

**INTEGRITY BEEF  
SUSTAINABILITY  
PILOT PROJECT**



**SUSTAINABLE BEEF**

**FROM START  
TO FINISH**

# LINKING THE BEEF VALUE CHAIN

A pilot project followed beef production, from ranch to restaurant, to test a system for measuring and improving sustainability with open communication and data sharing throughout the chain.

**M**ore and more, today's consumers want to know where their food comes from and how it was grown or raised. The U.S. beef industry has come together to define, measure and improve the already responsible and sustainable practices used to raise, process and deliver a quality food product.

To test standards, guidelines and methods of measuring sustainability, the two-year Integrity Beef Sustainability Pilot Project brought participants from each production phase together to share data and best practices up and down the beef value chain. The goals were multifold: to increase efficiency, improve management practices, self-assess and document sustainability efforts, explore third-party verification of sustainability claims, and evaluate a track-and-trace program across the chain.

In other words, how well could all links in the chain work together to produce even more sustainable beef?

This report is a summary of the process, the participants, the results and lessons learned in this unique, boots-on-the-ground pilot project. One central component — open communication throughout the beef value chain — was shown to be not only possible, but also crucial to solving problems, saving resources, improving animal health and increasing understanding among related, but usually quite separate, chapters in the overall beef production story.

For example, rarely are the performance results across the entire supply chain brought together, allowing beef producers to understand how their cattle performed in the feedyard and on the rail at the packer once calves leave the ranch. If there are challenges at the feedlot with health or performance, they want to know about it so they can continue to improve. The pilot was the first time many of the ranchers had received information back from segments down the chain, and also the first time the feedyard received such detailed information on how each calf was bred and raised at the ranches.

## PILOT PROJECT COLLABORATORS

From ranch to serving the consumer, each collaborator plays a vital role in the beef value chain.

PROJECT DURATION: 2017-2019

NOBLE RESEARCH INSTITUTE  
INTEGRITY BEEF ALLIANCE

BEEF MARKETING  
GROUP

TYSON FOODS

THREE

GOLDEN STATE  
FOODS

FOUR

MCDONALD'S

FIVE

ONE

TWO



# BRINGING A DIVERSE GROUP TOGETHER

Since its founding in 2015, the U.S. Roundtable for Sustainable Beef (USRSB) has brought together individuals and companies to reflect on how they raise, buy and distribute beef, and to find opportunities to help consumers understand the beef community's unique sustainability story. More than 100 diverse stakeholder members in the Roundtable, from ranchers to restaurants and all the links in between, have come together to address environmental, social, and economic concerns and to identify ways to continuously improve sustainability of the U.S. beef value chain.

**SUSTAINABLE BEEF IS A SOCIALLY RESPONSIBLE, ENVIRONMENTALLY SOUND AND ECONOMICALLY VIABLE PRODUCT THAT PRIORITIZES PLANET, PEOPLE, ANIMALS AND PROGRESS.**

Once the Roundtable defined sustainable beef as “a socially responsible, environmentally sound and economically viable product that prioritizes planet, people, animals and progress,” it put together a framework for what specifically makes beef production sustainable. From 100 potential indicators, the group narrowed the list down to six high-priority areas that indicate sustainability, no matter what segment of the industry.

## METRICS MEASURE AND TRACK THE INDICATORS FOR EACH SEGMENT

Members of each segment of the industry defined their own metrics — how to measure and document programs, practices and results that fulfill the indicators. These were refined with feedback from other sectors in the chain. Each of the five segments — cow-calf, auction market, feedyard operator, packers or processors, and retail or food service — has a list of metrics for each of the six high-priority indicators.

## FIRST USRSB SUPPORTED PILOT TO TEST THE METRICS

The two-year Integrity Beef Sustainability Pilot Project engaged partners along the full beef supply chain to test the USRSB metrics and explore scalable solutions that could be applicable for beef producers across the country. Participants in this pilot project used the USRSB framework to improve their sustainability while also providing feedback to the USRSB on ways to measure and report the high priority indicators.

