



# 2020

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## U.S. Broiler Chicken Industry Sustainability Report

Issued by the National Chicken Council in September 2021

NATIONAL  
**CHICKEN**  
COUNCIL



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# A Letter from Mike Brown

President of the National Chicken Council



It has been a decade since I was named president of the National Chicken Council. In those 10 years, much has changed. And no changes hit as profoundly – or as quickly – as those that we both responded to and initiated in 2020.

Change arrives in fits and starts. We can see it coming and it can surprise us. I have been constantly impressed by and grateful for the resilience and the creativity of our industry when responding to change – both the long view solutions that are best implemented slowly and the rapid deployments demanded by immediate need. We have shown ingenuity and commitment in the face of change, regardless of the challenge.

Nowhere has the industry's commitment to innovate been better revealed than in our sustainability efforts. So, in a time of quick and unquestionable change, the moment seems right to celebrate those efforts in a way that gathers an overview of our sustainability progress, stories and commitments.

What you will read in the following pages represents National Chicken Council's (NCC's) inaugural sustainability report. It is the culmination of many years of

work and, also, humbly, the starting point for many more years of collective effort by the U.S. chicken industry. Effort that brings to life our commitment to environmental and social responsibility, and recognition that continuous improvement is critical to address today's sustainability challenges. Effort made to ensure both a healthier industry and a healthier planet into the future. Effort that proves, again, our mission to always change for the better.

As this report is coming out, NCC and many of our members are also actively engaged in a multi-year effort by the U.S. Roundtable for Sustainable Poultry & Eggs to capture the sustainability of all U.S. poultry through a framework that will help us guide future work and change.

So, about all this change...

The chicken industry has a long history of adapting to difficult situations and meeting changing demand. 2020 was

no different in that way. The COVID-19 outbreak reminded us that our food system has long been “critical” and “essential” before those words became part of our daily pandemic vocabulary.

Our top priorities in 2020 were two-fold: keeping our essential workers safe and keeping chicken stocked in the meat case. Chicken producers and their industry allies went above and beyond to ensure America's No. 1 protein continued flowing to store shelves.

In this, it was imperative that a proper balance was struck between ensuring a steady supply of food while maintaining the health and welfare of the people who work tirelessly to produce and deliver that food. Chicken producers did everything they could to keep workers healthy and safe while keeping America fed – in that order.

The impact of this balance? Half of Americans who eat chicken say they ate it more than any other protein during the

COVID-19 challenges of 2020. In fact, during the first nine months of COVID-19 in the U.S., retail chicken sales increased 19.5% from the same period in 2019. We more than kept pace with Americans' demand for chicken while simultaneously implementing crucial safeguards that protected our workers.

If we can rally and adapt this effectively in a time of crisis, I have no doubt we can combine our historical knowledge with newfound capabilities born of the pandemic and apply them to sustainability opportunities in the brighter times ahead of us. In fact, what you will find in these pages should be inspirational, highlighting our successes to date and the promise of innovations to come.

**Innovation is at the core of our inception as an industry – and remains at our core today.**

In 1923 – just shy of 100 years ago – Cecile Long Steele of Delaware faced down a surprising challenge and ended up inventing the modern chicken industry. She ordered 50 chicks for egg production and received, instead, 500 due to a

clerical error. She kept and raised the chicks, selling them for meat. Within two years, she was raising 10,000 meat-type chickens.

In her world, chickens generally ended up in a stew pot only when they got older and their egg-laying days were dwindling. But happenstance and her entrepreneurial ingenuity harnessed by the Roaring 20's economy, advances in refrigeration, and improved transportation technology – and the rest is broiler history.

Cecile Long Steele's pioneering spirit nearly a century ago still drives us. Over the past decades, our industry has made huge strides in embracing innovation to increase the sense of responsibility that is also at our core – a responsibility to care for the planet, our workers, and our most important asset: our chickens.

You will see this pioneering spirit and commitment come to life here through the passion of small farmers, the technology breakthroughs of processors, the impactful commitments of distributors, and more.

This report is by no means exhaustive. Nor is it our final report. For the chicken

industry, sustainability means being responsible stewards of land and water, animal and feed management, our people, and communities into the future. Sustainability is a journey – our journey as a national industry and member of the international community.

My home in Delaware isn't too far from where Mrs. Steele started raising her chickens. I have a special appreciation for the land and water on the Eastern Shore, and I see firsthand everything chicken producers do to protect and preserve it.

And while the modern version of our industry may have started very near where I write this in Delaware, it now extends to nearly every corner of this country and, in fact, much of the world.

You will see in the pages ahead, based on new data from the *Broiler Production System Life Cycle Assessment: 2020 Update*, that the efforts and leadership of those who carry on and improve upon this tradition are making measurable progress.

The numbers tell us that collectively we have made significant improvements in key sustainability intensity metrics (environmental footprint per bird)

between 2010 and 2020.

We are feeding more people and we are raising each bird with less environmental impact and resources.

Having come so far in the past 10 years, we are nevertheless committed to achieve additional progress in the next 10 and beyond.



**Mike Brown**

President of the National Chicken Council



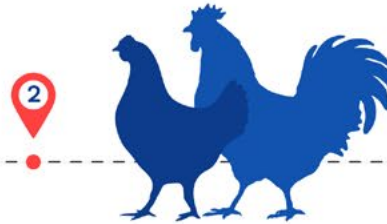
## From **EGG** to **FARM** to **TABLE**:

A Bird's Eye View  
of the U.S. Broiler  
Chicken Industry



### Feed Mill

Corn, soybean meal, vitamins and minerals are processed into feed and then distributed to breeder and broiler chicken farms.



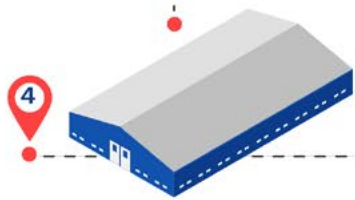
### Breeder Farm

Breeder hens and roosters mate on the farm to produce fertilized eggs (not table eggs).



### Hatchery

Fertilized eggs get delivered to hatcheries to be incubated and hatched into chicks raised for meat.



### Growout House

Chicks are transported to local family farms where they are raised until they reach market weight.

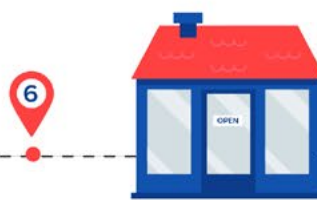


Over 95% of poultry litter is recycled and reused to fertilize crops.



### Processing Plant

At a processing plant, chickens are humanely processed, thoroughly washed and cleaned, chilled, and packaged all under the watchful eyes of USDA inspectors.



### Retail and Foodservice Outlets

Local grocers, markets and restaurants stock meat cases, prepare, and serve chicken for consumers to buy and enjoy.



### Your Table – and Tables Around the World

Chicken is the safe, high-quality and affordable cornerstone to a nutritious meal for families everywhere.

In addition to American tables, we ship U.S. chicken to more than 100 countries around the world.

## U.S. Broiler Chicken Industry Key 2020 Facts



Chicken is the **No. 1 protein consumed in the U.S.**



About **25,000 family farmers** have production (growout) contracts with the companies.



The **top 5 broiler producing states** are Georgia, North Carolina, Arkansas, Alabama and Mississippi.



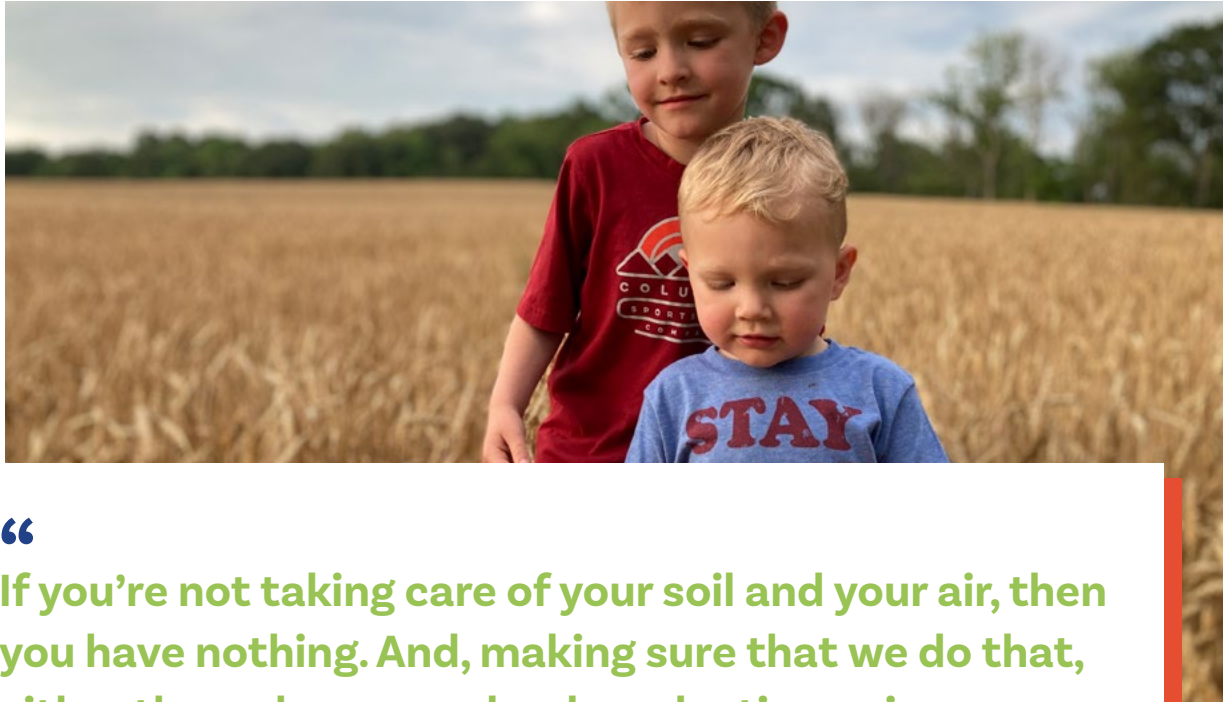
Nearly 1,600,000 people are directly and indirectly **employed by the U.S. broiler industry.**

### What's a **BROILER CHICKEN**?

A chicken raised for meat.



## Our Approach to Sustainability



“**If you’re not taking care of your soil and your air, then you have nothing. And, making sure that we do that, either through our cropland production or in our chicken houses, it’s just our lifeblood. It’s important for us to run a farm that is sustainable because we have children who will inherit this farm, and we want to make sure they can have this farm in 100 years.**

**Rachel Rhodes**

Throughout every step of the chicken supply chain, our industry is looking toward the future.

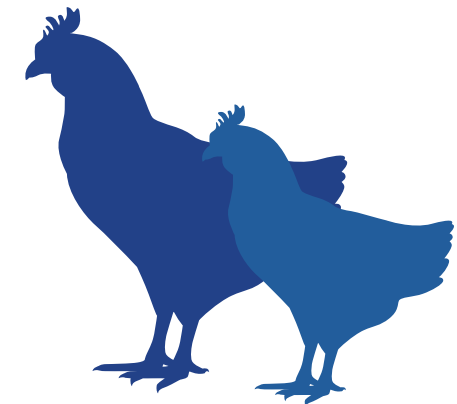
With the help of technology, modern breeding, nutrient management, feed conversion and improved animal husbandry practices, the U.S. chicken industry has significantly reduced the use of water, farmland, electricity, and other valuable natural resources, while reducing greenhouse gas emissions, over the last century. This past decade our industry has been particularly effective in these areas.

But our commitment to the future certainly does not end with our commitment to our planet and our birds. For us, “sustainability” encompasses the many ways that we conduct business responsibly – yes, for our planet and our birds, but also for the many people and communities affected by our work and our products.

Sustainability is a journey of collective successes and growth areas, which are driven by and include the many companies, organizations, and individuals who are diligently pushing our industry and international community toward a more sustainable future.

Our stakeholders are global – defined by the people who work in our industry, consume chicken, or are in any way impacted by the industry. We have made a conscious effort to elevate those voices in this report with information supported by data and actual human experience.

As farmer Rachel Rhodes articulates so eloquently, this industry is our lifeblood. Our commitment to feeding our country, and the world, is meaningless if it does not serve to benefit those who will follow in our footsteps for generations to come.





### Arbogast Farms

## Lauren Arbogast

Family Partner/Farmer

### A Culture of Sustainability: Generation by Generation

Sustainability can be a tricky word. Practices vary from farm to farm and region to region, leaving a bit up to decision-makers and agriculture families. But regardless of the personal definition or area of impact, the root of sustainability packs the same punch – striving to do what’s best for the next generation, one step at a time.

Our farm, Arbogast Farms, began in the 1970’s with a few beef cattle and a lot of free-range turkeys. As the farm evolved over the years, the turkeys moved into cutting-edge barns, the cow herd dwindled, and farm management started the then-radical practice of no-till for the crop fields. In the early 2000s, the one remaining turkey house was converted to a chicken house, four new state-of-the-art chicken houses were built, and the beef cow herd was also strategically upgraded. Fields that had been no-till

for decades now added in crop rotations and cover crops. And in 2020, our farm installed solar panels on all five chicken houses, lessening our impact on the electrical grid.

As a working multigenerational farm, there are many pieces to the puzzle of working together for the common goal of sustainability. Without a doubt, each member of the farm advocates for practices that ensure the next generation will have more opportunities on the same land and resources. Little by little, decision by decision, our farm has made sustainability common practice.

