U.S. Pork Industry

A COLLECTIVE STEP FORWARD FOR PEOPLE, PIGS AND THE PLANET

2021 Sustainability Report



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Imagine an industry that wastes nothing. In fact, what if the byproducts some people might consider waste were actually used as nutrients for the next generation of growth? Or energy to power operations and homes?

Now imagine this work is happening in rural communities, where leaders are investing in developing and upskilling their people and giving back to the communities where they live and operate.

Now envision acres and acres of natural resources. Land, water, air. And they've all been under the stewardship of families for generations, each mindfully protecting their opportunity to pass these gifts on to the next generation of caretakers.

What if we told you this, and more, already is happening on our country's 60,000+ pig farms? And that these images describe the way pig farmers view and approach sustainability – an approach that is in line with the United Nations' sustainability definition: **"meeting the needs of the present without compromising the ability of future generations to meet their own needs."**

In true pig farmer fashion though, despite how much already has been accomplished and how widely practiced sustainability is on today's farms, they believe there's more to be done.

That is why they have taken their deep-rooted, We Care® Ethical Principles and set new ambitious sustainability goals and metrics. They have a plan to quantify these on-farm practices, measure their collective impact and continue making improvements.

WHO WE ARE

There are more than 60,000 pig farmers across the United States.

They are as diverse as they are in number – from smaller branded, specialty or direct-to-consumer operations to those who annually sell millions of animals into the commodity pork market.

These farming operations not only vary by the number of animals they raise, where they sit in the supply chain (e.g., whether they raise sows, nursery pigs or feed market pigs) and business models, but also by the geography in which they operate.

The National Pork Board (NPB) uniquely represents this diversity of farming systems and has prepared this report on behalf of America's pig farmers, who fund research, education and promotion



efforts such as this through their Pork Checkoff program. Checkoffs provide a way for farmers to pool resources and fund mutually beneficial projects they feel are important for sustaining and improving their operations.

This report is also made possible through collaboration with the National Pork Producers Council (NPPC). NPPC is a trade association representing pig farmers and other industry stakeholders on policy and legal matters. NPPC developed and served as the original champions of what is now known as We Care® Ethical Principles in 2007. What started as the "Responsible Pork Initiative" was later launched to the entire industry and has now become a way of business for U.S. pig farmers.

DEFINING SUSTAINABLE PORK

The pork industry takes a holistic approach to sustainability. It starts with the We Care® Ethical Principles, which were established more than 15 years ago and codify our collective commitment to food safety, animal well-being, our people, public health, the environment and our communities. More detail about the We Care® Ethical Principles is available at www.porkcares.org.

When we started work in 2020 to establish industry-wide sustainability goals and metrics to document progress to-date and set milestones for future improvement, we based them on these six principles. The global conversation about sustainability and the social responsibility commitments of respected multinational brands, reinforce this approach.

Similarly, the United Nations Sustainable Development Goals (UN SDGs) address a broad spectrum of topics related to societal advancement, economic growth and natural resource protection and conservation. Our We Care® Ethical Principles line up closely with the UN SDGs, and as a result, the pork industry's sustainability goals and metrics, established by U.S. pig farmers in late 2021, **address 15 of the 17 UN SDGs**.[1]





The goals and metrics align with global sustainability approaches, while the farm-level application to realize them is as diverse as our country's 60,000+ farming operations. This diversity means sustainability practices look different from farm-to-farm and are influenced by local climates, topography and soil types, as well as state and county regulations.

For example, manure management differs by region of the country, with lagoons more prominent in the South and pits more likely in the Midwest. Lagoons offer the opportunity to capture methane and produce renewable natural gas (RNG) that could help offset the need for carbon-based fuels. On the other hand, in pit-based systems, manure is collected and applied to crops as a natural source of nutrients important to soil and plant health.

Although practices, and the associated benefits, might differ, they share an equally important contribution to the industry's sustainability story and associated goals. That is why the new We Care® goals and metrics are focused on broad, universal aspirations for the industry and designed to be outcome- rather than practice-driven.

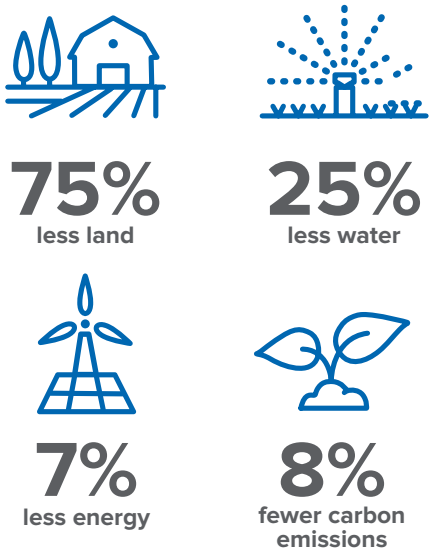


PROGRESS TO DATE

For farmers, methods that improve and conserve environmental resources are and have been best practice for generations.