The pilot provided field-tested insights into how the metrics could be put into practice in real-world situations at each step of the beef production process. The team learned how much planning and coordination it takes to align the beef supply chain. At the same time, each segment gained valuable knowledge about the other segments while cooperating to share data and communicate more openly than has been possible in the past.

 **LEARN MORE ONLINE AT: [WWW.BEEFSUSTAINABILITY.US](http://WWW.BEEFSUSTAINABILITY.US)**

## USRSB HIGH-PRIORITY INDICATORS OF SUSTAINABLE BEEF PRODUCTION



### ANIMAL HEALTH AND WELL-BEING

The cumulative effects of cattle health, nutrition, care and comfort.



### EFFICIENCY AND YIELD

Efficiency is expressed as the unit of input required to produce a unit of output, and yield is the total product generated per unit of time or space. Both concepts address waste as a negative characteristic and drive toward improved profitability.



### WATER RESOURCES

The volume of water used by a sector for each process, and any impacts on water quality by a sector for each process.



### LAND RESOURCES

The stewardship of terrestrial and aquatic habitats in relation to water, soil and biodiversity. Impacts of land use and land use conversion, both caused by and prevented by ranching and farming activities and other supply chain land use decisions.



### AIR AND GREENHOUSE GAS EMISSIONS

The cumulative emissions of pollutants, including particulate matter, greenhouse gases and other gaseous emissions from a sector for each process.



### EMPLOYEE SAFETY AND WELL-BEING

The implementation of safety programs and training to provide a safe workplace and help to prevent workplace accidents and injuries associated with production, processing, and distribution of beef and the relative prosperity of workers employed in those activities.



# THE SUSTAINABILITY JOURNEY

## 3. PACKER 2. FEEDYARD

Holcomb,  
Kansas

Great Bend, Kansas

## 1. RANCH

From Oklahoma,  
Texas and Kansas

## 5. CONSUMER

Distributed throughout  
the Southeast.

## 4. PROCESSOR

Opelika, Alabama

## FROM RANCH TO RESTAURANT

A hamburger wrapper holds the culmination of the entire beef industry's efforts. It takes nearly two years for a burger to be produced, from pasture to plate.

1

### RANCH

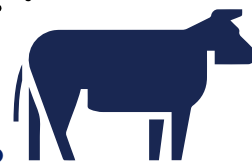
Calves were born on ranches in Oklahoma, Texas and Kansas, during February and March each year. They had access to fresh grass from birth and were weaned from their mothers at 6 to 8 months of age.



2

### FEEDYARD

Calves were sold and went to the BMG feedyard in Great Bend, Kansas, in November and December. There, they ate a well-balanced diet formulated to help them grow and develop marbling.



3



### PACKER

Calves were harvested at a Tyson Foods plant in Holcomb, Kansas, in May, June and July.

**3.5M**

**POUNDS OF BEEF  
PRODUCED FROM  
THE PILOT PROJECT.**



**92,577**

Total number of acres managed  
by project participants.



**CATTLE**

Year one: **2,246** Year two: **2,237**



### FEED EFFICIENCY

5.5% increase in feed efficiency saved  
209 pounds of feed per animal.



**36 RANCHERS**

Number of producers who took  
part in the two-year project.

5



### CONSUMER

Hamburger patties were  
distributed by McDonald's  
across the Southeast U.S.  
in May, June and July.

4

### PROCESSOR

Hamburger meat was shipped within three  
to five days after harvest to Golden State  
Foods in Opelika, Alabama, where it was  
ground and formed into patties.

**2.2M**

**HAMBURGER  
PATTIES**

Total number of  
quarter-pound  
hamburger patties.







#### Efficiency and yield

To optimize animal efficiency, Integrity Beef producers use high-performance bulls, defined calving seasons, and nutritional strategies from Noble consultants.



#### Animal health and well-being

All Integrity Beef producers are Beef Quality Assurance-certified, and all cattle were vaccinated per a veterinarian-approved protocol.



#### Water resources, land resources, air and greenhouse gas emissions

Grazing management plans protect surface water quality, consider plant diversity and wildlife habitat, and promote carbon storage.