We at Arbogast Farms are looking toward the future with optimism. We have the next generation coming up on the farm, learning and watching, and, also, inventing and doing.

We hope we have created a culture that looks at innovation and sustainability as a baseline, not an end goal. We look to continually improve our practices in this generation and into the next, leaving our land and resources in a better position than where we found them.

### Aviagen

## Committed to Sustainability

One of the most exciting environmental sustainability projects in our industry undertaken globally is a campaign by Aviagen to gather information to better define their sustainability footprint.

This new project is their most comprehensive to date, taking into consideration their in-house footprint, while also considering the sustainability benefits to the industry with broiler chicken genetic advancements.

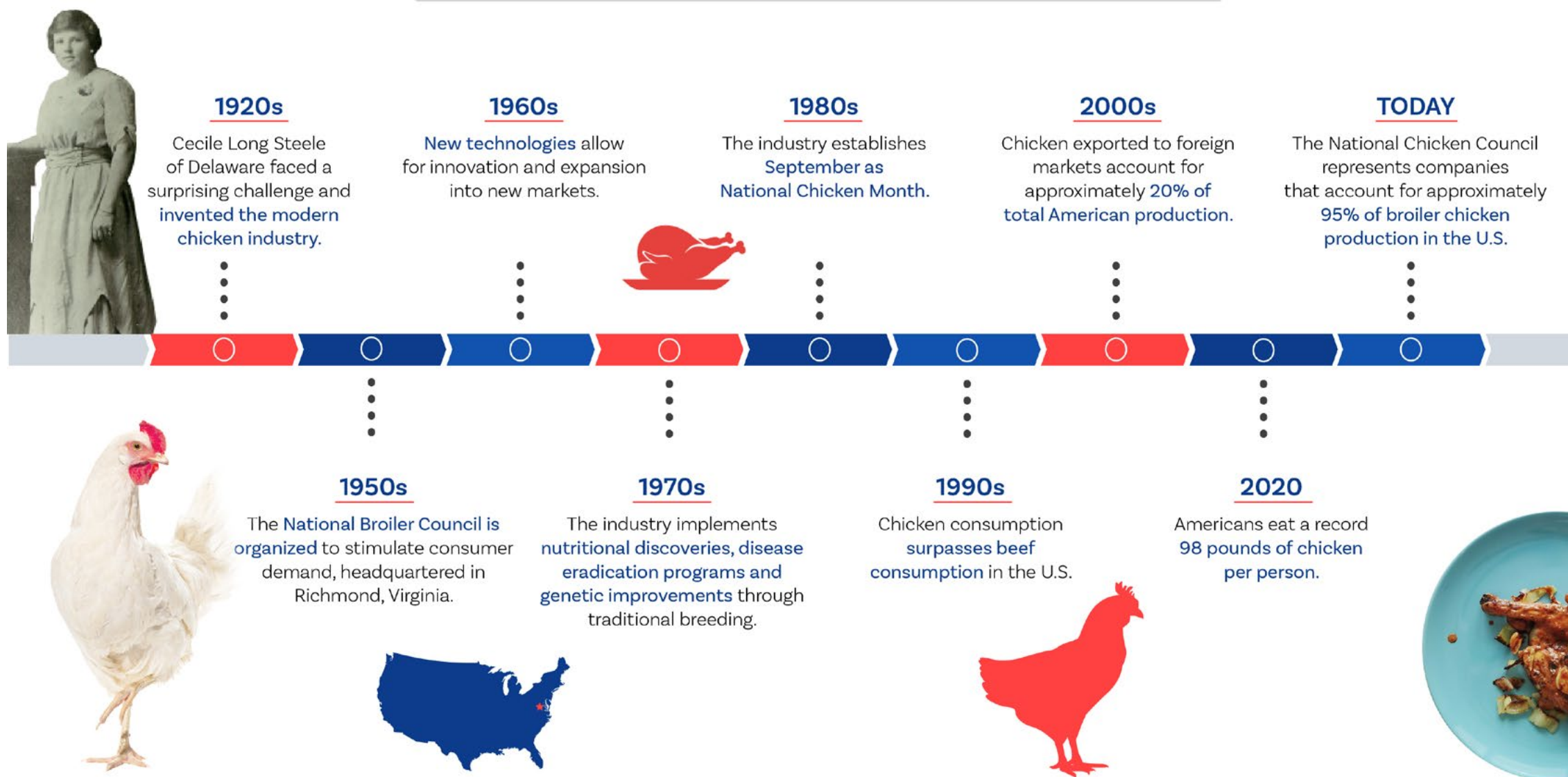
Knowing where we stand today helps us know where we need to be going.

Aviagen and others taking on the task of defining their footprint help us all determine our most impactful direction.





# Our History of Innovation





## What You'll Find in This Report

We organized this report around the six broad topics that are most important for our industry:



### Air, Land and Water

Our industry's environmental impacts and contributions to a healthy planet through emissions reductions and responsible use of water and land resources including the results of the *Broiler Production System Life Cycle Assessment: 2020 Update*.



### Broiler Health and Welfare

Our industry's animal husbandry practices that support broilers' health, nutrition, comfort and overall wellbeing.



### Employee Safety and Wellbeing

Our commitment to worker safety and wellbeing, and the ways that we keep workers safe.



### Food and Consumer Safety

The many ways that our industry supports consumers' health, by providing affordable, safe and essential nutrition.



### Community Support

This is about our industry's support for local communities through the creation of jobs and donations of money and food to businesses, charity organizations and others.



### Food Security

Our industry's contributions to ensuring uninterrupted access and availability of affordable, nutrient-dense food.

These are the areas where our industry's efforts matter most – for supporting industry growth and for producing and providing food to people responsibly, in ways that protect communities and the planet and ensure food is available when people want and need it.

These also are the broad topics that consumers and our many other stakeholders have told us are important to them. While our industry's environmental impacts (Air, Land and Water) might be top of mind for many people, we recognize that other individuals might feel as strongly, or more strongly, about animal welfare or one of the other topics we have included here.

We also recognize there is overlap of these material topics, with progress in some areas helping to drive progress in others. For these reasons, all six topics are important and discussed in this report to demonstrate how the industry is innovating to meet needs and expectations.

As you will read, poultry operators across the entire value chain are making commitments and taking action. From feed mills to breeder farms, hatcheries, growout houses (the barns where broiler chickens live and grow), processing plants, and retail/foodservice operators. From large integrators to small family farms. Organizations of all sizes and types are making meaningful progress and contributing to the industry's collective journey of continuous sustainability improvement.



## Foreword on Global Impact



The U.N. Sustainable Development Goals (SDGs) guide our responsibility approach. Collectively, the 17 SDGs provide a blueprint for a better and more sustainable future for all people and for the planet. The SDGs present a challenge and an opportunity for all of us – a global call to action to drastically decrease poverty, hunger, climate change and inequality by 2030.

By delivering on these goals, we believe we can have the biggest positive impact.

These are the areas where our contributions are most important for improving lives and fostering environmental stewardship.

The U.S. chicken industry is doing its part to drive progress, and we intend to continue our efforts.

To guide the path forward on behalf of the entire U.S. chicken industry, the NCC actively seeks partnerships and alliances with other organizations, to identify opportunities for synergy and leverage collective strengths.

Feeding people, and doing so equitably and sustainably, requires combined effort.

The constellation of activities involved in producing, processing, transporting, and consuming food (i.e., entire food systems) must all operate cohesively and in sync.

Food systems must withstand many disruptions – everything from extreme weather events to pandemics like COVID-19, biosecurity issues, and cybersecurity breaches. The U.S. chicken industry stood up to all of these challenges in 2020 alone.

We are particularly inspired by four of the SDGs:

### Goal #2

#### Zero Hunger

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

### Goal #8

#### Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.

### Goal #12

#### Responsible Consumption and Production

Ensure sustainable consumption and production patterns.

### Goal #17

#### Partnerships for the Goals

Strengthen the means of implementation and revitalize the global partnership for sustainable development.





The U.N. is calling for transformation of the world's food systems to be healthier (nutrient-based), more sustainable, and more equitable.

As an active member of the **Animal Agriculture Alliance**, we are aligned with the animal agriculture community, which seeks to promote practical, broad-based, action-oriented solutions backed by science, innovation and proven impact – solutions that include producers of all sizes and types at many points in their journey for continuous improvement and more sustainable systems.



**The US Roundtable for Sustainable Poultry & Egg (US-RSPE)** is another one of NCC's key partners. We are working closely with them on the first-ever sustainability reporting framework for the full U.S. supply chains for chicken, turkey and eggs, which will launch in early 2022.

The NCC will continue to look for opportunities to collaborate with others to achieve greater progress toward sustainable development.

By collaborating whenever possible, and by supporting our members' efforts to deliver sustainable, safe, affordable, and nutrient-dense food, we are continuing to drive the solutions that the world needs.



## Leadership Profile



## National Chicken Council

**Ashley Peterson**

Senior Vice President of  
Scientific & Regulatory Affairs

**An Appreciation for Seasons,  
Blisters and Wholesome Food**

Growing up in rural Kentucky, spending countless hours with my granddaddy on our small farm and working until my hands were blistered, I quickly learned how to appreciate where my food came from and the sacrifices it took to feed our family – generation after generation.

The acres and acres of vegetable gardens were never weeded or tilled enough as the summer crops were going to be canned, frozen, or otherwise preserved to feed everyone for the coming year. I thought I'd never get to the bottom of the bushels of ripe tomatoes, shuck enough corn, or shell enough black-eyed peas and lima beans under the big oak trees surrounding the old farmhouse.

When it got cold, it was time for butchering. I'll never forget one Saturday afternoon I was hanging out in the chicken house (a common place to find me as a kid – which, in hindsight,

makes sense of my work in this amazing industry), and the rooster decided he didn't like me hanging out with his ladies... and spurred me up my leg.

Not sure how old I was, but I went to the house and found my granddaddy. Without a word he headed off to let that rooster know who was boss. My grandma made the best chicken and dumplings ever – not to mention the fried okra. I'm not sure why but she couldn't make good fried chicken to save her life – not that you'd want to make fried chicken with a mean old rooster anyhow...but he went well with those dumplings.

Every year a steer and three hogs would be subject to my granddaddy's appreciation, expertise, and dexterity. I'll never forget the time I was finally "old enough" to help slaughter a steer – that was something for a ten-year-old. We'd hang the steer in the tobacco barn off the bucket of an old John Deere Crawler until it was cold enough for butchering.

For the hogs, we had a large trough we'd put over a fire to heat up the water for scalding. Once we started the butchering and had enough fat separated from the carcasses, it was my job to render the fat – separate the lard from the cracklins.

Now if you've never had fresh hot (and I mean burn the skin off your mouth hot) cracklins, you haven't lived.

Once rendered, we'd ladle the fat into a lard press (which also served as the sausage stuffer) lined with cloth and collect the lard would be used for cooking and topping off jars – my grandma even made lye soap. We also made our own sausage, and I've never had the same since.

Looking back over these experiences, one thing was for certain – I learned to keep cold things cold, hot things hot, and keep things clean when it came to food preparation. I learned that though the animals we raised were raised for a purpose, they would always be treated humanely and with the respect they deserved.

In today's world, most people do not have these experiences, and I am thankful for the blisters, countless working hours, and appreciation it instilled in me about where our food comes from and all of the hard work that goes into feeding the world safe and wholesome food.



# Air, Land and Water

It takes a healthy planet, fresh water, fertile soil, and clean air to raise and produce chicken.

Through continuous innovation, the chicken industry has become significantly more efficient in its use of water, farmland, electricity, and other valuable resources over time, and has reduced greenhouse gas emissions.

## New Life Cycle Assessment Shows Substantial Progress Across All Key Impact Categories

For this report, we commissioned an updated sustainability assessment of U.S. broiler production to better reflect current production systems. And what a difference a decade of dedication can make.

Using new life cycle inventory data, highly regarded third-party expert Dr. Greg Thoma and his colleague Ben Putman quantified the environmental impact of

U.S. broiler production across a broad range of impact categories. The results of the assessment are documented in the [Broiler Production System Life Cycle Assessment: 2020 Update](#), a fresh Life Cycle Assessment (LCA) that showcases where we are now, how the sustainability impacts have changed in the past 10 years, and where we might focus next to make continuous improvements.

An LCA is a quantitative environmental method used to compile and assess environmental impacts of products, processes, and services over their entire life cycle. The goal of the 2020 LCA was to focus on the chicken industry's three primary levers of sustainability:

1. Feed conversion ratio and average daily gain (including typical market live weight)
2. Feed composition (industry average ration formulation), and
3. Litter production and management.

What happened between 2010 and 2020 in U.S. broiler production? **Broiler production increased 21%.**

**In addition, all key sustainability intensity measures improved between 13% and 22%.** For every kg live weight of broiler (and cull breeder hen) produced during the 10-year time period:

Land use.....	DOWN 13%
Carbon footprint.....	DOWN 18%
Water consumption.....	DOWN 13%
Fossil resource use.....	DOWN 22%
Particulate forming emissions.....	DOWN 22%

Per kg live weight broiler and cull breeder hen: Land use decreased from 2.13 to 1.85 m<sup>2</sup>a crop eq; carbon footprint decreased from 1.23 to 1.00 kg CO<sub>2</sub> eq; water consumption decreased from 0.29 to 0.25 m<sup>3</sup>; fossil resources use decreased from 0.27 to 0.21 kg oil eq; and particulate forming emissions decreased from 2.36 to 2.03 g PM<sub>2.5</sub> eq.