According to a Pork Checkoff-funded life cycle analysis of pork production between 1960 and 2015, pig farmers reduced their land, water and energy use by 75%, 25% and 7%, respectively, resulting in a nearly 8% smaller environmental footprint.[2]

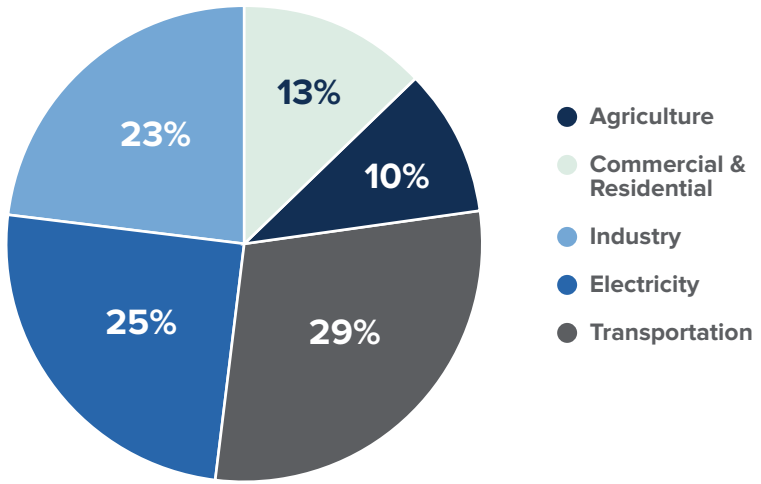
IN THE PAST SIX DECADES, PORK PRODUCTION HAS IMPROVED[2] BY USING:



And yet, pig farmers seek to further conserve our natural resources.

Data released by the Environmental Protection Agency in April 2021 attributes only 10% of U.S. greenhouse gas (GHG) emissions to agriculture,[3] of which, the pork industry is responsible for about 4%.[4] And yet, pig farmers seek to further reduce carbon footprint in recognition of the importance of GHGs on the environment.

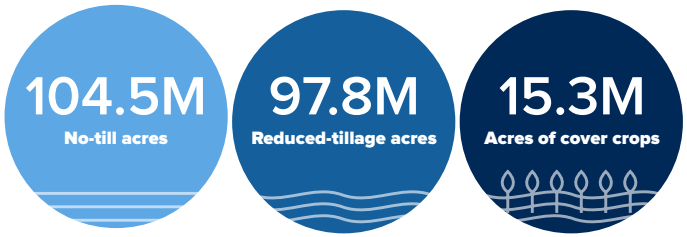
TOTAL U.S. GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR IN 2019[3]



The same retrospective lifecycle assessment showed about 50% to 60% percent of pork's environmental footprint is attributable to crops raised for feed.[2] Cover crops, minimum- and no-tillage and other conservation management practices already are in place on millions of acres, according to the 2017 USDA Census of Agriculture.[5]

U.S. LAND CONSERVATION MANAGEMENT PRACTICES[5]

2017 USDA CENSUS OF AGRICULTURE

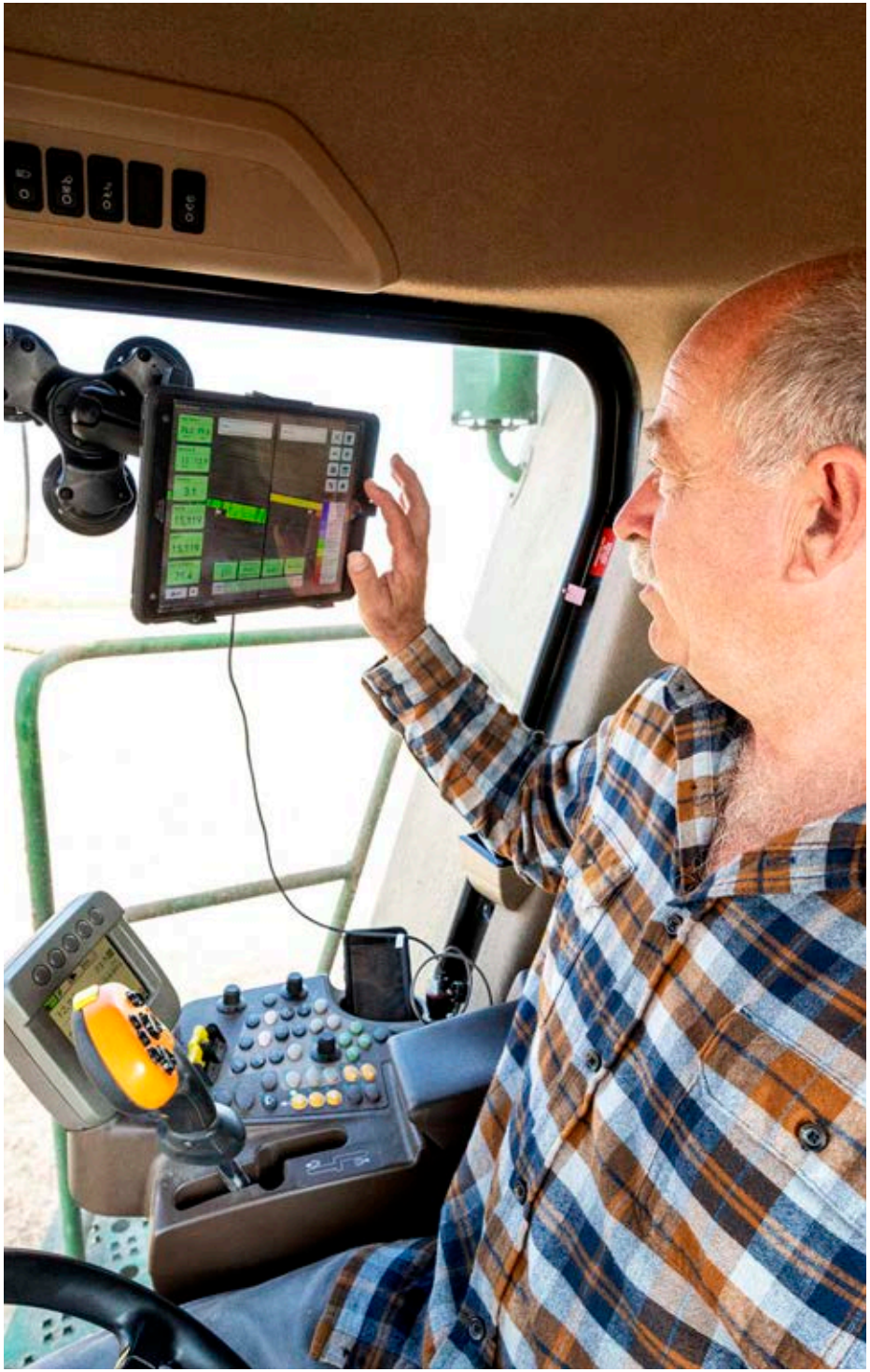


And yet, the Pork, Soy and Corn checkoffs have a Memorandum of Understanding to work collaboratively to further improve the sustainability of agriculture and food. This effort includes the Farmers for Soil Health initiative, which has aspirations of doubling the acres of cover crops planted by 2030.