# IMPROVING RETURNS FOR RANCHERS AND THEIR FAMILIES

**N**oble Research Institute in Ardmore, Oklahoma, provides research-based tools and advice and promotes best management practices to cattle producers and land stewards. The Integrity Beef Alliance program incorporates these practices at the ranch level to provide a healthy, efficient and well-cared for animal for the U.S. beef supply chain while improving returns for ranchers. Noble consultants work closely with producers to help them become better stewards of the animals and resources they care for.

For this project, Noble provided project management, sourced animals, collected USRSB metric data for the cow-calf segment, assimilated metric data for all segments, assimilated and analyzed all animal performance data, and provided a summary of results to all partners. In addition, Noble led the effort to develop and test the self-assessment tool, which was then adopted by the USRSB.

Ranchers in the Integrity Beef program produced a majority of the calves used in the pilot, keeping detailed production and health records that were shared up the chain. One of the ranches, the G Bar C Ranch at Rosston, Texas, has been part of the Integrity Beef Alliance since its inception, and is a model of sustainability with an advanced grazing plan and 92% of its land covered in plant life year-round.

"We want to provide the healthiest beef on the healthiest land you can possibly have," says Meredith Ellis, who with her father, GC Ellis, raise registered Black Angus cattle and Angus-Charolais feeder calves on 3,000 acres of grassland. The pilot project, she says, "opened opportunities for us to share our story and to improve ourselves through metrics and self-assessments. Getting data back on how our calves performed ... that's something we've never had before. Just having this knowledge will help us tremendously going forward."

**"WE WANT TO PROVIDE THE HEALTHIEST BEEF ON THE HEALTHIEST LAND YOU CAN POSSIBLY HAVE."**

**MEREDITH ELLIS**





# COMMUNICATING AND COLLABORATING

The pilot-project cattle were cared for and fed out to market weight at a central Kansas feedyard, a member of the Beef Marketing Group cooperative (BMG) using the Progressive Beef™ quality management system developed by BMG. Progressive Beef is the gold standard within the feedyard segment in the areas of animal welfare, food safety and sustainability. This third-party-verified program encompasses all daily animal care and utilization of resources using 42 standard operating procedures and cattle care guidelines.

**“FOR OUR  
INDUSTRY,  
SUSTAINABLE BEEF  
PRODUCTION IS A  
MISSION-CRITICAL  
EFFORT.”**

**JOHN BUTLER**

“Knowing what is important to a calf — having ‘roommates,’ fresh feed and water on its own schedule and a dry, safe place to rest — helps us to offer the best care while also remaining loyal to the goals and metrics of the USRSB indicators,” says John Butler, CEO of BMG.

One of the most significant take-aways from the pilot “is a new appreciation for collaboration between segments,” he says. “It’s been about bridges being built, with communication and trust flowing in both directions. Having a common goal for the animal and the resources needed to efficiently produce beef is a real outcome resulting from the pilot project.”

Butler says that sustainability in general is “important to any demographic out there. For our industry, sustainable beef production is a mission-critical effort that will allow us to satisfy the expectations of consumers and society.”



**Animal health and well-being**  
Facility design and employee training based on advice from animal behaviorists reduces stress on cattle, promoting optimum health and growth.



**Land resources**  
All BMG feedyards have nutrient management plans, using 100% of animal waste for soil health on adjacent pastures and fields.



**Employee safety and well-being**  
Progressive Beef scoring and training has changed feedyard culture into a team atmosphere with a passion for “doing it right.”





# LINKING SUPPLY CHAINS FOR A BETTER PRODUCT

**A**t the next step in the chain, the Tyson Foods beef packing plant in Holcomb, Kansas, took delivery of the finished pilot cattle from the feedyard for harvesting. Tyson sent fresh beef trim from the carcasses with the specified fat/lean ratio to Golden State Foods for processing into hamburger patties for McDonald's.