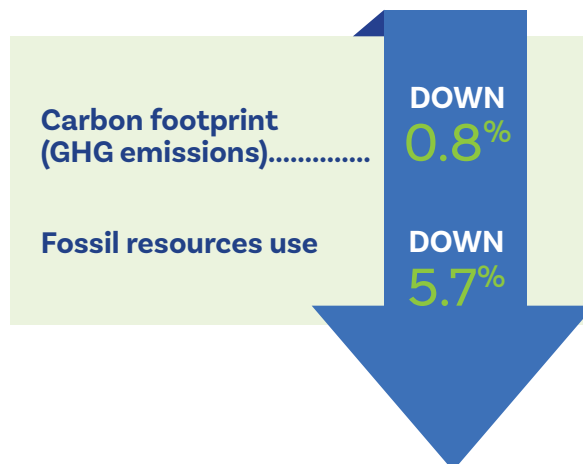
Keep in mind that these improvements were made on the heels of substantial improvements made between 1965 and 2010. According to the prior life cycle assessment, producing the same amount of chicken in 2010 as in 1965 was already having 50% less impact on the environment. By 2010, our industry data showed:

75%	fewer resources required in poultry production
36%	reduced impact of poultry production on greenhouse gas emissions
72%	decrease in farmland used in poultry production
58%	decrease in water used in poultry production

## The improvement in intensity metrics does not tell the complete story.

We recognize that cumulative sustainability impacts are also very important. In contrast to the intensity metrics relating to each bird (or each kg of bird) produced, “cumulative” measures reflect overall environmental impacts by the entire U.S. broiler industry – the total amount of resources used and greenhouse gases emitted – in a given year.

The 2020 LCA shows that, from a cumulative standpoint, there were improvements in two key sustainability measures, despite the 21% increase in broiler production between 2010 and 2020.



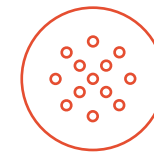
The three other key sustainability measures showed increases during the 10-year time period, from a cumulative standpoint.



**Land use**  
**up 5.4%**



**Water consumption**  
**up 5.4%**



**Particulate forming emissions**  
**up 4.4%**

Percentage change in five key sustainability measures between 2010 and 2020 (total production of broilers and cull breeder hens):

Impact category	2010	2020	Percent change
Land use (m <sup>2</sup> a crop eq)	47,157,854,711	49,701,161,527	5.4%
Carbon footprint (kg CO <sub>2</sub> eq)	27,225,935,616	27,000,732,155	-0.8%
Water consumption (m <sup>3</sup> )	6,401,558,672	6,748,789,920	5.4%
Fossil resources use (kg oil eq)	6,035,302,938	5,691,972,956	-5.7%
Particulate forming emissions (kg PM2.5 eq)	52,283,488	54,568,949	4.4%

These increases are still far below the increases in broiler production, which is an impressive and promising trend. It is often the case that growth of a sector outpaces the improvement in intensity. Had the impact categories shown increases that kept pace with broiler production in the past ten years, then all impacts would have seen a 21% increase. Feed is the primary driver of the impacts. What’s happening on the farms in terms of feed, and feed conversion ratio, is driving the progress. As compared to 2010, in 2020, we saw an 8.7% improvement in feed conversion ratio – total broiler production increased by 21%, with only an 11% increase in total feed consumed.

## Simply put, our industry is producing more and using less.

We have bigger birds, we have more birds, and we are achieving these gains with greater efficiency and a lighter environmental footprint than ever before.

Chicken production has long had a less significant environmental footprint than almost any other animal agriculture industry. We have made meaningful strides in minimizing environmental impact with the help of technological advancements and improved animal husbandry practices.

Now, let’s dive deeper into why chicken production in the U.S. is more sustainable today than ever before...





## Point of View



Aviagen

**Jan Henriksen**

CEO

Our climate is changing, and people and governments around the world are seeking ways to protect our planet.

Because food production is a primary driver of climate change, our challenge will be to feed the world's expanding population with a reliable and quality source of nutrition, while reducing the effects of production. One promising solution lies with poultry.

Chickens are naturally gentler on the environment than other livestock. On top of that, chicken companies have been working for decades to breed efficiencies that not only produce healthier birds, but also make commercial chicken production environmentally responsible. Simply, we see poultry as the responsible protein.

Sustainable intensification has become a global aspiration in the quest to increase food production from existing farmland while lowering pressure on the environment.


Over the past decade, broiler breeding companies have put significant resources and effort into creating efficiencies in chicken production that support sustainable intensification.

One such efficiency is a healthy feed conversion rate (FCR). Today's farmers can raise a healthier and more robust chicken more efficiently.

Another benefit is in the area of land use. As our global population continues to swell, agricultural land will become more and more limited.

With a lower FCR, less land will be needed to grow feed. The grain not used for poultry feed can be used for other purposes, and the land can be repurposed for other crops.

The important conclusion is that poultry's naturally lower resource consumption, coupled with innovative breeding efficiencies, means fewer resources are required to produce an increasing volume of high-quality chicken meat.

- 
- **Poultry greenhouse gas emissions are naturally low.**
  - **Chicken production demands far fewer resources.**
  - **Using less land means less destruction of natural wildlife habitats.**
  - **Chickens are more water-efficient than other livestock.**

# Air

The production of all food – whether it’s meat, seafood or fruits and vegetables – results in greenhouse gas (GHG) emissions.

Farmers want the best air quality not only for their chickens, but for the health of their family, employees and communities. The following are some of the ways our members act on their commitment to clean air.

## The Role of Technology

Even with a relatively small footprint, chicken companies are regularly seeking accessible and affordable technology upgrades that will improve the ways broiler production affects air quality.

1. LED lighting
2. Computer controls
3. Solar panels



### LED Lighting

In recent years, most chicken farms have switched to LED lighting, which can result in energy savings of 80-85% compared to traditional incandescent lightbulbs.

#### Michelle Chesnik’s farm in Maryland

LED bulbs on the farm help her realize a 25-35% savings in energy. By using energy efficient lightbulbs, they lower their cost while taking better care of the environment.

#### Tim and Deena Morrison’s farm in Kentucky

They minimize their energy use by regulating the lighting inside their chicken houses. Dimmable lightbulb technology aids in maintaining a healthy environment for the chickens and decreases inefficient use of lighting.

#### Rachel Rhodes’ farm in Maryland

LED lights on the farm help mitigate energy usage. And, controllers tell them when the lights go on and when the lights go off. If something’s askew it can be checked right away.



### Computer Controls

Modern growout houses are mostly controlled by sophisticated computers that make continuous changes in temperature and ventilation to maintain optimal environmental conditions for the chickens, while saving gas and electricity.

#### Tim and Deena Morrison’s farm in Kentucky

Their chicken house is monitored by a master computer that controls the chickens’ dimmable lights based on outdoor temperatures, time of day and age of the flock. Along with lighting, the control computer also regulates airflow and temperatures to maximize chicken health over each stage of the flock’s life. While chicks grow, their environment also needs to change. The controller makes these environmental changes efficiently and effectively.

#### Terry Baker’s farm in Delaware

Each chicken house has its own computer and it’s the brain of the chicken house. It controls the fans, the light, the feed, the water, the temperature, the heaters – all with an app on his phone – which gives him instant access to maintain the health of the birds, regardless of where he is.



### Solar Panels

Some chicken farmers are installing solar panels in order to limit their energy use, producing their own electricity on-site.

#### Terri Wolf-King’s farm in Maryland

She installed solar panels on her farm to help lower the energy bill and environmental footprint. Since installation, she has seen a significant reduction in energy use.

#### Tim and Deena Morrison’s farm in Kentucky

Their solar panels have saved the equivalent usage of 60-70 tons of coal per year.

#### Terry Baker’s farm in Delaware

The farm is now entirely run on solar.





## Ammonia Mitigation

Ammonia is a natural byproduct of chicken production. For farmers, there are many solutions to help improve air quality on their farms and reduce ammonia – starting with planting foliage around their chicken houses to capture ammonia and collect dust. These plants often serve a dual purpose of reducing potential odors.

Farmers also regularly monitor ammonia levels within their chicken houses. Although useful in fertilizers, certain levels of ammonia in the chicken house can be damaging to the chicken, the farmer and the environment. For this reason, farmers use litter treatments to aid in the retention of ammonia, as well as ventilation and monitors to ensure the health of their flock.



“

**We planted miscanthus, arundo and switchgrass between the chicken houses and in front of tunnel fans to capture ammonia and collect dust and particles. The plants also help reduce potential odors from the houses. Using computer technology, I can track gas levels in the chicken house, like ammonia, from a smartphone.** **Terry Baker**



“

**We planted greenery around the farm to help lower our carbon footprint. The pollinators, especially, provide a resource for insects and other wildlife that call the local ecosystem home.** **Jenny Rhodes**



“

**Our farm is encircled with a vegetative buffer that consists of hybrid willows and green giant arborvitaes. This vegetative buffer acts as a windbreak saving electricity and fuel, helps capture dust and particulates from the fans, and makes the farm more aesthetically pleasing to neighbors.** **Georgie Cartanza**

## Staying Local

In addition to technologies, creative foliage solutions, and various ventilation and ammonia mitigation techniques, localizing production facilities is another way the chicken industry works hard to be efficient with resources. Despite its global reach, American chicken production is an extremely local business.

The distance from the hatchery to the farm to the processing plant is usually no more than 60 minutes away from one another. Localized production between the hatchery, farm, and processing plant reduces time traveled, emissions, and costs. This efficiency and localization ties directly to a reduction of GHG emissions.



## Air Leadership Snapshots



### JBS Makes Global Commitment to Achieve Net-Zero Greenhouse Gas Emissions by 2040

In March of 2021, JBS announced a commitment to achieve net-zero greenhouse gas (GHG) emissions by 2040. The commitment spans the company's global operations, including Pilgrim's Pride Corporation as well as its diverse value chain of agricultural producer partners, suppliers, and customers in their efforts to reduce emissions across the value chain.



### Sanderson Farms Sees Continuous Improvement in Energy Use Reduction

In 2008, a baseline of gas, water, and electricity usage was established at Sanderson Farms. The Company continues to measure against this baseline to improve our operations and to show continuous improvements across all locations. Since 2008, Sanderson Farms has seen a 20.4% reduction in electricity usage, 38.3% reduction in natural gas usage, and 44.6% reduction in water usage (all per WOG lb).



## Air Leadership Profiles



### Tyson Foods

## Leigh Ann Johnston

Director, Sustainable Food Strategy

Tyson Foods' ambition is to be the most sustainable and transparent food company in the world and we're working hard every day to make the ambition a reality. Tyson recently announced a target to achieve net zero greenhouse gas (GHG) emissions across our global operations and supply chain by 2050. Tyson is excited about the work that will be done to achieve this target, but realize we cannot do this alone. Partnership and collaboration is critical and we're looking forward to working with our supply chain partners, NGO's, customers, academia, and other stakeholders in order to make the greatest impact.



### Sanderson Farms

## Stephanie Shoemaker

Manager, Environmental (Regulatory & Permitting)

Sanderson Farms has been installing Pressure Swing Adsorption systems at every new facility since 2012, which reduces our dependence on purchased natural gas, and creates a renewable energy resource that can be used seamlessly used in the processing facility. The Environmental and Engineering Departments of Sanderson Farms perform daily reviews of utility usage (gas, water, electricity) of all facilities to ensure all are operating as efficiently as possible. Any corrections and adjustments are made immediately to improve efficiencies, without waiting for the monthly utility bill to arrive.

# Land

What goes on the land and in the land impacts everything that comes from the land – and how that land might be engaged for generations to come.

No one is more aware of this than our farmers.

As measured by our 2020 LCA Update, assessing land use helps us see how that use – and changes in that use – affect biodiversity. Biodiversity is protected and supported when less land is used for agricultural (and other human) purposes. The 2020 LCA Update showed that our chicken industry is doing a great job conserving land resources.

Specifically, land use per kg of production (broilers plus culled hens) decreased by 13% between 2010 and 2020. Although cumulative land use by the industry increased by 5.4%, production increased by a full 21% to serve the critical societal benefit of feeding people.

Litter management is another important land-related measure for our industry. We learned from the 2020 LCA Update that poultry litter is not a strong driver of climate impacts. Only the emissions from litter that is classified as “waste” get assigned back to the animal husbandry stage – a tiny fraction, as shown below. \*


Litter management is a key sustainability lever that is being impacted directly by our chicken breeders. In practical, on-the-ground terms, chicken litter, or poultry litter, is not a waste product. It is, in fact, an extremely valuable resource in agriculture. This mix of chicken manure, spilled feed, feathers, and material used

for bedding in the houses is something our farmers value highly. Most often, our farmers collect and store litter to be used as an organic fertilizer for crops – on their farms or nearby farms. Plants feed the chickens and chickens fertilize the plants – it’s a closed, sustainable nutrient loop.

The nature of transactions regarding poultry litter disposal in the U.S., and their consequences on output classification according to U.N.-supported Livestock Environmental Assessment and Performance (LEAP) guidelines.

Disposal transaction	Fraction of litter from		Classification
	Broilers	Breeders	
Sold	50%	36.3%	Co-product
Hauled off for a fee	3.2%	4.2%	Waste
Bartered	36.1%	39%	Residual
Given away	10.7%	20.5%	Residual

\* The 2020 LCA update followed the U.N.-supported LEAP guidelines, which is a science-based methodology that defines three specific options for allocating and accounting for litter emissions: residual, co-product, and waste.