So, if sustainability practices on pig farms aren't new, what is?

Our recognition of the need for transparency, measurement and reporting. Today's customer is more interested than ever in not only knowing where their food comes from, but also how it was raised and ensuring the practices used contribute positively to society, the economy and the environment.

We've made a lot of progress in that regard, but we're also committed to setting ambitious targets and the continuous improvement it will take to, as one participant in the goal setting process said, have the pork industry "be a recognized leader in sustainability."



GOALS AND METRICS

We're taking an action-based and scientific approach to set benchmarks for where the pork industry is today and creating goals for how we will continue to improve in the future. Progress will be measured on the farm and across the industry using tools that will allow us all to make better, data-driven decisions.

Supported by a measurement infrastructure already in place to collect real, on-farm data, each goal will be tracked and reported regularly on behalf of the industry and in alignment with best-practice metrics and disclosures for corporate sustainability, such as Global Reporting Initiative (GRI).

Future reports will share data based on "pigs reported" – meaning progress toward the metric will be gauged on percentage of pigs or farms for which we have received and aggregated data through an industry-wide database.

The Sustainable Pork Supply Chain

ENVIRONMENT

Protect our planet's natural resources – water, soil and air – by improving water use efficiency, soil, land and biodiversity, and water quality while reducing GHG emissions by 40%*

ANIMAL WELL-BEING

End-to-end certification that is fully transparent, demonstrated through Pork Quality Assurance® Plus (PQA Plus®), Transport Quality Assurance® (TQA®) worker certifications, PQA Plus Site Assessments, and Common Swine Industry Audits

OUR PEOPLE

Provide professional growth and appropriate training opportunities and support multi-factored diversity within our farms and communities



PUBLIC HEALTH

Support public health and the well-being of the pigs under our care using best practices

FOOD SAFETY

By 2030, 100% of fresh pork products will be traceable through the supply chain

COMMUNITY

Support rural leaders of tomorrow by awarding annual scholarships, expand our national giving campaign by 100% by 2030 to help feed the hungry in our communities, and double volunteerism in our communities by 2030**

* based on 2015 baseline

** based on 2019 baseline

OUR PEOPLE

We are committed to providing meaningful, dignified work for the people who choose to dedicate their careers to raising the food we eat

GOALS

We are committed to ensuring all our caregivers have knowledge and skills to thrive and provide quality care while being safe in their jobs.
We will:

- **Provide access to professional growth and appropriate training opportunities to all our caregivers by equipping them to demonstrate leadership at each stage of their career.**
- **Support multi-factored diversity within our farms and the communities in which we raise pigs.**

METRICS

- **Percentage of pigs reported produced at a location where employees have received specific animal-care training.**



- **Percentage of pigs reported produced at a location where animal well-being training is verified by caregiver competency.**
- **Percentage of pigs reported produced at a location where employees were provided training and/or leadership opportunities in addition to PQA Plus.**
- **Percentage of pigs reported produced at a location where there is a formal, written Diversity, Equity and Inclusion policy for their business.**



"I can't say enough about the eight individuals we have working at our farm. They're very good, qualified and dedicated people. To keep these communities healthy, we have to have employment in our rural communities."

— **Kenny Brinker,** pig farmer, Brinker Farms & Harrison Creek Farms
AUXVASSE, MISSOURI

Kenny Brinker believes in the power of people and the role his farm plays in helping support his team members and local community. Through programs like PQA Plus and TQA, he, along with his operations manager, teaches employees the importance of proper pig care and protocols necessary for animal welfare and biosecurity. Kenny believes this is a big part of why his veterinarian ranks his team's productivity in the top 5% among U.S. pig farms. Thanks in part to these programs, Kenny says he provides stable, long-term employment in the community, with many team members having worked for the farm for over 20 years.

ENVIRONMENT

We are committed to safeguarding and nurturing natural resources for now and future generations

GOALS

We are committed to protecting our planet's natural resources – water, soil and air – and realize the impact of GHGs on the environment. We will:

- **Continuously improve water-use efficiency through advanced agriculture practices, aggressive implementation of on-farm water-use targets and best management practices.**
- **Use agriculture practices that improve soil, land and biodiversity, while restoring and protecting natural habitats to further decrease our footprint from a 2015 baseline.**
- **Contribute to improving the quality of surrounding water bodies through agriculture practices, including reducing nutrient run-off, implementing nutrient management plans, managing manure and protecting riparian areas located on farms.**
- **By 2030, reduce GHG emissions by 40% from a 2015 baseline.**