Tyson Foods, whose purpose is to raise the world's expectations for how much good food can do, "wants to make a difference in the environment, our workplace, animal welfare and the communities where we operate," says Paula Alexander, animal welfare manager. "The pilot was a great exercise to be sure we are tracking relevant metrics when it comes to sustainability; it makes you think about what you are doing and if you can verify it."

Beef has a complex supply chain, and everyone from cattle producers to beef consumers has a role to play in improving the sustainability of beef, she adds. "This project helped us see our role in the supply chain from end-to-end and gain a better understanding both of how the links in the chain are interconnected and how responsibility must be spread across the entire supply chain."

## 12% WATER REDUCTION

Tyson has corporately prioritized water efficiency in processing facilities, with a target of reducing water use intensity 12% by 2020 against a baseline from FY2015. They have made progress toward this goal with efforts such as reusing process water, as Tyson Fresh Meats did in 2019 with water from carcass washes and other machinery.



### Land resources

Enrolled 420,000 acres of row crop corn into a land stewardship program that provides farmers with tools to inform how they can improve their economic and environmental bottom line.



### Animal health and well-being

First processor to license the Progressive Beef program for feedyards; all beef producers must be BQA trained; 100% of cattle are under a third-party audit.



### Air and greenhouse gas emissions

First U.S. protein company in the food and beverage sector to have a GHG emission reduction target (30% by 2030) approved by the Science Based Targets initiative.





# PURSuing EXCELLENCE ACROSS THE INDUSTRY

**A**s a processor of 100% all-beef patties for McDonald's, Golden State Foods (GSF) has been part of the USRSB since the beginning, providing a voice for processors while collaborating on the sustainability framework. For the pilot, GSF ground the beef trim from the carcasses and incorporated it into the hamburger patties it formed and shipped to McDonald's restaurants throughout the Southeast.

**“PEOPLE WANT TO FEEL GOOD ABOUT THE FOOD THEY EAT, AND IT’S INCUMBENT UPON US TO DEMONSTRATE THE GREAT THINGS WE ARE DOING.”**

**WAYNE MORGAN**

GSF's pursuit of excellence extends beyond quality and food safety to include doing the right things to create a sustainable beef value chain, says Wayne Morgan, corporate vice president and president of protein products and sustainability, at GSF.

“I think this was a great example of working across all the different sectors and taking the product from the cow/calf to the feedyard to the packer and processor and into a retail outlet and demonstrating that you can do it,” he says. “People in society want to feel good about the food they eat, and it's incumbent upon us to demonstrate the great things we are doing and the care we take in making this product.”

Morgan notes that while the main goal of the pilot was to capture the sustainability steps in each sector, “they also used block-chain in year two transparently to show how the information flow could go from end to end.” The process became a catalyst for looking deeper into using RFID technology in how they track the product.



#### **Air and greenhouse gas emissions**

With its newest processing plant built to be LEED certified, GSF's goal is to reduce the company's carbon footprint by 20% in 2020.



#### **Efficiency and yield**

GSF has a goal of sending zero waste to the landfill by 2020 while striving to increase finished product output with minimal use of viable resources.



#### **Water resources**

GSF uses rainwater to irrigate native vegetation at select facilities and has goals set for water usage per pound of finished protein product.





# USING SIZE AND SCALE FOR GOOD

**T**he 2.24 million 100% fresh beef quarter-pounders produced as part of the two-year Integrity Beef Sustainability Pilot Project were sold at McDonald's restaurants throughout the Southeast U.S. While selling the hamburgers at McDonald's may seem like the end of the beef supply chain, the company's desire to support the beef industry's sustainability efforts and improve collaboration along the chain was the driving force at the start of the USRSB pilot project.

"Our commitment to providing high quality and delicious products our customers can feel good about means understanding our customers' concerns and helping the industry as it strives to meet their expectations," says Townsend Bailey, McDonald's sustainability director, North America. "Working with the pilot group to test and refine the metrics for the USRSB's high-priority sustainability indicators aligns with our efforts to use our size and scale for good, to drive improvements and address challenges that society is facing in the 21st century."