## Our Farmers Speak: Land, Litter and Longevity



### Rachel Rhodes

“Like many chicken farmers, we’ve installed concrete heavy use area pads (HUA pads) at the entrance of each chicken house. These concrete pads allow for easier collection of chicken litter without any elements getting lost or spread into the ground. This litter is then composted and recycled to be used as a natural and organic fertilizer.”



### Terri Wolf-King

“All poultry litter from my chicken houses is stored and composted, and then used as a fertilizer for my row crops. Litter from poultry farming is a community recycling effort. I often buy litter from other farmers to be used as fertilizer on my crops. To maximize the effectiveness of the litter as fertilizer, I work with outside counsel to create a nutrient management plan.”



**Two-Time Winners**  
Family Farm Environmental Excellence Award

### Deena & Tim Morrison

“We make sure that 100% of our chicken litter supply is used as all-natural slow-release plant food on row crops. About half of our litter is sold to a broker who sells the fertilizer to other local crop growers. On Morrison Farm, a soil nutrient management plan is created that optimizes the spread of the rest of the fertilizer.”



**2018 Winner**  
Family Farm Environmental Excellence Award

### Terry Baker

“100% of the poultry litter on our farm is recycled and reused. We collect poultry litter from the chicken houses and move it to a secured shed. We then work with a broker to find other farmers who recycle the chicken manure as an organic fertilizer on row crops and mushrooms. Nutrients generated as a byproduct are accurately tracked and reported to the state in our annual nutrient management report.”



## Heather & Mike Lewis on Land Management

In 2020, Heather and Mike's exemplary commitment to environmental stewardship was recognized by the U.S. Poultry and Egg Association when the couple was awarded the Family Farm Environmental Excellence Award. The prestigious award reflects the industry's commitment to serving as responsible stewards of land, water, and feed management, and maintaining and advocating for the humane treatment of our most important asset: our chickens. In their own words, hear how they approach their commitment to the land in particular reduce time traveled, emissions and costs. This efficiency and localization ties directly to a reduction of GHG emissions.

“

**We practice no-till farming on our land to help prevent soil erosion as well as protect the nutrients that are in the soil. Leaving a crop residue on the ground and using a cover crop also helps to improve soil health. The years that we have corn in our fields, we save some of the fodder and grind it up into new bedding for the chickens. We also use recycled pallets for bedding. We bring a shredder in that has a large magnet on it-in go the pallets, out comes nice bedding for our chickens.**

Heather Lewis



“

**We have a Nutrient Management Plan that is written by a trained engineer/agronomist. The expert helps us ensure that we are doing what's best for our soil and the land around it. We windrow our litter between flocks letting it heat up to kill any pathogenic bacteria or organisms and equalize the moisture throughout. Then we reuse it, spreading it back out for even bedding.**

Mike Lewis

## Land Leadership Profile



### Deerfield Farms

## Jenny Rhodes

Farmer & Owner

I am a 10th generation farmer. I am able to farm today because the generations before me took care of the land the best way they knew how. Today, I am able to use the latest research-based information to make my farm the most sustainable it can be. I have learned to lead by setting an example for other farmers to follow.

Every day I am thinking, "What is the next step in sustainability?" Artificial and machine intelligence—even remote sensing—will help us as farmers and growers become even more efficient. I am also very interested in blockchain technology to help trace food from farm to fork. All of this potential makes this exciting and important work.

We recently installed pollinator plots on the farm. The plots provide nectar or pollen for a variety of pollinators like bees, butterflies, and birds. We have a few deer, groundhogs, and turkeys that like to graze the plants. My grandchildren like to walk in the plot, too. This has reduced my carbon footprint on my farm, with no grass cutting in these areas, the plot is a cover crop scavenging nutrients, keeping soil in place and improving soil health.





## Foster Farms From Waste to Agricultural Value

Much of the waste material from Foster Farms poultry ranches is rendered into by-products that can be used in cattle and aquaculture feed as well as pet food.

Each year, Foster Farms poultry operations produce more than 450,000 tons of manure almost all of which is converted into compost, soil amendments, conventional and organic fertilizers.

Since 2016, Foster Farms has been working with local California farmers to grow organic feedstock utilizing our organic fertilizers for our organic poultry ranches thereby creating a renewable cycle of sustainability. More recently, Foster Farms has begun working with the Food to Fork project to develop feedstock from recovered commercial food waste. Even feathers are finding a new use.

Owing to feather absorbency, Foster Farms is participating in a U.S. Air Force project aimed at developing flotation mats that could be used to clean up fuel spills over water.





## Water

From the farm to market, water is required throughout the various steps of broiler production – and water consumption (per kg of bird produced) is down an additional 13% this past decade.

There are several ways that water is used throughout the production process:

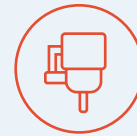
1. To water crops (namely corn and soybeans) for chicken feed
2. For the chickens to drink on the farm
3. To cool the birds via evaporative cooling cells during warmer temperatures
4. To clean and rinse chicken carcasses at the processing plant
5. To clean and sanitize equipment at the processing plant

Water conservation is a pivotal part of running a successful chicken farm. Farmers today monitor and record water usage to ensure their flock is receiving the essential amount of clean water. Wells and waterlines are sanitized on a regular basis. Following are some of the innovative practices farmers implement to sustainably reduce, save and recycle water on their farms:



### Computer Monitoring

Growout houses are equipped with computer systems that measure and monitor water usage on the farm. Farmers diligently watch for any abnormal water use patterns to help identify any problems such as water leaks, which saves water.



### Nipple Dispenser Systems

Most modern chicken farms use “nipple” watering systems as another water-saving tool. Nipple watering systems are pin-activated water dispensers, much like a rabbit or hamster water bottle with the ball bearing. When the birds press the pin, water is released. This helps limit any water being spilled on the poultry litter, or floor, and it only dispenses water when the birds want to drink.



### Cooling Pads

Most growout houses are also equipped with cooling systems that consist of cool cell pads, which evaporate water at one end of the house and have large tunnel exhaust fans at the other end. This not only keeps the chickens cool, but also recycles water on the farm.

### The Role of Technology at Processing Plants to Improve Air Quality and Water Conservation

- Enhanced air handling systems and ventilation to boost air quality.
- Modernized water reuse, filtration and treatment systems to conserve water and increase water efficiency.



## Water Usage and Feed Conversion

Chicken feed is primarily a mix of corn and soybean meal that is formulated by certified animal nutritionists. This ensures that each bird gets the right nutrients at the right time. Nutritious feed results in chickens requiring less food to grow. Chicken feed never contains added hormones or steroids – it's the law.

Growing corn and soybeans for the production of chicken feed is the largest source of water consumption in broiler production. The good news, however, is that broiler production requires a very small amount of feed.

The feed conversion for broilers (amount of feed needed to produce one kg of broiler live weight) is among the lowest in all of U.S. animal agriculture. And the feed conversion ratio has decreased significantly in the past decade.

As previously noted in this report, the industry has achieved an 8.7% improvement in feed conversion ratio for broiler production (enabling a 21% increase in production with only 10.7% increase in feed consumed).

All of these factors result in chicken requiring less feed and water to grow to market weight, which results in chicken having less of an environmental impact.

### Chickens are the most efficient converters of feed into meat of all land-based livestock species due to several key factors:

- Traditional breeding
- Nutritious feed tailored to each stage of a chicken's life
- Better living conditions through climate-controlled barns and new technology, and protection from extreme temperatures, predators and disease
- Up-to-date biosecurity practices



## Nutrient Management Plans and Water Quality

Farmers are required, by U.S. federal law, to follow what are called “Nutrient Management Plans” when fertilizing crops and managing animal manure. These plans specify how much fertilizer, manure, or other nutrient sources may be safely applied to crops to achieve yields and prevent excess nutrients from impacting waterways.

Nutrient Management Plans are generally required for all agricultural land used to produce plants, food, feed, fiber, animals or other agricultural products, and serve as key mechanisms for protecting water quality.

A specific solution that is widely used and helps protect water quality is the use of heavy use area concrete pads (HUA pads) around the entrances to growout houses. HUA pads help with water quality by keeping litter from being washed away. Litter that farmers do not immediately use is placed in a shed, which further ensures that the litter does not enter local water sources.

In addition, farmers often minimize water runoff from their farms (and emissions) by planting vegetative buffers between chicken houses, which help to absorb any water, dust, or emissions on the farm.

## Our Farmers Speak



### Rachel Rhodes

“The latest tech allows us to check for leaks in our waterlines, conserve energy usage, and flag potentially harmful ammonia levels. These efforts reduce waste, runoff and emissions.”



**Nuffield International Farming Scholar**  
First winner from the U.S. (2017)

### Georgie Cartanza

“I adopted conservation practices to reduce infiltration of nutrients into groundwater - like construction of manure storage buildings, use of composters, and plenty of HUAs.”



### Michelle Chesnik

“We use waterline technology to get chickens the water they need while limiting waste or spillage. These waterlines -nipple systems-allow us to be certain the only water going into a grow house is going into the bird. With this technology, we can easily check that there are no leaks.”



### Janice Vickers

“Evaporative cooling pads capture dew and rainwater, recycling an important resource and saving energy. Natural or applied heat to the cooling pad releases this stored moisture and cools the chicken house on hot days, lowering our reliance on additional energy sources and cutting costs.”



## Our Farmers Speak



### Terri Wolf-King

“Our farm has one well for each of the two chicken houses. By monitoring and recording the water usage on the farm daily, I can see how much water is being used, to ensure the wellbeing of the chickens without being wasteful. Wells and water lines are inspected regularly, and they are sanitized at least twice a week.”

### Jenny Rhodes

“In the Chesapeake Bay area of Maryland, newly established farms in the state are required to have a storm water management plan, so we make sure that all water leaving the farm, including water running off the top of the chicken houses, percolates through a pond.”



### Terry Baker

“We installed a number of bogs and plant material to filter water before it leaves the farm. These serve as environmental buffers to guide, utilize, and retain rainwater. Grassy swales help guide and retain storm water and plants maximize the absorption of any nutrients moved by precipitation. We also have a pond that isn’t just scenic – it collects and holds much of the rainwater that falls here and is regularly stocked with a variety of fish to keep it self-sustaining.”

## Water Leadership Profiles



Harrison Poultry

### David Bleth

President & CEO

My favorite aspect of sustainability initiatives is they actually reduce costs; they do not increase them as many may believe.

We believe that clean potable water is our most precious resource and conserving it is a daily conscious effort. Whether at home or work, repairing any dripping issues saves so much water over time.

We have invested over \$1 million in water conservation equipment that has reduced our company's water usage by 78 million gallons annually.



Sanderson Farms

### Stephanie Shoemaker

Manager, Environmental  
(Regulatory & Permitting)

The Environmental and Engineering Departments of Sanderson Farms collaborate to address water conservation and other resource usage. Not only is prioritizing sustainability critical to our success, it is simply the right thing to do. A prominent goal of ours over the next 5-10 years will be to identify new methods to renew, reuse, reduce and recycle waste from our wastewater treatment and processing facilities.



## Water Leadership Snapshots



### Tyson Foods Water In Context

A specific example of our current water stewardship efforts is the work we're doing to establish contextual water targets at several of our plant locations. Contextual water targets consider local environments and conditions in order to make meaningful change in water usage. We've currently implemented targets at four priority facilities and will continue to develop targets for additional locations in the future.

### Simmons Foods Clean Water: A Point of Pride

Sparkling, clean water is a point of pride at the Simmons Foods wastewater treatment facility in Southwest City, Missouri. In fact, because of the sustainability efforts of our team members, two million gallons of clean, safe water is released back into nature each day.

Simmons award-winning facility treats wastewater from adjacent poultry and ingredient processing plants. Since it's in a rural setting without municipal infrastructure, Simmons Foods built a system dedicated to treating the daily volume of process water flowing out of those production facilities.

As an industry leader that uses about four gallons of water per chicken during processing, about twenty percent less than the industry average, it's significant that Simmons Foods is not only using less water, but also returning clean and safe water to Cave Springs Branch, a tributary of Honey Creek and Grand Lake in Southwest Missouri.

Since 1982, Simmons team members treat water and liquid organic matter called "process water" in compliance with federal and state environmental standards. Team members use physical, chemical and biological processes to remove solids, bacteria or any other organic matter before it is released about 350 yards from the processing facility.

In addition to maintaining healthy aquatic ecosystems around Simmons' Southwest City operations, the facility has achieved more than two decades without a notice of violation and has earned the U.S. Poultry Clean Water award twice since 2008.

The water treatment facility is so effective, it's used to host classes in partnership with the Crowder College Environmental Science Program. In addition to students, community members, local leaders and elected officials are invited to tour the facility to see the process first-hand and hear about our commitment to sustaining the environment.





### House of Raeford Farms

## Prioritizing Water Wherever We Are

Bob Johnson, CEO and owner, along with a dedicated board of directors, have made the quality of our wastewater systems a priority across the company.

Under the oversight of environmental manager Chris Murray, new and upgraded treatment systems have resulted in dramatic improvements in wastewater quality.

Since 2014, the company has invested nearly \$20 million in upgrading our wastewater treatment facilities at all locations across the southeast U. S.

This has been a major commitment to safeguarding the environment, especially in water conservation and pollution control.