METRICS

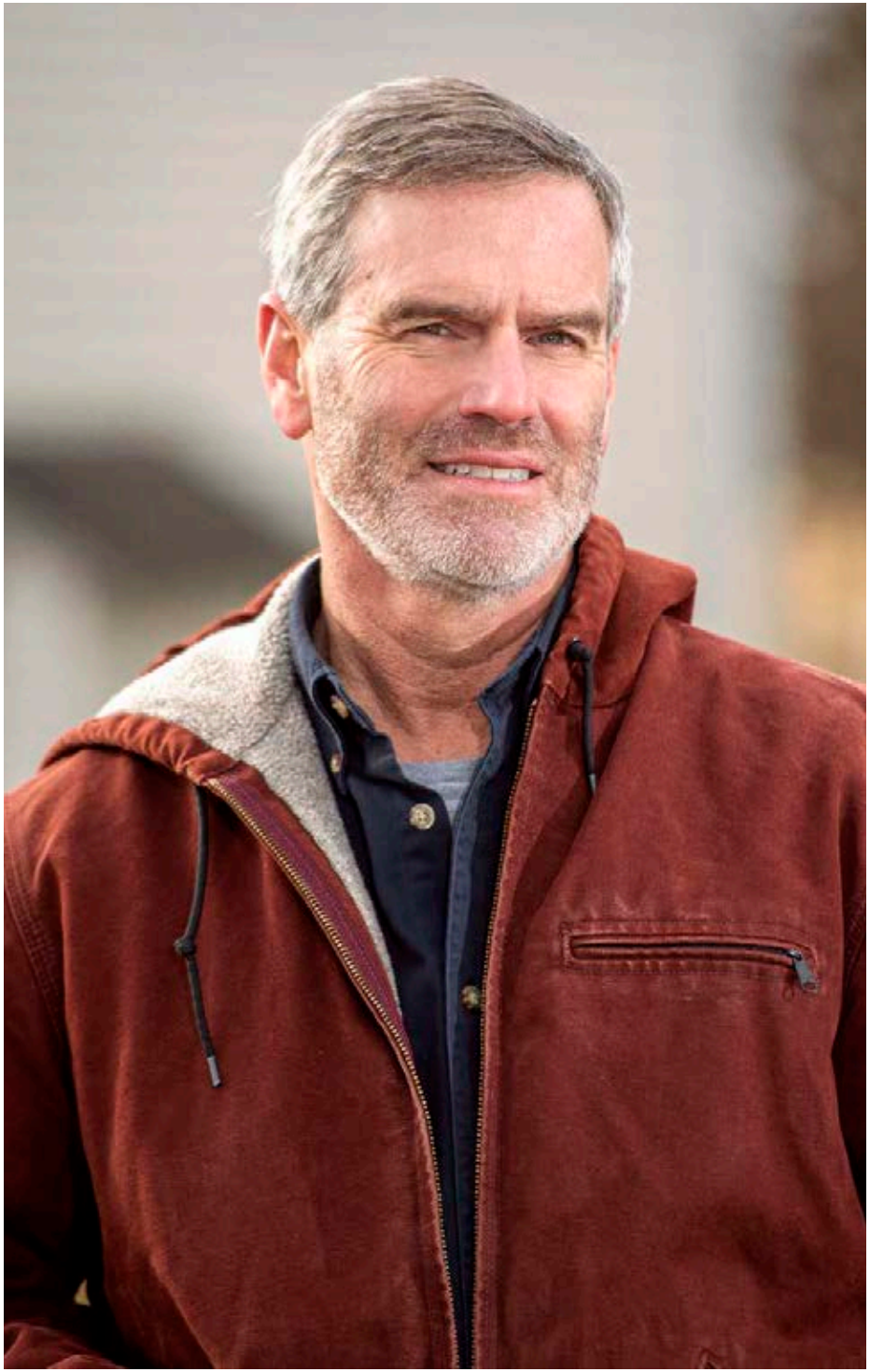
- **Water used per pig recorded, measured by in-barn water use.**
- **Percentage of pigs reported produced at locations where nutrient application plans are being implemented.**
- **Area of land used for pork production per year.**
- **Area of land under conservation practices per year.**
- **Area of land protected or restored including riparian areas.**
- **Tons of carbon dioxide (CO_2) equivalent per pound of pork.**



"Industry wide, we will continue to face pressures on environmental stewardship of air, soil and water … we need [to] be able to be advocates and educators. We need baseline numbers so we can strive for continuous improvement."

— **Dale Stevermer,** pig farmer & owner, Trails End Farm
EASTON, MINNESOTA

With a diverse row crop and pig farming operation, Dale Stevermer is dedicated to reducing his farm's environmental impact through the use of manure management practices and cover crops on his operation. By using both pig manure and cover crops to nourish his soil, Dale's fields have improved soil density, increased water capacity and increased nutrient value, helping to increase the quality of his crops each year. Additionally, Dale established a baseline for his operation using data from an On-Farm Sustainability Report to set benchmarks for continuous improvement. Insight about their farm's specific environmental impact ensures pig farmers like Dale are well-equipped to be advocates and educators for the industry.





"Continuous improvement in sustainability is something all producers can explore. With the future of farming being in technology like biodigesters, we can capture greenhouse gas emissions to make our farms completely carbon neutral and generate energy to power entire pig operations."

— **Marlowe Ivey,** pig farmer & executive director, Feed the Dialogue
GOLDSBORO, NORTH CAROLINA

Marlowe Ivey farms for her family's and community's collective future. As a part of the U.S. Farmers and Ranchers Alliance, Marlowe is working to discover how farms like her own can be completely carbon neutral within the next 30 harvests, helping safeguard the planet's natural resources and the continued livelihood and freedom to operate for pig farmers. She believes a piece of solving the sustainability puzzle could be the use of established manure management practices like covered lagoons and relatively new technology like biodigesters, which take organic waste – like pig manure – and produce fertilizer and biogas that power heat and electricity for communities – all while preventing methane generated on the farm from being released into the atmosphere.