Bailey says he is proud of the input the pilot participants have given to the USRSB sustainability metrics and the project's role in the development of the USRSB's self-assessment tool: "It's a concrete resource that others in the beef value chain can use to benchmark their performance and plan for continuous improvement."

With beef hamburgers being the iconic part of the McDonald's menu, "we're committed to supporting beef producers and supporting producer-level solutions," he says. "That's why partnering with the Integrity Beef Alliance and the U.S. Roundtable is so important as we work toward our 2020 aspirational goals of accelerating industry progress and sharing knowledge and tools."

At the same time, Bailey says, "meeting sustainability expectations is not just something we're asking our supply chain partners to do. McDonald's was the first global restaurant company to set a Science Based Target Initiative greenhouse gas reduction goal. We're working on these same issues in our restaurants by driving improvements in energy efficiency, renewable energy, packaging and recycling."

**"WE'RE  
COMMITTED TO  
SUPPORTING  
BEEF PRODUCERS  
AND SUPPORTING  
PRODUCER-LEVEL  
SOLUTIONS."**

**TOWNSEND BAILEY**



#### **Animal health and well-being**

McDonald's has a decades long commitment to animal health and welfare and has a zero tolerance policy for cruelty to any animal in its global supply chain



#### **Air and greenhouse gas emissions**

McDonald's 2019 investment in wind and solar farms produced enough new renewable energy to cover more than 1,900 of its U.S. restaurants.



#### **Employee safety and well-being**

All restaurant crew members receive training on food safety and handling, and implementation of food safety standards is verified through internal or third-party audits.



# IMPROVING THE CHAIN STARTS WITH SELF-ASSESSMENT

**N**oble Research Institute, in conjunction with the USRSB, developed a web-based self-assessment tool tailored to each of the five beef production segments. The tool was beta-tested during the pilot project. Today all members of the beef industry can use the self-assessment tool to evaluate their operation's or company's sustainability in a private and practical way, track their progress over time, and use suggested resources to make improvements.

**“YOU CAN IMPROVE ON ANYTHING YOU CAN MEASURE. THIS TOOL WILL BE A VALUABLE TOOL TO HELP US QUANTIFY OUR COMMITMENT TO THE USRSB INDICATORS.”**