### 1 Rose Hill, North Carolina

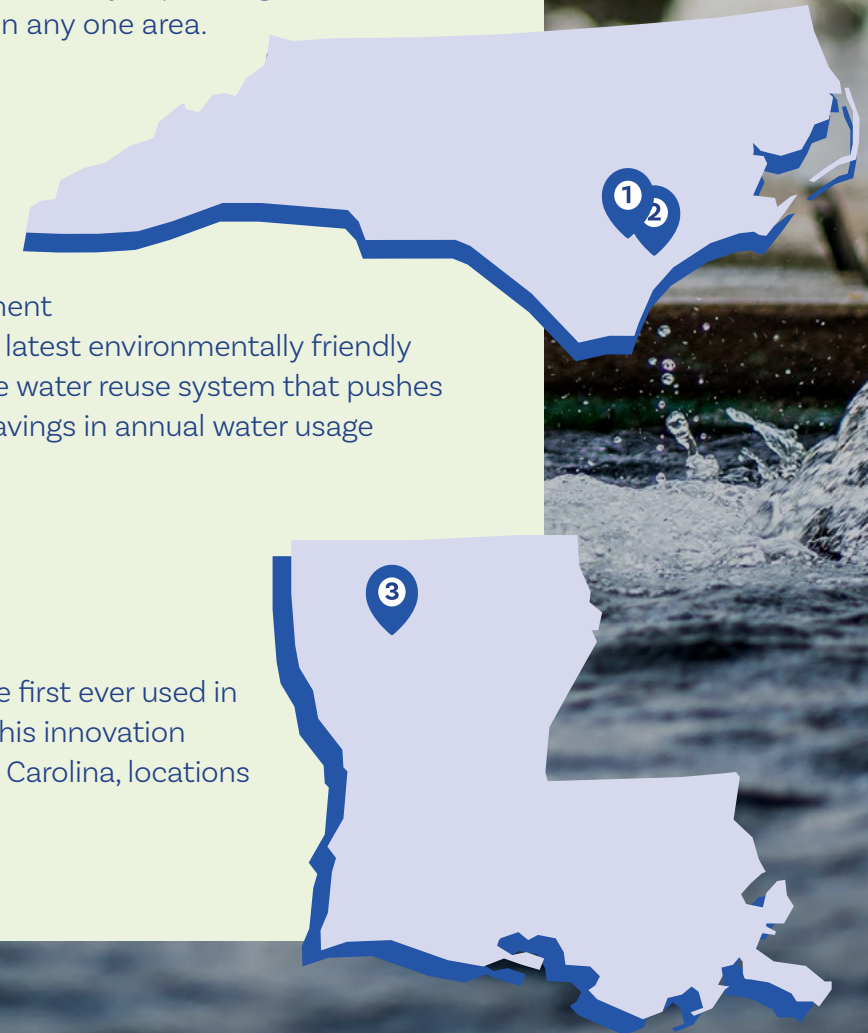
In 2014, we installed a new Diffused Air Flotation (DAF) system at this processing plant in an effort to clean up our staging lagoon and reduce the volume of Plant Available Nitrogen (PAN) released on the spray fields. Within three months, the PAN level decreased by over 50%, thereby reducing pollution significantly. Rose Hill is continuing improvements to the wastewater operation by expanding the amount of land used for spraying treated water, thus reducing the concentration in any one area.

### 2 Wallace, North Carolina

We rebuilt this processing facility after a devastating fire destroyed the plant in 2017. As a result, we decided to upgrade the wastewater treatment operation to allow for future growth and to install new equipment with the latest environmentally friendly features. One of the most significant gains from the improvements was the water reuse system that pushes back 80,000 gallons of treated water per day to the plant. This is a major savings in annual water usage of over 20 million gallons.

### 3 Arcadia, Louisiana

To control the toxicity of treated wastewater, we added an anoxic basin, the first ever used in the company, to reduce nitrates and achieve toxicity testing compliance. This innovation inspired upgrades in our Greenville, West Columbia, and Hemingway, South Carolina, locations as well as our Forest Park, Georgia, operation.



# Broiler Health and Welfare

From when baby chicks arrive at the farm, to the time when broiler chickens are taken to be processed, the health and welfare of the flock is a priority for chicken farmers and poultry companies.

Without healthy, properly cared for broiler chickens, there would be no chicken industry. We recognize that we have an ethical obligation to make sure that the chickens on American farms are well-cared for and treated with respect.

Broiler health and welfare begin at the farm level. Chicken farmers have long recognized the need to properly care for their animals.

The industry continues to innovate and improve animal husbandry practices to help protect the birds' health, nutrition, care and comfort during their lives.

## NCC's Animal Welfare Guidelines Certified by Leading Welfare Auditor Organization

To help ensure that broiler chickens receive optimum care during their lives, NCC developed the NCC Animal Welfare Guidelines and Audit Checklist, which have been widely adopted by chicken farmers and processors. The NCC Welfare Guidelines were developed based upon the opinions of the World Organization for Animal Health.

According to the World Organization for Animal Health Terrestrial Animal Health Code, good welfare is when the animal is healthy, comfortable, well-nourished, safe, and not suffering from pain, fear, or distress. Animals must also be able to express behaviors that are important for their physical and mental state. Animals' physical needs are relatively easily discussed, described, and studied, but their mental states and needs can be more difficult to characterize. We recognize this understanding is an

ongoing discussion and evolving science. With that in mind, the NCC Broiler Welfare Guidelines are updated every two years to include new science-based parameters.

### The NCC Welfare Guidelines define the following essential elements of broiler chicken care:

- Raised by personnel trained to properly handle and care for the chickens
- Access to adequate amounts of nutritious feed and clean water
- Room to grow and express normal behavior
- Housing that provides protection from the environment, disease and predatory animals
- Professional veterinary care



The NCC Welfare Guidelines were certified by the Professional Animal Auditor Certification Organization (PAACO), a leading authority on animal welfare auditing, which provides high quality training and certification credentials for auditors and audits.

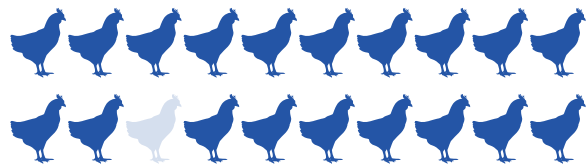
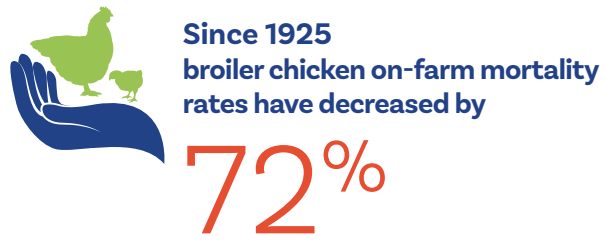
These guidelines cover every phase of a chicken's life and outline science-based recommendations for proper treatment. The guidelines are updated every two years with assistance from an academic advisory panel consisting of poultry welfare experts and veterinarians as well as industry experts from across the U.S.



## Chickens Today Are Healthier Than Ever Before

Chicken companies, farmers and veterinarians take pride in the way they care for their chickens so much so that chickens today are as healthy as they've ever been.

All current measurable data – livability, disease, condemnation, digestive and leg health – reflect that the national broiler flock is healthier than in years past.



In 2020, broiler chicken-on-farm livability  
rates were

95%





## Leadership Profile



### Perdue Farms

## Mike Levengood

Vice President, Chief Animal Care  
Officer & Farmer Relationship  
Advocate

Perdue has been raising poultry for more than 100 years, and I have been for 37 years. We have implemented many innovative technologies that help us address birds' needs, such as improved water systems, environmental controls in the housing, and advances in animal care that yield improved nutrition and health.

As part of Perdue's pioneering Commitments to Animal Care that we rolled out in 2016, we are continuously elevating the standards to which our poultry is raised and remaining open and transparent with our customers and consumers who are interested in knowing about how their poultry's quality of life.

My main daily focus is communication with our farmers and flock advisors. Our team makes a great effort to not

only ensure compliance with our raising standards, but also to make sure that our farming partners understand the "why" behind our drive to constantly raise the bar. My goal is to foster our culture of dedication to animal husbandry. At the end of the day, it's good for the farmers, the birds, and the consumer.

Our thinking extends beyond the "needs" of our birds to include their "wants."

We continuously look for ways to do more to keep our birds happy – things like increasing natural light, enrichments and outdoor access. We are also looking very hard at ways to refine our processes, including how we move birds from the farmer's house to the harvest plant, automate catching, and modernize stunning equipment.



## Leadership Profile



### Merck Animal Health

## Jessica Meisinger

Ph.D., Veterinary &  
Consumer Affairs

I've always loved animals and sustainability, and this job has been the perfect melding of the two. One of my favorite aspects of my role is helping Merck be more sustainable and be a better company. I interact and help connect all of the pieces of the company. We are focused on diversity, equity and inclusion, animal welfare, veterinary well-being, anti-microbial resistance in addition to reducing our environmental impact.

The Merck Sustainability Team of Excellence is cross-functional. People across the company from the human pharmaceutical side to the animal health side are involved. We have a real opportunity to make a difference in our products and packaging that promotes greater animal health while achieving our sustainability goals. Packaging is a big concern of our customers. One initiative

we are working on is looking at ways to reduce, eliminate or produce recyclable packaging for our animal health products.

One of the biggest trends in animal health is incorporating new monitoring and identification technologies. These new technologies are bringing efficiencies to our customers' operations that are focused on animal health and prevention. Innovations like these help us continue to be the best and most sustainable company we can be.

In my personal life, living sustainably can be challenging because I have a 2-year-old and a 3-year-old – but I want them to learn by example and see everyone's efforts matter. Our family has started composting, and we have a garden where we grow our own vegetables. We buy a lot of items like clothes second-hand and use them for as long as possible. I research and support brands that are socially responsible, including Merck products.





## What's Good for the Chicken Is Good for the Farmer

Put simply, a farmer's livelihood depends on the health of their flock.

Farmers dedicate their lives to the safety and health of their chickens and, with that, Americans can feel secure about the meat they are buying for themselves and their families.

There is a tremendous amount of science and animal husbandry that goes into breeding and raising today's chickens.

Through traditional breeding, breeders ensure bird size and growth rate never comes at the expense of the birds' health or welfare.



## Farmer Profile



## Rachel Rhodes

Our top priority as farmers is 100% focused on our birds' health and well-being – watching our freshly-hatched chicks arrive, caring for them, making sure that they have enough food and water, and that they have the perfect environment to grow and thrive so we can provide healthy, affordable food for the consumer.

The health of our birds is just as important as the health of our children, because our birds are just like our children. When our children aren't feeling well, I make a little 'treatment sheet,' detailing when they receive medication, how much they are given, etc. The same goes for our birds. When they aren't feeling well, we carefully monitor how much water they drink, if they're not as active, if they're given a probiotic, and how much they're given.

These practices ensure that we're proactively meeting the well-being of our birds by providing them with the care and commitment that we would give our own family.





## How Do Chicken Farmers, or Contract Growers, Partner with Chicken Companies?

A contract chicken grower is an independent farmer who chooses to invest and build chicken houses, working under contract with a chicken production and processing company to raise chickens for them.

More than 90% of all chickens raised for meat in the U.S. (broiler chickens) are raised by contract farmers, who are thriving in helping to produce America's No. 1 protein. In fact, chicken companies have waiting lists of potential family farms who want to partner with them and enter into the chicken business.

Chicken companies work closely with their farmers to build relationships based on a shared goal of success, and these relationships have helped family farms succeed.

This system has allowed us to insulate farmers from the risk of changing market prices for chicken and feed ingredients, such as corn and soybean meal, which represent the vast majority of the cost of growing a chicken. In other words, farmers are guaranteed a consistent price for their efforts, no matter what the markets are doing.

Those who perform better receive bonuses. The system has worked well for decades and kept tens of thousands of families on farms who otherwise would have had to get out of agriculture altogether.



**Farmers take on about 20% of the cost of raising a flock**

### How does partnering with poultry companies benefit farmers?

Chicken companies remove about **97%** of the economic risk from farmers, compared to independent growers.

Chicken companies remove about **80%** of the total cost of raising a flock

**65%** of the cost of raising a chicken is the feed



## Ongoing Commitment to Research and Improving Broiler Care

For decades, chicken producers have evolved on-farm care, transport, handling, processing and genetics to improve welfare outcomes while meeting ever-changing consumer preferences.

Whether it's looking at space and housing, studying different nutrition programs, breeding for the healthiest birds, or working to eradicate diseases, the industry remains committed to continual improvement to do what is best for the bird, and ultimately, the consumer.

### The Role of Technology at Processing Plants to Enhance Animal Welfare

Installed cameras and monitoring systems to observe the handling of the birds to optimize their welfare and offer auditing transparency.

**Tyson Foods****Leading the Way In Animal Welfare Through the Tyson Foods Broiler Research Farm**

Tyson Foods' Broiler Welfare Research Farm is a testing ground for research on key aspects of broiler chicken welfare, such as lighting, enrichments and stocking density. The research is based on an approach that allows animal choice to guide our actions. Because chickens can't tell us what types of housing they prefer, we create a variety of options within one environment and then observe animals' behavior. We use a science-based approach to evaluate the impact of the different choices on measurable outcomes of animal welfare and health.

We are conducting ongoing research of the optimum lighting conditions for chickens' welfare. Findings suggest birds are best able to display their natural behaviors in housing with a gradient lighting from bright to subdued, so they can feed in the bright area and rest where there's less light.

We're also conducting ongoing enrichments research to evaluate natural behaviors. Objects like ramps, huts and boxes are placed in the house to provide a more interesting or "enriching" environment for the chickens. Initial results of the research have shown a strong preference toward the huts.



