farm to meet or exceed strict state and federal water quality protections.
SEAFOOD NUTRITION AND FOOD SAFETY

Seafood provides a variety of health benefits by having vital nutrients like omega-3s, which the body does not create on its own, and serving as a source of lean protein being low in calories and saturated fat. Seafood has several essential nutrients, including: iodine, selenium, calcium, vitamin B12, A, D and E, zinc and iron.

Seafood is recognized by the Dietary Guidelines for Americans as a healthy choice!

Seafood is nutrient-dense with healthy omega-3 fatty acids which help protect the heart, brain and eyes. Fish, shrimp and other seafood have also been found to be a good source of vitamin D which is important in the prevention of osteoporosis and improving bone density. Iodine is found in most seafood and aids in effective thyroid gland function, which impacts normal growth, metabolism and the development of the central nervous system.\(^2\)

A USDA study found that 80 to 90 percent of Americans are not eating enough seafood.\(^2\)

The 2015-2020 Dietary Guidelines for Americans recommends the general population should eat at least 8 ounces of seafood per week with the aim to take in at least 250 mg per day of omega-3 fatty acids.\(^2\)

Seafood consumption is beneficial to pregnant women and their children.

Eating seafood can help in fetus brain and eye development. Women who are pregnant or breastfeeding should eat at least 8 ounces of seafood per week for omega-3 fatty acid to improve infant health outcomes.\(^2\)

The omega-3 fatty acid DHA can help boost your mood. High fish consumption can reduce the risk of depression.\(^2\)^{26}

Seafood provides vitamin E, which is an antioxidant important for healthy skin!

Adults who eat a diet high in fish can slow their brain aging by as much as five years!\(^2\)^{15}

Seafood provides a healthy choice in the Dietary Guidelines for Americans as a healthy choice!

Seafood safety is overseen by the FDA’s Hazard Analysis and Critical Control Point standards. The system is internationally recognized as one that successfully identifies where hazards might happen and puts in place measures to prevent them from occurring. Each step in the process is strictly monitored and controlled.\(^2\) Read more.
LOOKING TO THE FUTURE

Animal agriculture has made impressive achievements in the last 25-50 years in areas of animal care, environmental stewardship, responsible antibiotic use, nutrition and food safety. The improvements and advancements will only continue as more research and technology become available. With a rapidly-increasing population, farmers, ranchers, veterinarians, animal nutritionists, animal health companies and everyone in the industry is uniting to produce more food with less resources. With about 40 percent of U.S. land being farmland, nearly half of our land is in the hands of farmers and ranchers. This means agriculture is a key player in moving our nation towards a greener tomorrow.

Some critics claim meat, milk, poultry and eggs can be removed from the diet to save the planet and our health. Claiming a seemingly simple solution as the cure for human and planet health is not only misguided, but irresponsible. There is not a simple solution because simple solutions only work for simple issues. Mitigating climate change or improving overall human health are complex issues and thus require a robust, multi-faceted approach including cooperation and involvement from every industry, country and government entity.

Ignoring the benefits of animal protein in diets or the tremendous strides in reducing the impact on the environment is both a disservice to consumers and America’s hardworking farmers and ranchers. This is not a time to point fingers, but a time to ensure our future generations have the luxury of a sustainable food system and planet. The animal agriculture industry’s track record in continuous improvement deserves a seat at this table.

The Animal Agriculture Alliance has compiled an industry-expert contact list for anyone interested in learning more about specific industries mentioned in this report.

ABOUT THE ANIMAL AGRICULTURE ALLIANCE

The Animal Agriculture Alliance is an industry-united, nonprofit organization that helps bridge the communication gap between farm and fork. We connect key food industry stakeholders to arm them with responses to emerging issues. We engage food chain influencers and promote consumer choice by helping them better understand modern animal agriculture. We protect by exposing those who threaten our nation’s food security with damaging misinformation.
REFERENCES

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