**JOHN BUTLER**  
CEO, Beef Marketing Group



**THE SELF-ASSESSMENT TOOL IS FREE AND ONLINE AT: NOBLEAPPS. NOBLE.ORG/USRSB ASSESSMENT**

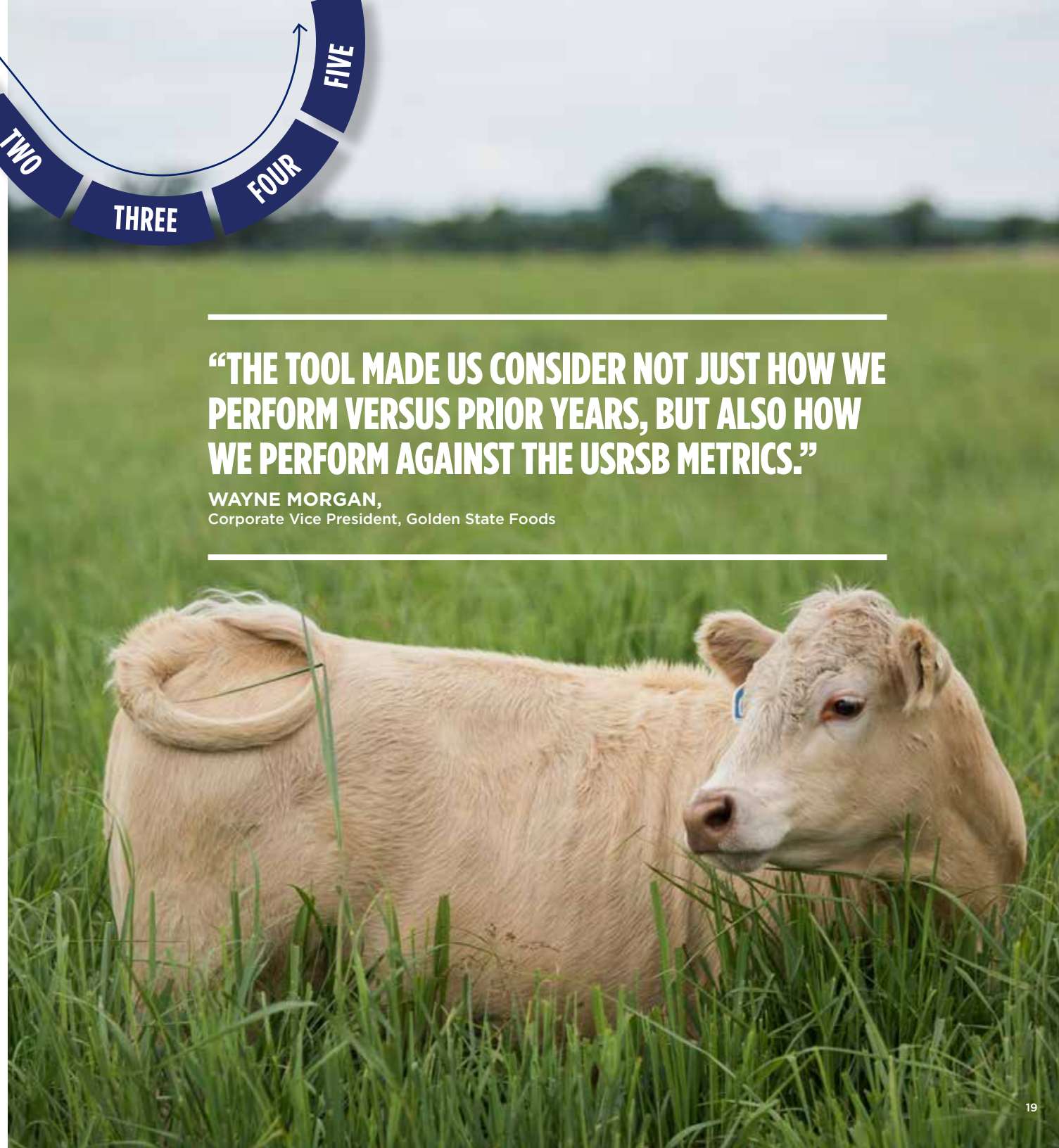
The assessment for each segment asks thought-provoking questions about specific management practices that relate to the USRSB metrics for each priority indicator area for sustainability. Users can save their individual answers for future comparisons, but the USRSB collects only the user-identified industry segment and state to help track use and adoption across the industry.

After completing the assessment, users receive a summary showing an overall sustainability score, a breakdown of performance in each indicator area, and a list of the questions and their replies color-coded to show in which areas they're performing well, which need some improvement and which need great improvement. Each question also has a link to more information on how to meet the metric, where to find assistance, and links to tools and informational resources.



**“THE TOOL MADE US CONSIDER NOT JUST HOW WE PERFORM VERSUS PRIOR YEARS, BUT ALSO HOW WE PERFORM AGAINST THE USRSB METRICS.”**

**WAYNE MORGAN,**  
Corporate Vice President, Golden State Foods





## THIRD-PARTY AUDIT VALIDATES PILOT PROTOCOL AND RESULTS

At the conclusion of the pilot, IMI Global, a division of Where Food Comes From, Inc., completed a third-party review and traceback of all McDonald's USA-sourced beef from suppliers participating in the Integrity Beef Sustainability Pilot aligned with the USRSB Framework.

The review included desk audits of records and documentation to verify completion of the self-assessment at each segment of the supply chain, ensure that all participating Beef Marketing Group (BMG) feedyards had active and in-good-standing certification in the USRSB-recognized Progressive Beef™ cattle management program, and verify all quantities of raw and finished product.

"Our job was to take a look back and say, 'Did we do everything we were supposed to do? Did we deliver the product we said we were going to deliver?'" says Leann Saunders, CEO and president of IMI Global and Where Food Comes From, Inc. "Such a third-party audit gives everyone in the beef supply chain a way to add and capture value with verification. I believe strongly that in the future, consumers will hire and fire brands based on those that are committed to sustainability."