ANIMAL WELL-BEING

We are committed to the highest level of care and well-being for the pigs we raise

GOAL

We are committed to end-to-end certification that is fully transparent and uses the following programs to demonstrate compliance:

- **PQA Plus worker certifications.**
- **TQA worker certifications.**
- **PQA Plus Site Assessments.**
- **Common Swine Industry Audit.**

METRIC

Percentage of pigs reported produced per year at a location that is compliant with the end-to-end certification program.





"Technology has given us the ability to take every single thing we do with each pig and verify it – whether it's how much water or food they eat or drink, the technologies we use to keep them healthy, or how many times a person comes into the barn and how they interact with the pigs."

— **Lukas Fricke,** production operations manager, Union Farms
ULYSSES, NEBRASKA

As the sixth generation on their farm, Lukas Fricke and his family are focused on raising pigs responsibly. Lukas takes the farm's data, captured in their PQA Plus compliance protocols, and applies it to each individual pig. Using blockchain technology, the data then follows the pig through the entire supply chain, resulting in a transparent and verifiable record of how the pigs are raised. Lukas believes consumers trust farms like his to do a good job in producing a transparent and safe product and wants to demonstrate how he and others in the industry are doing just that.

PUBLIC HEALTH

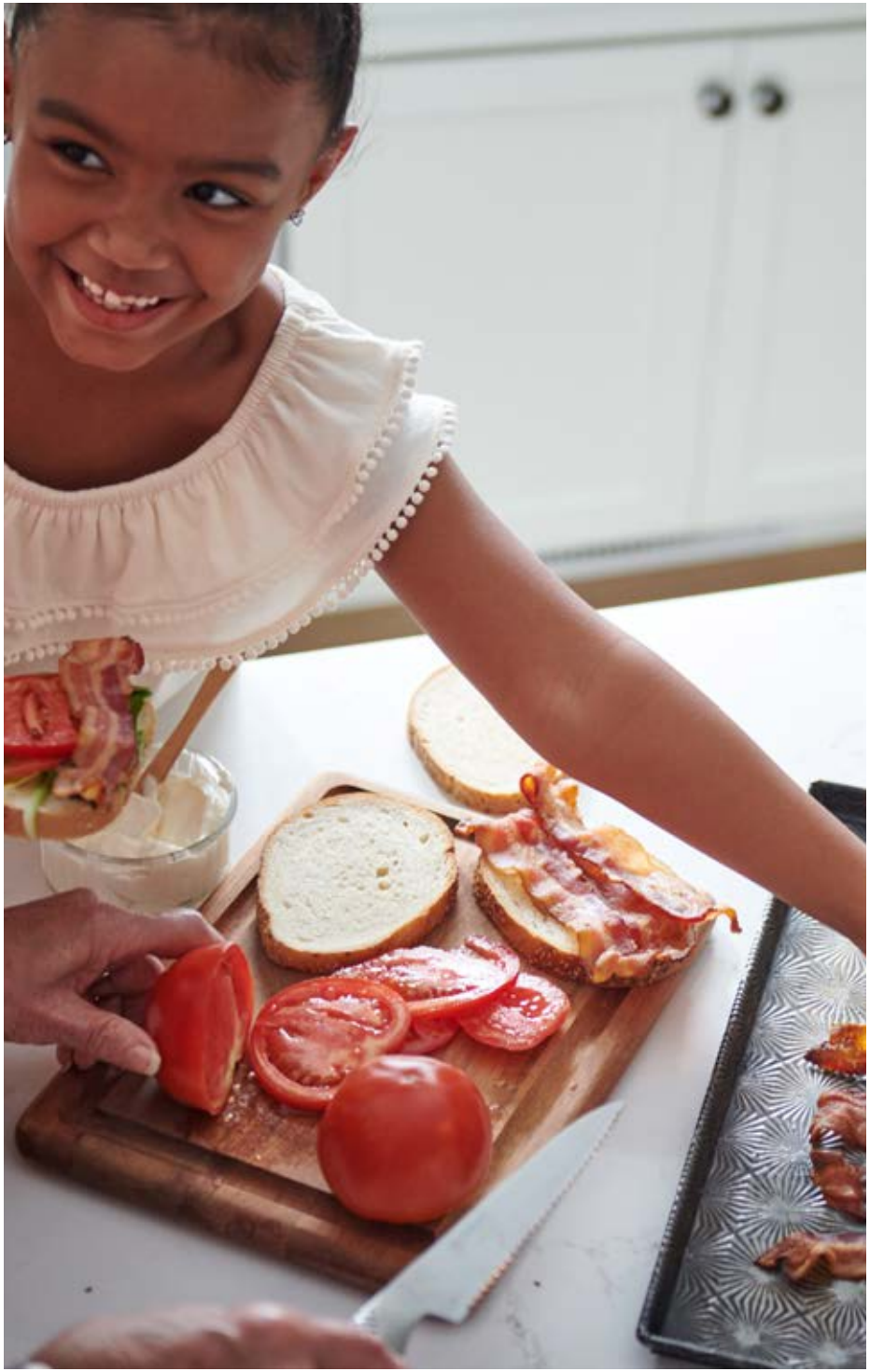
We are committed to producing the highest quality food possible while increasing the enjoyment of pork and the well-being of people around the world

GOAL

We are committed to supporting public health and the well-being of the pigs under our care using best practices.

METRICS

- **Percentage of pigs reported produced at a location where there is documented veterinary oversight of animal health.**
- **Percentage of pigs reported produced from farms that have documented compliance with the proper use of medications.**





"With the health of pigs being directly connected to human health, pig farmers are working every day to protect the food supply and provide safe, nutritious food to consumers."