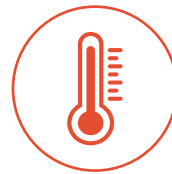


# Employee Safety and Wellbeing

The U.S. chicken industry puts safety above all else. We are always looking for ways to improve safety across the supply chain in order to keep our employees safe and supported.

Our collective commitments and investments in safety have made a big difference over the years, especially in processing plants. Chicken processors continue to focus on the prevention of workplace injuries. By acknowledging the benefit of implementing ergonomics and medical intervention principles, while continually implementing new technology and automation in the workplace, processors have dramatically improved employee safety.

## The Industry's Safety Record Speaks for Itself



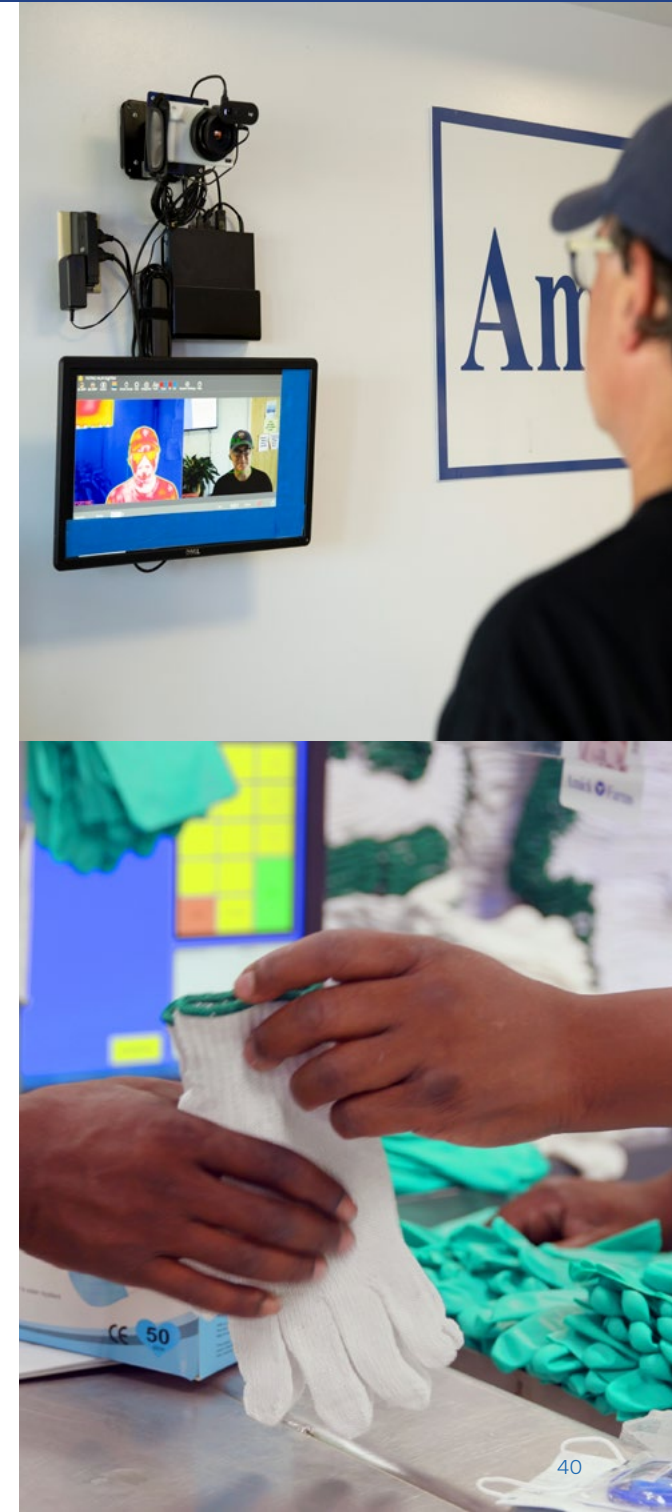
**The poultry processing sector has achieved an 86% decline in Occupational Safety and Health Administration (OSHA) recordable injuries and illnesses over the past 25 years**, and injuries and illnesses continue to decline, according to the most recent report released by the U.S. Department of Labor's Bureau of Labor Statistics (BLS).



The total recordable poultry processing illness and injury rate for 2019 was 3.2 cases per 100 full-time workers (per year), down from 3.5 in 2018. This was below the total recordable illness and injury rate for the entire food manufacturing sector, which was 4.0 cases per 100 full-time workers per year.



In fact, injuries in poultry processing have fallen below the levels of "all manufacturing," not just food manufacturing, for the first time since OSHA began recording rates.



## Leadership Profiles



Pilgrim's

**Lisa Burdick**

Head of HR, Safety and Operational Excellence

Lisa Burdick says that diversity is one of the company's greatest strengths: Our life experiences are as unique as we are, but we all have one thing in common: we've found opportunity here. [A perfect example of this is Jordan Shaw](#), a production supervisor at our Nacogdoches, Texas, facility.

In 2016, Shaw found himself homeless and sleeping in a park. He started on the cone lines at Pilgrim's cutting shoulders, but he wanted to show the team that he was a hard worker, a team player and he could motivate the people around him. Jordan's determination led him to earn Employee of the Month, and shortly after, he became a lead person on the production floor.

Jordan says working at Pilgrim's taught him discipline and transformed him into a role model for his family. Our team members, like Jordan, are what I love about my job: helping open doors of opportunity.

OK Foods, a Bachoco Company

**Bryan Burns**

General Counsel and Vice President, Environmental Health and Safety

In late 2018, I was asked to lead our Risk and EHS Department. Our EHS, Operations, and Human Resources Teams collaborated and engaged in coordinated efforts to promote a safety culture within our company and to reduce our injury rates. In a two-and-a-half-year period, we have achieved more than a 50% reduction in our OSHA recordable injuries, and our OSHA and DART rates are now better than industry averages. We did this through a boots-on-the-ground approach that included eliminating hazards, improving training, and encouraging employees to report any hazards or concerns. Most recently, we began regular wall-to-wall inspections by the CEO and other members of the Executive Team, who walk through the facilities alongside our hourly team members to identify potential hazards and listen to their concerns.

For us, sustainability starts with protecting our own people and making sure they have a safe and healthy workplace. We believe nothing we do at work is more important than taking care of each other.



## The Role of Technology at Poultry Processing Plants to Enhance Employee Safety

- Computerized rehang, portioning, and debone machines to decrease repetitive motion issues and protect workforce safety



### Harrison Poultry

## Researching Innovative Tech Solutions to Improve Employee Safety

At Harrison Poultry, we are going all-in on several artificial intelligence robotic projects. We have a team of engineers and industry veterans at our company who work together to brainstorm possible project ideas, and then give them the freedom to pursue them. Also, we are heavily involved with state university engineering departments, partnering on various cutting-edge projects.

We believe artificial intelligence machines that have the ability to teach themselves how to improve on their daily performance is the most exciting five-year trend. Vision system technology that communicates directly with equipment is starting to impact our world in really positive ways. Plus, we are developing “smart” machines that will be able to do the strenuous, heavy lifting, which will take the burden off our workers and help to keep them safe.

### Evonik

## Highlighting the Sustainability Benefits of Bulk PAA in the Protein Industry

Poultry processors use peracetic acid (PAA) solutions to maintain food safety compliance. Peracetic acid is the most widely used antimicrobial chemistry within the U.S. poultry industry. Over the past decade, expanded regulation and additional treated applications resulted in larger volume usage of PAA in processing plants. This increased volume, combined with a drive to improve safety and efficiency, led to the implementation of our bulk system, which provides a safe and sustainable solution to processors.

Our first bulk system was installed at a customer site in 2012. Since then, we have transitioned much of our product volume to bulk and safely installed our systems at over 20 locations. Bulk delivery of PAA eliminates the need for one-way totes – and that’s a big deal in terms of what’s good for poultry customers, our business, and the environment.

From an environmental footprint perspective, in addition to the tote materials, there are also significant transportation and water waste aspects to consider. Totes are shipped between manufacturing, customer, and recycling facilities, and these totes must be rinsed multiple times during their lifespan. These material, transportation, and water savings may seem meager, but consider that just one poultry bulk customer facility eliminates over 1,300 totes annually through this program.





## Keeping Workers Safe and Healthy During the Pandemic

As COVID-19 stay-at-home orders expanded and increased demand for fresh chicken resulted in empty grocery store shelves, thousands of industry workers answered the call as federally designated frontline workers to help meet the demand. Workers showed up to help maintain a steady supply of food to keep our fellow Americans fed, and collectively our industry worked diligently to keep them safe.

Chicken companies are keeping workers safer than ever because of additional protective measures adopted in response to COVID-19. Companies have been following CDC and local health department guidelines. Many have also consulted with infectious disease physicians to develop site plans.

### Their heightened protective measures include:

- Increasing cleaning and sanitation frequencies and intensities for equipment and common areas, such as the breakroom and vending machines, at processing facilities.

- Increasing frequency of handwashing/sanitation and expanding access to hand sanitizing stations.
- Encouraging employees to stay home if they are not feeling well or believe they may have been exposed to the virus, while still receiving pay.
- Heightened employee screening for any signs of illness, including temperature checks before entering the plant.
- Practicing social distancing not only in common areas, such as breakrooms and cafeterias, but also on production lines where possible.
- Implementing travel restrictions and only allowing essential personnel into the plant.
- Educating employees about the virus and ways to avoid catching it, along with posting educational information in a variety of languages.
- Training company nurses on CDC protocols for COVID-19.
- Providing personal protective equipment (PPE), including masks and gloves, installing plastic dividers between workstations and in breakrooms.

## Supporting Employees' Overall Wellbeing

We recognize that supporting our employees is a broad responsibility, which covers much more than safety programs, training, and other hallmark protections of safe workplaces.

Chicken companies are finding additional ways to care for employees and their families – to show appreciation for hard work in helping to support an entire nation, and to support employees' health and wellness.

Although policies vary, companies are doing things like offering paid sick leave, bonus/hazard pay and free chicken for employees, waiving the waiting period for short-term disability, and making personal time off policies more flexible.

## Fieldale Farms

### Prioritizing Employee Health and Wellness

Fieldale Farms is prioritizing health and wellness by establishing Fieldale Family Health Centers to provide employees and their families with low-cost medical services. Starting in 2004, Fieldale Farms established a family health center in Baldwin, Georgia. It was such an overwhelming success in meeting employees' needs that Fieldale opened a second family health center in Gainesville, Georgia, in 2012, and then a third one on-site at the Fieldale Murrayville, Georgia, processing plant in 2020.

The Fieldale Family Health Centers provide a comfortable, inviting, and easy access point for employees and their families to seek care. The cost for medical treatment at these centers is only \$15 per visit, and many are open for extended hours to provide medical services for employees working all shifts.

Employees also get access to nutritional counseling, diabetes counseling, tobacco cessation products and services, and gym memberships. Every year over 500 employees take advantage of free mammogram services.

## Perdue Farms

### Caring for Employees During COVID-19

#### Take a look at how Perdue Farms responded to care for their workers during the pandemic:

We extended the hours of many of our on-site Wellness Centers, which are staffed with local healthcare providers and are available to our associates and their families free of charge.

- We provided support to associates who were directly impacted – either due to illness or CDC-mandated quarantine requirements.
- We maintained an ongoing dialogue with associates and our communities about the impact of COVID-19 on our business and provided important information to our associates in multiple languages to educate them on safety requirements and CDC best practices for when they were at work, at home, and out in the community.

- We temporarily waived the five-day waiting period of short-term disability for any associate who contracts COVID-19, so that he or she could receive immediate benefits.
- All hourly associates received a temporary \$1-per-hour pay increase and all Piece Rate associates, such as truck drivers, a \$40-per-week pay increase.
- We fully funded our annual Profit-Sharing Bonus Program payout to eligible associates two months early.



- Because the pandemic caused many associates to cancel their vacation or personal time off (PTO), we temporarily removed the PTO accrual maximum for all associates until July 6, 2020.
- We provided our production associates with food products to take home for themselves and their families.
- Through our partnerships with local and state health organizations, we worked persistently to fulfill our commitment to provide all associates access to a vaccine.





### Perdue Farms

## Mentoring Young Farmers to Support Their Development and Long-term Success

As part of Perdue Farms' desire to be the Farmer's Choice, Perdue Farms will launch a young farmer development group in recognition of their distinct needs.

In consultation with young farmers, Perdue Farms will explore their priorities for mentoring, information and engagement, and establish a program to support their development and long-term success.

### Pilgrim's

## Investing In the Futures of Team Members, Their Families and Communities

Throughout the global pandemic, Pilgrim's team members and communities have looked to Pilgrim's for reassurance during the crisis. Toward that end, Pilgrim's has committed to providing \$20 million of meaningful investments in projects that have a lasting impact in our communities for generations to come. Pilgrim's is committed to supporting ongoing learning and professional development.

In March, 2021, Pilgrim's launched the Better Futures Program to provide meaningful investments in the futures of team members, their families and communities. The company is building the largest free college tuition program in rural America. The Better Futures Program provides team members and their child dependents the opportunity to pursue their higher education dreams for associate degrees and trade certificates at community and technical colleges tuition-free. "We recognize and believe in the transformative power of higher education and the opportunities that come from education, coursework, and technical skill training."

As of July 2021, more than 1,250 team members and dependents have enrolled in community colleges across rural America as part of the program.