## TRACKING AND TRACING BEEF SUSTAINABILITY WITH BLOCKCHAIN

In the second year of the study, the pilot project team worked with IBM in the first use of the IBM Food Trust™ system to track beef at every step of the supply chain. Blockchain is a shared, immutable ledger used to record transactions and track assets in a business network. IBM used blockchain to enter 2018-2019 cattle production and product flow data from every stage of the pilot into the Food Trust system. Each animal was tagged with a radio-frequency identification (RFID) tag, and its data was tracked, from calving at the ranch through vaccinations and daily gain in the feedlot, to processing the carcass at the packer, to the fresh beef delivered to the processor, to the patties delivered to McDonald's retail outlets.

The successful trial using the Food Trust blockchain showed proof of concept that cattle with sustainability claims can be tracked and traced from the ranch of origin to a retailer, as well as strengthening partnerships in the supply chain through automated and secure sharing of information. The pilot collaborators believe Food Trust is one opportunity to add product traceability to the beef industry with the transparency that should increase the trust of consumers who desire to know how the food they eat is produced.





# BUILDING TOGETHER FOR BETTER BEEF

The Integrity Beef Sustainability Pilot Program united five distinct perspectives with the desire to continually improve how they produce beef. They prove that communicating up and down the supply chain provides value to all.

**T**he Integrity Beef Sustainability Pilot Program began three years ago out of a desire to evaluate the U.S. Roundtable for Sustainable Beef's high priority indicators of sustainability. Our questions were: Are these indicators practical in the real world? And could a beef supply chain communicate to find opportunities for further growth in sustainability? We found that opening lines of communication gave beef producers information they need to make changes, not just for individual improvement but for greater industry goals. To me, the most significant outcome is that we now have a self-assessment tool that anyone in beef production can use to evaluate where they are in terms of sustainability. Using this tool will allow everyone — ranchers, auction markets, feedyards, packers, processors and retailers — to measure their progress and evaluate next steps.

This project was an exciting look into new possibilities for boosting the beef industry's long-term sustainability, and I would like to thank everyone involved. We proved that a supply chain can communicate on a greater scale and that doing so is valuable. There is no doubt that working together is what will allow us to continue moving in positive directions for both producers and consumers.

**CHAD ELLIS, NOBLE RESEARCH INSTITUTE**  
Industry Relations & Stewardship Manager

## LEARN MORE ONLINE

For more information about the Integrity Beef Sustainability Pilot Project collaborators and to follow their sustainability journey go online to the websites below:

**NOBLE RESEARCH INSTITUTE**  
[Noble.org](http://Noble.org)

**INTEGRITY BEEF**  
[integritybeef.org/beef-sustainability](http://integritybeef.org/beef-sustainability)

**BEEF MARKETING GROUP**  
[www.beefmarketinggroup.com](http://www.beefmarketinggroup.com)

**PROGRESSIVE BEEF**  
[www.beefmarketinggroup.com/progressive-beef](http://www.beefmarketinggroup.com/progressive-beef)

**TYSON FOODS**  
[www.tysonfoods.com/sustainability](http://www.tysonfoods.com/sustainability)

**MCDONALD'S**  
[corporate.mcdonalds.com/corpmcd/scale-for-good/beef-sustainability.html](http://corporate.mcdonalds.com/corpmcd/scale-for-good/beef-sustainability.html)

**U.S. ROUNDTABLE FOR SUSTAINABLE BEEF**  
[www.usrsb.org](http://www.usrsb.org)

---

**ACKNOWLEDGMENTS:**  
**Noble Research Institute:**  
The Integrity Beef Alliance,  
Chad Ellis, Myriah Johnson,  
Ph.D., Deke Alkire, Ph.D.  
**Beef Marketing Group:**  
John Butler, Heather Donley  
**Tyson Foods:**  
Leigh Ann Johnston,  
Paula Alexander, Kevin Hueser  
**Golden State Foods:**  
Wayne Morgan, Ph.D.  
**McDonald's:**  
Townsend Bailey, Banks Baker