– **Heather Fowler,** VMD PhD MPH DACVPM, director of producer and public health, NATIONAL PORK BOARD

Dr. Heather Fowler knows the key to producing safe and healthy pork starts with the industry's farmers and continues throughout the supply chain. In her work as the director for producer and public health, Dr. Fowler is a champion of CDC's One Health approach, which recognizes the interconnection between people, animals, plants and their shared environment.[6] Given her combined education in public and animal health, Dr. Fowler is uniquely suited to help the industry deliver on its commitment to responsibly use antibiotics only when necessary for pig health and invest in research to better understand topics like antimicrobial use and resistance.[7]

FOOD SAFETY

We are committed to producing the safest food in the world

GOAL

By 2030, 100% of fresh pork products can be traced through the supply chain using technology that allows the public to easily access information on how pork was raised and produced.

METRIC

Percentage of fresh pork produced per year that can be traced from retail or foodservice location back to the packing plant.





USING DATA TO DRIVE TRANSPARENCY AND TRUST IN PORK

In the pork industry, we're fans of the adage, you can't manage what you don't measure. Which is why we have been working on a data infrastructure to track and report on progress toward the We Care® goals and metrics.

This data collection framework will be:

- ***Farmer-owned*** and representative of the diversity in the U.S. pork industry.
- Flexible, so farmers can input and make decisions based on their ***individual sustainability data.***
- Blinded and aggregated to report ***progress toward pork industry goals.***

As the database is finished and gets populated with on-farm data, it will help the pork industry increase transparency around pig farming practices and instill confidence that U.S. pork is produced responsibly.

OUR COMMUNITIES

We are committed to growing and supporting strong communities for today and tomorrow



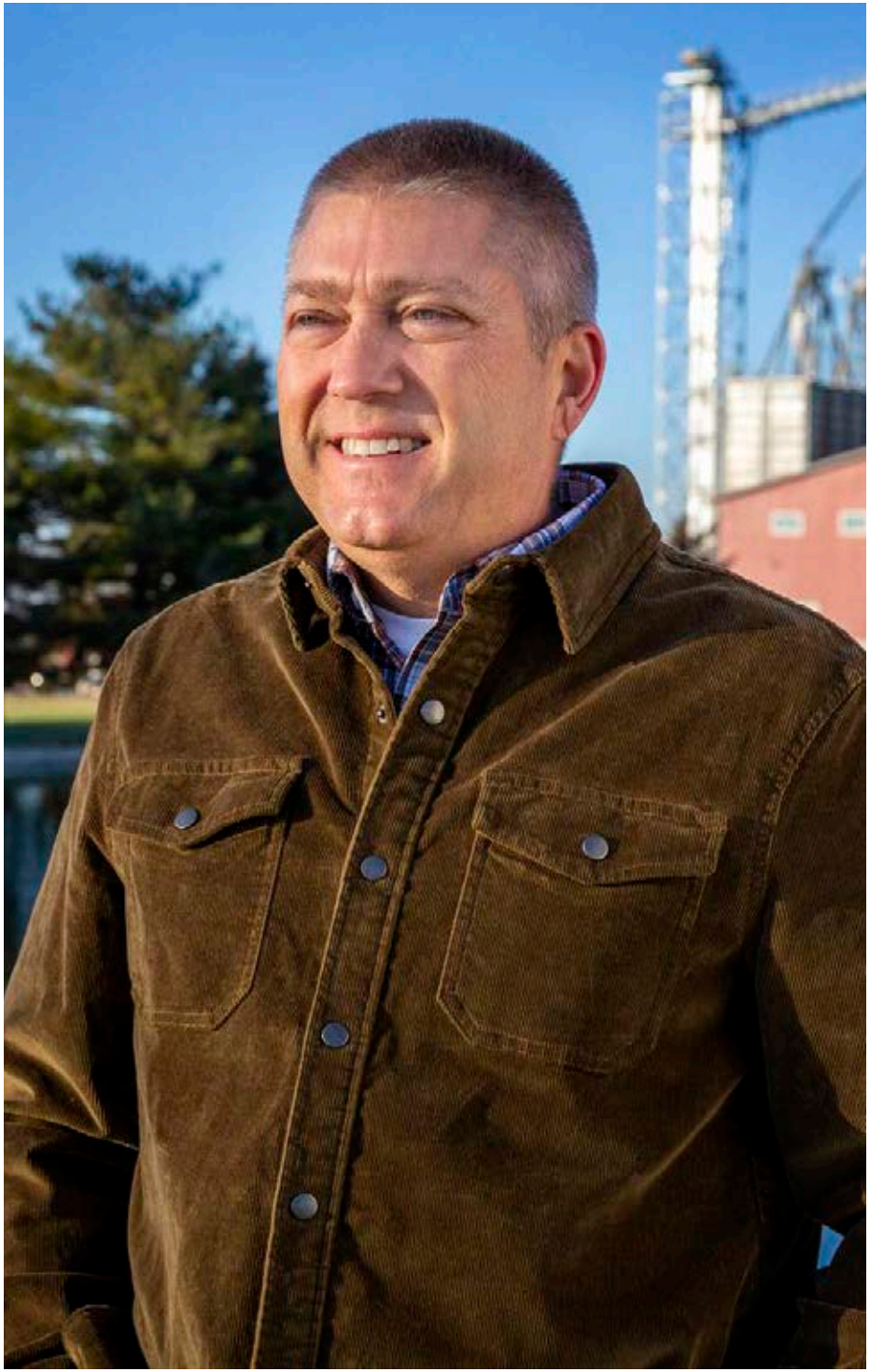
GOALS

We are committed to driving sustainable, equitable development and prosperity in our communities by generating desirable jobs, growing rural economies, and helping meet community needs. We will:

- **Support the rural leaders of tomorrow by awarding annual scholarships.**
- **Help feed the hungry in our communities by expanding our national giving campaign by 100% by 2030, from a 2019 baseline.**
- **Double volunteerism in our communities by 2030, from a 2019 baseline.**

METRICS

- **Economic value generated and distributed per year.**
- **Number of jobs, apprenticeships, externships or internships per year.**
- **Total farmer and employee charitable contributions per year.**
- **Number of volunteers trained annually.**
- **Number of volunteer hours.**
- **Number of community presentations given.**
- **Percentage of pigs reported produced at a location where there is a formal, written Diversity, Equity and Inclusion policy for their business.**
- **Number of scholarships and total dollar amount awarded annually.**



"It's gratifying to be able to continue to build a relationship and trust with our local community. At Hord Family Farms, we are passionate about actively making the community where we live better by embracing efforts to give back."