### Tyson Foods

## Providing Frontline Team Members With Job Skills Training and Workforce Certifications

At Tyson Foods, a key way we support our frontline team members is through Upward Academy – an innovative education program we created to help team members develop important life skills. In FY2020, we increased the number of locations offering free and accessible classes in English as a Second Language (ESL), General Educational Development (GED), citizenship and financial and digital literacy to 59 locations. When the COVID-19 global pandemic disrupted in-person classes, Upward Academy pivoted to offer virtual classes so team members could continue their education.

We also launched Upward Pathways, a new approach to create opportunities for upward mobility to team members who exit Upward Academy or those who are not fully utilizing their skills and experience and looking for a next step. These career pathways leading to advanced training and opportunities are a first for Tyson Foods. The addition of Upward Pathways gives all team members access to a robust and equitable career pathway, strengthening an internal pipeline of skilled team members in an increasingly complex production environment.



# Food and Consumer Safety



Americans eat more chicken than any other protein – approximately 160 million servings every day. In addition to being nutritious and affordable, chicken producers spend considerable time and resources to make sure our products are as safe as possible and meeting stringent U.S. Department of Agriculture (USDA) standards.

## Our Strong Food Safety Record

The U.S. chicken industry has an excellent food safety record. Our industry's strong safety record is based, in part, on strict federal monitoring and inspection.

All chicken produced in the United States is closely monitored and inspected by the USDA's Food Safety and Inspection Service (FSIS)

The FSIS is the public health agency in the USDA that is responsible for inspection at chicken processing facilities.

Federal inspectors are present at all times during operation in chicken processing plants. In a federally inspected slaughter operation, every bird is inspected, and inspectors have the authority to stop production for food safety violations. The U.S. meat and poultry inspection

system complements industry efforts to ensure that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged. Food safety standards are applied to all chicken products produced in the U.S.

## Applying Effective Food Safety Controls

To comply with food safety standards and protect consumers, organizations across the entire broiler value chain implement food safety management controls. Standard operating procedures include quality assurance and food safety training, sanitation protocols, hazard controls, and interventions that are designed to eliminate or reduce foodborne pathogens.

While recalls are rare, our industry has robust trace-back and trace-forward capabilities to ensure that products can be identified, if needed, and promptly

removed from the marketplace. Our industry also performs a comprehensive root cause analysis to identify in the issue in the system that resulted in the recall and to prevent future incidents.

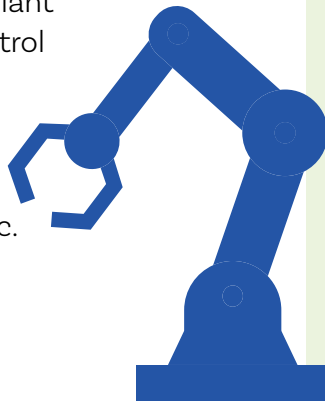


## Improving Food Safety through Research and Investment in Innovative Technologies

Poultry companies have invested tens of millions of dollars in technology and other scientifically-validated measures to enhance the safety of chicken products. By supporting food safety research and applying the best science, research and technology available, the entire industry is better equipped to break the chain of foodborne illness at every stage of production.

### We're working every day to improve:

- Expanded and more sensitive detection technologies for pathogens
- Continued research and focus on on-farm and in-plant interventions to control pathogens
- Expanded use of robotics, imaging systems, sensors, etc.



## The Prevalence of Salmonella In Raw Chicken Is at All-Time Lows

According to the most recent data available during this report (August 20, 2021) published by FSIS, over 93% of large and small establishments are meeting and exceeding the FSIS performance standard for Salmonella on whole broiler carcasses.

88%

of all broiler establishments are **meeting and exceeding the FSIS performance standard for Salmonella** on chicken parts like wings, breasts and drumsticks.

**Why the U.S. chicken industry has such an excellent food and consumer safety record:**

**Focus on controlling pathogens throughout the entire process** - from primary breeders supplying breeding stock all the way to packaging and distribution of chicken products

**Vertical integration** - industry has the ability to influence the entire process and implement practices that improve food safety

**Use of a multi-hurdle approach** - from farm to fork

**Strict biosecurity procedures** - impacts the rate at which pathogens get introduced to flocks

**Has an arsenal of interventions at its disposal** - water/feed treatment, litter treatments and management, vaccinations, pre- and probiotics, organic acids, etc.



## Tyson Foods

## Ensuring Food Safety, While Conserving Water

Water conservation is a leading sustainability challenge that Tyson's Food Safety and Quality Assurance (FSQA) team is working to address as part of our management of food safety and quality. USDA regulation prescribes specific conditions under which water can be reused for the same purpose (i.e., chilling or washing). That said, there is some need for technical expertise in developing the parameters for the reuse as we have food safety objectives that must be considered. This is where the FSQA team leads. We work collaboratively with the plant operations, engineering, environmental, and laboratory services to identify the best applications and methods for water reuse while addressing the regulatory requirements for demonstrated reduction in microbiological, physical, and chemical concerns.



## Key Role Consumers Play In Ensuring Food Safety

**We all play an important role in ensuring food safety for our families. Here are some important steps you can take at home to significantly reduce any risks of foodborne illnesses:**

**Clean** — Wash hands and surfaces often.

**Separate** — Don't cross-contaminate. Use a separate cutting board for raw chicken. Do not rinse raw poultry in the sink.

**Cook** — Cook chicken to 165° Fahrenheit.

**Chill** — Refrigerate promptly.

Instructions for safe handling and cooking are printed on every package of meat and poultry sold in the United States. For additional information on safe handling and cooking practices, visit The Partnership for Food Safety Education's [The Fight BAC!® site](#).



### Chicken Check In: Where You Can Learn More About the Chicken You Serve to Your Family

When the National Chicken Council first introduced Chicken Check In over five years ago, it was one the first resources in the industry to offer a consumer-friendly and transparent look at chicken production in the U.S. Chicken Check In remains a key resource where consumers can learn and see how broiler chickens are raised and get answers to frequently asked questions about all things chicken.

For additional information on how broiler chickens are raised and produced, and the benefits and safety of eating chicken, visit [Chicken Check In](#).





# Community Support

Our members may feed the nation – and the world-but they are acutely aware of their reliance on local talent and passion in the communities they call home. Our broader ambitions and hopes for this industry are meaningful and possible only to the extent that we are anchored on the best interests of the places and unique cultures where we create our livelihoods.

In this section you will find some poignant examples of the commitments our members make daily to assure we collectively play a visible, positive role in our communities.

## Pandemic Giving and Beyond

Throughout the pandemic and 2020, chicken companies all around the country gave back-and continue to give back-to their local communities by making donations to food banks, soup kitchens, local health care facilities, police, and fire stations. Companies are providing

free chicken for their employees so they don't have to look for it in the store. Every weekend, you can find a company selling chicken at reduced prices right out of trucks in the local community.

In coordination with Meatingplace News, we have compiled a snapshot of NCC member community donations in 2020. This does not represent every commitment by every member, but provides a rough estimate of meals – and hope – delivered in a challenging year.



**2,540,000+**  
pounds of protein



**132,800,000+**  
million dollars



**981,000+**  
in grants



**22,000,000+**  
meals







### Mountaire Farms

#### Giving Back to Local Communities

During COVID, Mountaire Farms was dedicated to helping feed the communities where we do business. When food was disappearing from store shelves as people began panic buying, we stepped up to help – and we were determined to make sure that our local community was fed first.

We partnered with one of our customers, Hocker's Super Store, and brought a truckload of chicken to the parking lot to sell directly from the back of the truck so customers didn't even have to leave their vehicles. It proved so popular our company began partnering with local fire departments and churches who kept a portion of the proceeds as a fundraiser. We held dozens of truckload sales events across multiple states on the East Coast. Additionally, we donated almost a million pounds of chicken to first responders, health care workers, and those in the community who were laid off during the pandemic.

Our Mountaire Cares program works with numerous non-profits and community groups to benefit the community. Our quarterly service projects involve making a big impact through volunteer efforts with groups like the Boys and Girls Club and Habitat for Humanity. Our signature event – Thanksgiving for Thousands – prepares a complete meal in a box and we've fed more than a million people in the 26 years we've been organizing this event. We've expanded to Christmas and Easter, too. Every month, our food pantry program delivers free chicken to more than 40 organizations that rely on our chicken to feed people in need.

### Elanco Animal Health

#### A Foundation That Feeds

While Elanco has long committed to caring for the health and well-being of its employees, customers, animals and the communities in which they operate, 2020 brought about heightened challenges. In the U.S., the Elanco Foundation awarded grants to several food banks to purchase 900,000 pounds of food that provided nearly 750,000 meals for hungry families. Additionally, a grant from the Foundation to the European Food Bank Federation helped address heightened EU food security needs by funding the installation of cold and frozen storage rooms at three food banks in the Czech Republic and one in Greece, and the purchase of two refrigerated delivery trucks, one in Estonia and one in Lithuania.

Established in 2019 by Elanco Animal Health, the Elanco Foundation amplifies the company's philanthropic impact by improving the well-being of people and animals around the world. The Foundation is committed to advancing sustainable growth by making strategic investments in programs focused on promoting food security and the human-animal bond.



Established in 2019 by Elanco Animal Health, The Elanco Foundation is a private, corporate foundation that amplifies Elanco's philanthropic impact by improving the wellbeing of people and animals around the world.

The Foundation is committed to advancing sustainable growth in its focus areas of human-animal bond, food security and the environment.

Its ability to pivot in 2020 with a strong focus on food security proves the Foundation's flexibility and resilience will be able to help others for years to come.

### Perdue Farms

## Delivering Hope to Our Neighbors® Amid the Pandemic

As a food company, we are uniquely positioned to help thousands of Americans experiencing food insecurity amid the pandemic through our "Delivering Hope To Our Neighbors®" initiative.

Since 2000, Perdue Farms has partnered with Feeding America® and its network of food banks to help neighbors in our communities who are struggling with food insecurity. During our fiscal year 2020, we delivered more than 86 million pounds of protein to regional food banks

serving our communities – the equivalent of 71 million meals. Perdue Farms was one of the first meat companies to implement a formal program for ongoing donations of perishable protein products, creating a model for other companies to follow.

Since March 2020, Perdue delivered more than four million pounds of protein to support food bank pandemic-relief efforts in our communities and beyond, and in support of frontline healthcare workers, first responders, and community-based hunger-relief programs.



Throughout the pandemic, Perdue Farms provided support to its neighbors in numerous ways.

One of the co-founders at West Annapolis Pop Up Pantry, Diana Love, a recipient of 33,000 Perdue Farms protein meals in 2020 states perfectly the reason our food bank work is so important: "Hungry bellies can't fight illness, foster children's growth or contribute to productive lives. This donation helps our families do all of these things."

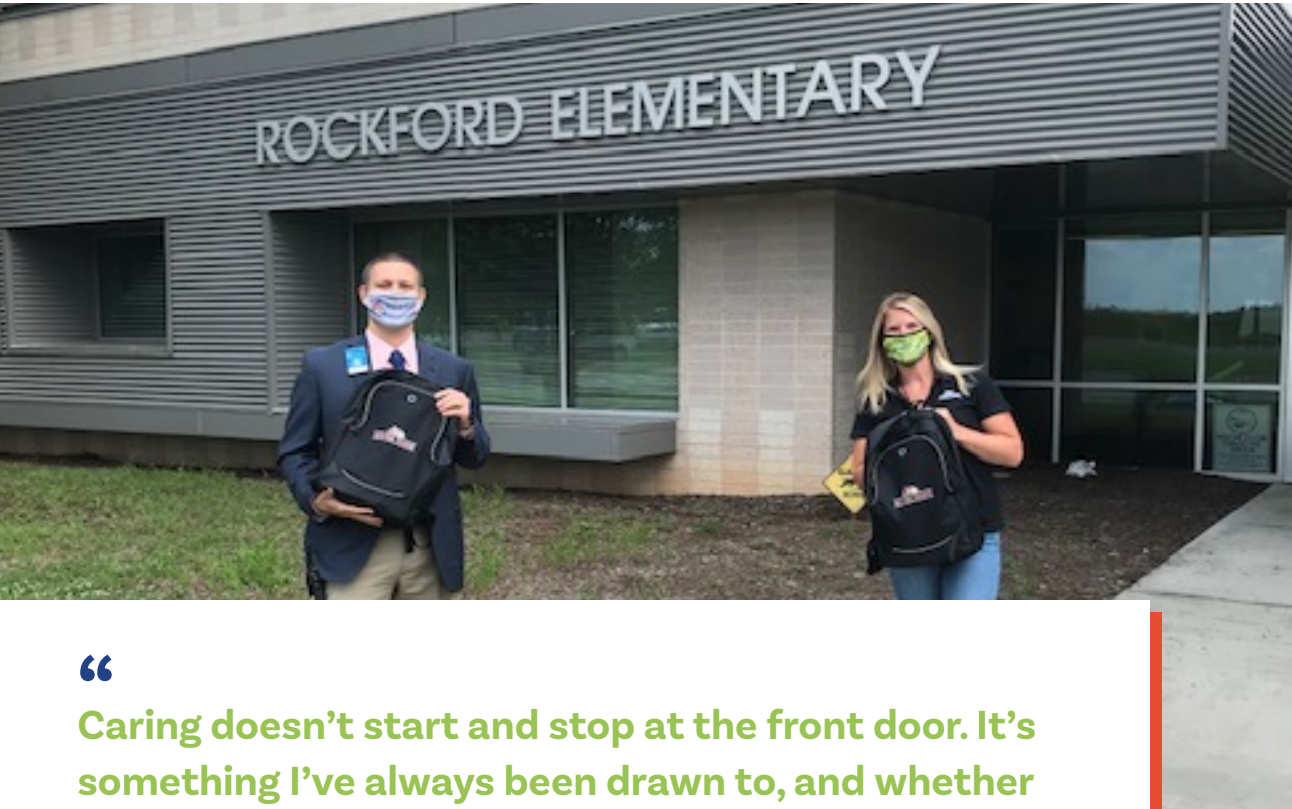
### Wayne Farms

## One Nurse, Many Families, Amazing Impact

Dobson is a small community in the foothills of the Blue Ridge Mountains and home to a Wayne Farms processing plant. When COVID-19 had a ripple effect, both professionally and personally for Wayne Farms team members, Candace Wilmoth became her own pebble in a pond to create rings of influence, positivity, and to meet the moment with creative thinking and action.