— **Pat Hord,** pig farmer & president, Hord Family Farms
BUCYRUS, OHIO

Though growing food is at the center of what Hord Family Farms does, bettering their local community is a passion for Pat and Janel Hord. In addition to leading their family's fifth generation farrow-to-finish and sow operation, Pat and his family have established Hord Cares, a community enrichment program supporting local initiatives and organizations in Crawford County, Ohio. Pat, his family and his teammates raise money to support local volunteer fire departments, annual Christmas meat delivery, local economic development partnerships, the Rotary Club, soccer and little league sponsorships as well as backpack meal programs. But their support doesn't stop there. The Hords make sure their employees receive support during challenging times through a caring culture, staff chaplain and benevolence programs for their teammates.



SETTING THE PORK INDUSTRY'S GOALS & METRICS

America's pig farmers have long been committed to doing what's right for people, pigs and the planet and as a result, have already made tremendous progress toward producing more sustainable pork.[2] But they're not settling.

In 2021, the industry set ambitious goals for future improvement, committing to further progress on environmental, societal and economic measures and to transparency in reporting.

The journey to this point started a while ago – we just didn't call it sustainability at the time. One of the first examples of our industry's commitment to continuous improvement started with the launch of the Pork Quality Assurance program in 1989. This comprehensive education and certification program, which became PQA Plus in 2007, with added focus on welfare and responsible antibiotic use, still helps pig farmers and their employees use the very best methods according to the latest science and lessons learned over time.

In 2007, what we now know as the We Care® Ethical Principles were created to officially outline the industry's promise to the public to follow responsible practices in raising animals for food.

The Common Swine Industry Audit was launched in 2014 to bring consistency to how we measure animal welfare and food safety and ensure the highest levels of both in pork production.

In 2020, when the industry set out to establish sustainability goals and metrics to guide future progress, it made sense to start with the principles pig farmers have followed for years and to leverage the programs that are already integral to today's production practices.

Once that was settled, we sought out partners and stakeholders with a variety of points of view, representing different parts of the supply chain and diverse areas of expertise to help inform the process.

NPB commissioned Ernst & Young (EY) with Pork Checkoff funding to launch a producer-led goal-setting process that included:

1 ASSESSMENT OF KEY MARKET AND SOCIETAL VALUE DRIVERS

These encompass 14 social and environmental issues important to customer companies, consumers and communities where pig farmers are positioned to lead the protein industry. This included an assessment of existing relevant goals and metrics, consumer research and consulting with non-governmental organizations (NGOs).

2 PRIORITIZATION OF SOCIAL AND ENVIRONMENTAL ISSUES FOR GOAL SETTING

A group of pig farmers representing a diversity of production sizes, types and geographies met to set priorities for industry-wide goals within the areas of energy, climate and GHG emissions, land use and ecological impact, animal welfare and management and sustainable sourcing and tracing.

3 IDENTIFICATION OF AMBITION LEVELS WITHIN EACH AREA OF SUSTAINABILITY

Pig farmers identified their future ambitions for the industry, which included bold visions of the pork industry being a leader in sustainability and positively impacting people and the planet. The work to this point was then shared with a variety of industry stakeholders, including a diverse group of pig farmers, NGOs, academics and others, to inform goal drafting.

4 DRAFTING OF TIME-BOUND GOALS

Throughout 2020 and 2021, the pig farmer's sustainability ambitions and future vision for the industry informed the development of quantitative, measurable goals and strong commitments to guide the future of the industry. Additional stakeholders and experts were engaged to validate the goals and develop meaningful, relevant metrics for each.