As a nurse at the facility and accustomed to providing on-site medical care for any number of needs on a given day, Candace knew that unprecedented times called for unprecedented measures.





“

**Caring doesn't start and stop at the front door. It's something I've always been drawn to, and whether it's at the plant or in our community, I can't help but extend a hand when I see a need. I'm just one person but each person has the ability to make a big difference if they want to.** Candace Wilmoth, Nurse at Wayne Farms

Internally, along with a group of team members who made-up a “COVID-19 Vaccine Task Force,” Candace leveraged county relationships and collaborated to hold vaccination events, and oversaw the coordination of transportation and logistics to make getting vaccinated easier, for those who wanted it.

Outside, in her community, Candace saw area families struggling with new distance learning requirements. Many did not have access to the technology or supplies they needed. In response, Candace organized fundraisers and collection drives for computers, notebooks, pens, earbuds, and other school supplies needed

for online learning. As a result of her leadership, Wayne Farms' Dobson facility donated \$10,000 to the Surry County School system. All her efforts made a significant impact for her Dobson team members and area families.

Candace Wilmoth is just one example among many who take to heart the company's philosophy of “Amazing Starts with Me.”

**Just one idea, one person,  
one step forward can lead to  
bigger and better ideas for our  
companies and communities.**

Candace's leadership is a positive example of how the chicken industry improves the lives of many, each day.



## Leadership Profiles



### House of Raeford Farms

## Dave Witter

Manager, Corporate  
Communications &  
Sustainability

I have always been passionate about outreach to those in our communities needing assistance.

Through my work with our non-profit organization House of Raeford Farms FLOCK, I have been able to contribute to the company's continuing efforts in food security and youth development especially.

Driven by compassion for others, FLOCK walks alongside folks who are already doing great work in their communities and supports them in their mission. We believe companies in our industry that do well should also do good.



### Wayne Farms

## Candace Wilmoth

Nurse

During a time when so many could have just given up, I witnessed quite the opposite.

Through my personal experiences at Wayne Farms in Dobson, North Carolina, I have seen people really show up when they did not have to. For example, community chicken sales, fundraisers for school supplies, canned food drives, and just being present to ensure our world of poultry kept turning during a pandemic.

Witnessing that unity and teamwork for the greater good is life-changing, honestly. It was an honor to be a part of it all. It made us all stronger.



## Leadership Profiles



Pilgrim's

### Brian Paulsen

Head of Environment

Our facility environmental teams work to be active stewards in the local community environment efforts and wildlife management. In 2020, we helped manage local tree planting events with 19 elementary schools, planting more than 500 trees. It was great to see the younger generation's excitement about environmental stewardship.



Aviagen North America

### Sara Reichelt

Director of Animal Welfare and Sustainability

We regularly engage in local environmental outreach programs and recently teamed up with a local high school in Elkmont, Alabama, for an outdoor clean-up to help the school prepare to grow vegetables, while giving students a space to be proud of. No sustainability action is too small to make a difference.

## Leadership Profile



Zoetis

### Jeff Sizelove

Senior Vice President,  
U.S. Poultry

This year, Zoetis announced long-term sustainability goals as our Driven to Care initiative. While sustainability has always been a part of our business, Driven to Care guides how we integrate sustainability in all aspects of our strategic business planning and resource allocation. It focuses on three strategic areas:

1. **Communities**  
(Care and Collaboration)
2. **Animals**  
(Innovation in Animal Health)
3. **Planet**  
(The Drive to Protect Our Planet)

Under each of these areas, we will build upon our experiences in supporting communities when disasters strike; increase veterinary care for animals in emerging markets; provide innovative solutions that assist productive and sustainable farms; combat diseases that pose the biggest risks to animals and humans; and minimize our operations' impact on the planet, including rethinking our packaging to reduce its environmental footprint.

By supporting and partnering with our customers, colleagues, communities and the people who care for animals, we achieve more by working together toward our common sustainability goals.



# Food Security

We recognize that food is a basic human need and fundamental right. Everybody needs, and deserves, reliable access to sufficient safe, affordable, and nutrient-dense food. This is food security. Unfortunately, food security is a serious challenge for many people, both in the U.S. and around the world.

As chicken producers, we play an important role: supplying the world with safe and nutritious food. Over the past decade, we have expanded chicken production dramatically to meet growing demand. We now produce 21% more chicken by weight than we did ten years ago.



Our chicken is not only feeding Americans, but people all over the world. **IN 2020, BROILER EXPORTS TOTALED 7.4 BILLION POUNDS.**

## Providing Americans and People Around the World with Affordable, Nutritious Protein

**According to the 2020-2025 Dietary Guidelines for Americans, chicken is a lean protein food that can help people across all life stages.**

- Provides vitamins and minerals involved in brain function
- Builds muscle
- Promotes heart health
- Strengthens bones
- Aids in weight loss

## Continuing Our Efforts to Enhance Food Security

Our industry is positioned to help enhance food security. CEO Jan Henriksen of global poultry breeding company, Aviagen, says it well:

“

**Our challenge [as a society] will be to feed the world’s expanding population with a reliable and quality source of nutrition, while reducing the effects of production. One promising source lies with poultry.**

We are continuously looking for ways to improve the world’s food systems – through collaborations and support for our members – to help ensure that everyone has reliable access to the food they need and deserve.

“

**The pandemic shed a harsh light on the ongoing issue of food insecurity. For many Americans, the pandemic forced thousands of people to seek assistance with putting a meal on the table for the first time. As a food company, Perdue Farms was uniquely positioned to help.**

## Applying Biosecurity Measures to Safeguard Health

One way that our industry seeks to enhance food security is by implementing what are called “biosecurity measures.” Biosecurity measures are things we do, as part of chicken production and care, to reduce the risk of introduction and spread of diseases. These activities and innovations go hand in hand with veterinary care to keep our birds healthy while also reducing the need for antibiotics.

## Leadership Profile



Zoetis

## Jeanette Ferran Astorga

Head of Sustainability and President of the Zoetis Foundation of HR, Safety and Operational Excellence

As Head of Sustainability at Zoetis and President of the Zoetis Foundation, I spearhead our commitments to communities, animals, and the planet, which we recently formalized through Driven to Care, our long-term sustainability initiative.

We believe that healthier animals make a healthier world, and our sustainability aspirations build on our purpose to nurture the world and humankind by advancing care for animals.

We recently announced a \$35 million commitment through our newly-formed Zoetis Foundation, which will focus its grantmaking on strategic priority areas to enable thriving professions and livelihoods for veterinarians and farmers.

As the leading animal health company, Zoetis is uniquely positioned to drive a healthier, more sustainable future for animals, people, and the planet. For example, our African Livestock Productivity and Health Advancement (A.L.P.H.A.) initiative is helping us achieve one of our aspirations to grow access to veterinary care in emerging markets.

Through innovative solutions, diagnostics and education, Zoetis is making an impact not only for smallholder farms and veterinarians, but for entire communities.

In Africa, we've committed to treating 200 million chickens with positive implications on smallholder livelihoods, food security and the environment by 2025. In the four years since A.L.P.H.A.'s inception, we have administered 1.7 billion doses of vaccines and medicines, established 10 serology labs, and reached hundreds of thousands of farmers, veterinarians and para-veterinarians through training programs.

True leadership in sustainability requires innovation. One example is our collaboration with Colorado State University, where we have established the Zoetis Incubator Research Lab to explore

the livestock immune system and target new immunotherapies-paving the way for new alternatives to antibiotics in food-producing animals, as a way to combat diseases that pose the biggest risks to animals and humans. The initial focus is biotherapeutics for cattle, which could yield broader implications for pigs and poultry.

We're also committed to helping our customers achieve their sustainability goals with healthier, more productive chickens. As an example, in ovo vaccination with our Embrex® Inovoject® and Embrex® Inovoject® NXT® biodevices helps provide effective immunization results and supports better bird health and welfare, as well as increasing hatchery efficiency.



## Teaching Others to Produce Chickens

Knowledge of best practices also supports food security. With decades of experience and expertise, the U.S. chicken industry is the foremost expert in chicken production

We know how to produce chickens sustainably and safely. And, while we export our U.S.-produced chicken to people all over the world, we also go to other countries to teach local farmers to better care for their own birds.

By doing so, we empower these farmers to improve food security for themselves, their families and their communities.





## Leadership Profile



**Cobb Vantress**

### Leasea Butler

Director of Business  
Development

I've always had a passion for caring for animals, which came from a deep-rooted culture in my family. Although my parents worked in plumbing, it was the family farm that had my heart. I didn't know then that bottle-feeding calves and butchering chickens on the farm would lead me to a life serving others.

Farm life was not easy, but I loved it, and I would learn much later in life a word to describe my passion for agriculture. I didn't know after high school where I was heading, but I knew I sought knowledge of animals. So, straight off the farm to school I went to study poultry science at the university. I learned so much through school, but my 20+ years at Cobb Vantress have given me the opportunity to fill my "life book" with not only knowledge about chickens, but knowledge of cultures, people, differences, and how agriculture and poultry intertwine to bring us all together.

Recently, Cobb has allowed me the opportunity to take my book of knowledge to African communities to teach others about sustainable food production and agriculture, leading me back to my roots.

Specifically, two years ago, I had the opportunity to volunteer in Mozambique. During a project focused on global sustainability and agriculture development in rural East Africa, I taught farmers how to meet the nutritional, health, and husbandry needs of chickens. This in turn allowed the farmers to care for the birds to provide their families with nutritious protein from locally grown chicken meat or eggs. Business skills were also taught to the farmers to encourage best management practices and economic practices.

Farmers not only use the poultry to provide for their local families, but also sell the birds or eggs for a profit. When a chicken is properly cared for, they produce more eggs and meat, making them the most economic protein source for African small holder farmers and their families. I've learned from so many of the women and men that I've worked with in

Africa. I've learned how much poultry has been a part of their culture as it is in our company culture.

My most cherished memory of my volunteer effort in Africa was teaching a little girl named Agape and her family how to care for their chickens. Agape, full of life, was so excited to hold a baby chicken that would ultimately provide food security for her family. The image of her smile and little hands holding that day-old layer chicken and how I was able to partner with her family's future will never escape my memory.

I was led to share my book of knowledge with communities in Africa to show them how to raise and care for chickens, to empower them to have a sustainable source of protein and to provide income for their families. Back home in North America, I continue to share that same book in my daily life to help people care for poultry and to provide for their families on commercial broiler and breeder farms. Agape, abounding love of a little girl to care for animals to care for her family. Agape, to give to others the precious gift of knowledge.



# What's Next?

## We are proud of our industry's sustainability efforts, and proud to have shared this first U.S. broiler chicken industry sustainability report with you.

This is an important step in our collective journey as an industry. Our efforts will continue, as they must, to support our planet and society for the decades to come.

Looking ahead, we are focused on sustainable development and the critical role of food systems that include our chicken industry. We recognize the importance of continuing progress on the SDGs through the work of our members and through partnerships with other organizations to leverage our collective strengths.

We look forward to the US-RSPE's release of the first-ever multi-stakeholder reporting framework for the full U.S. supply chains for chicken, turkey, and eggs. The new framework will become a valuable tool to guide our members

on their sustainability strategies and reporting. We will encourage members to use the framework to measure their sustainability impacts and make meaningful disclosures – whether they are beginning their sustainability journeys or already have mature programs.

Opportunities revealed by the described *Broiler Production System Life Cycle Assessment: 2020 Update* also set the groundwork for next steps for the chicken industry. Based on the data, we know that all five key sustainability intensity metrics improved significantly in the past decade. We also know that additional improvements are possible going forward.

The research revealed that our continued areas of greatest impact and improvement will come from factors

affecting feed consumption and feed conversion ratio. Therefore, further innovations in genetics, feed additives and supplements should be seen as part of our next sustainability frontier.

Also based on the 2020 LCA, we learned that external factors associated with increasing crop production, improving fuel efficiency, and increasing adoption of renewable energy sources should become an integral part of our extended purview.

Finally, we are mindful of regional differences that affect the opportunities for achieving sustainability progress. Knowing that one-size-does-not-fit-all regarding geography, we will consider regional differences when we advance new solutions. This is true for NCC as well as for our members.

Individual NCC members might use learnings from the 2020 LCA as the starting point for their own footprint assessments, to help them identify organization-specific opportunities for continuous improvement, as will US-RSPE's sustainability framework.

Our chicken industry will continue to innovate as responsible stewards to advance sustainability while feeding the world.

**The future of our planet, people and communities depends on us doing our part, and we are committed.**