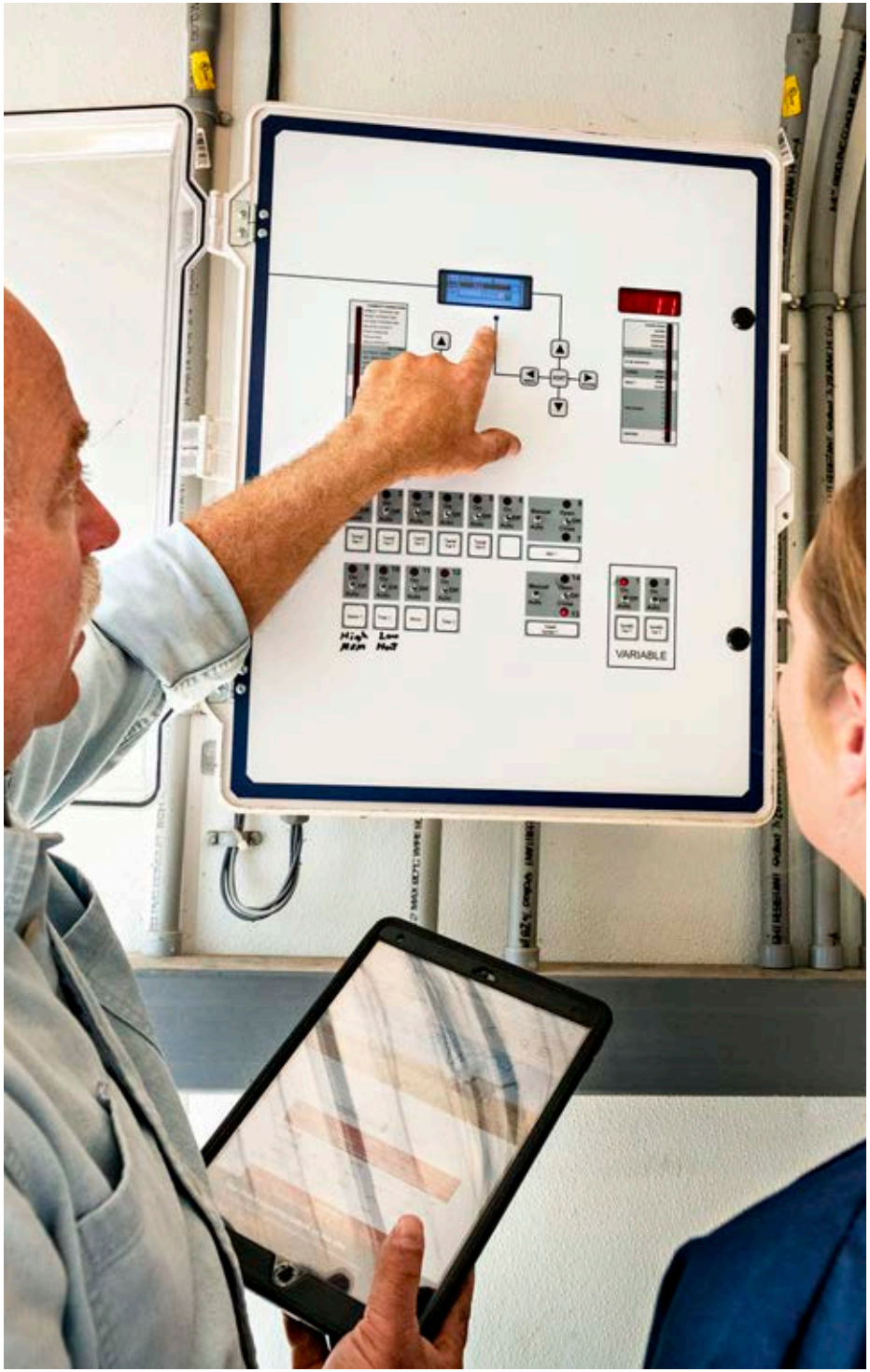
Throughout the process, pig farmers discussed and considered analyses of GHG emissions and reduction potential in different parts of the country and scenarios for emission reduction based on various combinations of interventions, such as implementation of cover crops, reduced tillage, renewable energy, application of manure as fertilizer, conversion of lagoons to digesters and other practices.

We wanted to ensure the goals were scientifically robust, ambitious and will be embraced by pig farmers.

This required an iterative process, led by farmers, with input from industry experts, researchers and sustainability practitioners. Recognizing the value of this collaborative approach, the industry has established ongoing ways for pig farmers and others to continue providing input on future goals and metrics as well as how to best accomplish and measure progress toward those outlined in this report.

THE PATH FORWARD

The sustainability road traveled so far by U.S. pig farmers led to already established sustainability practices and a commitment to doing the right thing for people, pigs and the planet. The path forward will not diverge from the same core principles that brought us where we are today. Instead, it will widen to welcome more partners on the journey, improve our navigation with additional and more current data, and engage across the supply chain and industries to share the progress along our path.



The sustainability goals and metrics established by this farmer-driven collaborative process are grounded in 50+ years of data and science that provide evidence of our current state and potential for progress. Moving forward, reporting will rely on on-farm data, tracking and analytics that help the industry collectively and pig farmers individually identify where and how they can continue to improve.

During the pork industry goal-setting process, producers stated a desire to lead on sustainability. In order to accomplish that vision, pig farmers must maintain, and even accelerate, their momentum to-date. Although some of the pork industry goals are ambitious, we have a plan to measure, make change and report:

- ***On-Farm Sustainability Reports,*** provided by NPB in partnership with third-party partner SEC EcoPractices, are available for free to any pig farmer who pays into the Pork Checkoff. The reports gather data from farmers through a one-on-one process that takes into account the unique situation on each operation. The reports will help each farm establish a farm-specific baseline and inform continuous improvement planning.
- ***Synching existing data*** from established on-farm measurement systems, which also provide current information about farm-level environmental, economic and social outcomes.
- ***Aggregating and reporting*** for the industry, including transparent data sharing for the number of pigs reported across participating operations.

The pig farmers leading NPB aspire to double the number of American pig farms that have completed an On-Farm Sustainability Report, or synched existing sustainability data to the industry database, within the next year.

In addition to the tracking and reporting progress, the pork industry will continue funding and conducting research focused on soil, air and water quality, nutrition impacts on sustainability, and more. Recognizing pork production relies on raising commodity crops, such as corn and soybeans, for its feed, pig farmers are also committed to working across the agricultural supply chain to better understand, quantify and improve the sustainability of its feed production, as well.

On-Farm Sustainability Reports

Data as of February 1, 2022

More than 120 farms from 20+ states, representing nearly 1.56 million pigs, are currently in the program and providing on-farm data across environmental, social and economic sustainability indicators. The reports showed:

120+ Farms

20+ States

1.56M Pigs in Program

OFFSET 4,208 TONS

Pig farms have offset 4,208 tons of commercial nitrogen, phosphorus and potassium required to produce feed on their farms.

Average cost savings based on the reduced need for commercial fertilizer from manure applied was estimated at **$142 per acre,** resulting in a **total savings of $2.4 million industry wide.**



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