BEEF Today

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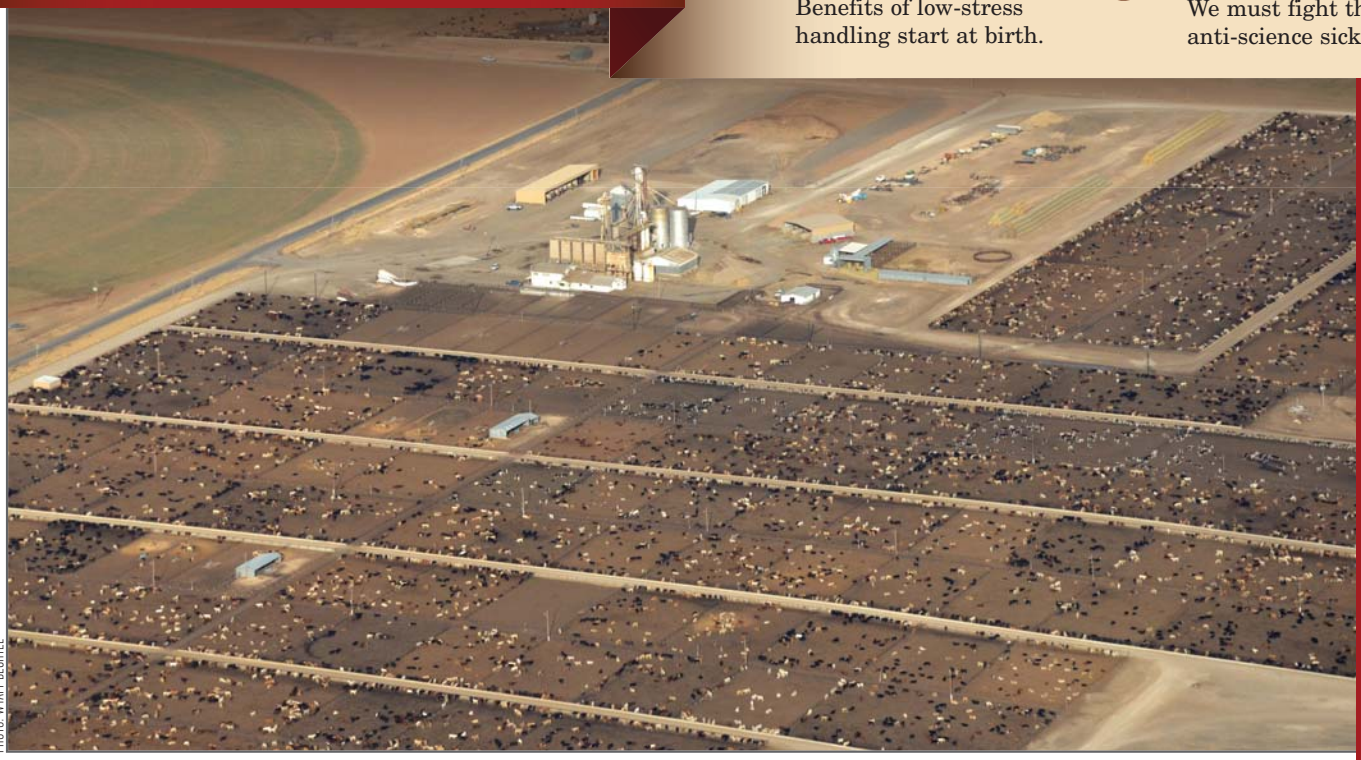


PHOTO: WYATT BECHTEL

Efficiency Drives Sustainability

Industry establishes benchmarks to measure improvement › BY GREG HENDERSON

"Sustainability of U.S. farming and ranching" is an issue 83% of U.S. consumers say they are very concerned about, according to research conducted in June by the U.S. Farmers and Ranchers Alliance.

Just over one in four respondents to the survey (26%) said whether food is grown, raised or produced is "sustainable" is the most important thought or consideration in their food purchase decisions.

These numbers make U.S. food companies take notice. Many companies have begun programs to verify their food products are sustainable. McDonald's announced this past year they would begin sourcing "sustainable beef" in 2016, calling the move "consumer driven."

Consumers are also behind Cargill Cattle Feeders' beef sustainability initiative. In early September, the company announced they had moved into Phase II, which is the process of identifying criteria, establishing measurement metrics, defining target improvement goals and gathering data. The effort "will create a verified beef supply chain sustainability assessment program for Cargill feedyards, as well as for feedlots operated by Friona Industries that supply Cargill with cattle," the company said in a statement.

The need for a sustainability assessment is driven by consumers, says Mike Martin, Cargill director of communications. "We're hearing from our customers,

U.S. Cattle Inventories and Beef Production

	1951	1975	2014
Cattle Inventory (million)	82.0	132.0	87.7
Beef Cows (million)	17.5	45.7	29.0
Beef Production (billion pounds)	8.84	23.97	24.3

The U.S. beef industry produced nearly three times more beef in 2014 than in 1951 with only 6% more cattle. Compared to 1975, the industry produced nearly the same amount of beef in 2014 with 33% fewer cattle.

SOURCE: USDA NATIONAL AGRICULTURAL STATISTICS SERVICE

and they are hearing from consumers who want assurances that the beef they purchase is raised in a sustainable manner."

Cargill will seek information about beef production from all segments of its supply chain, from cow-calf operations to its company-owned feedlots.

"The process we're employing for our sustainability assessment allows us to build out our base of knowledge and information from phase to phase in a logical progression of steps so we ensure the efficacy of this initiative," says Todd Allen, president of Cargill Cattle Feeders, LLC. "It is important to us this assessment be accurate, complete, credible and meaningful for vested stakeholders. It must also result in actions that are measurable and lead to continuous improvements as we move toward a more sustainable beef model."

Cargill's sustainability assessment will be conducted in collaboration with consulting and accounting firm K•Coe Isom (formerly Kennedy and Coe, LLC). Sara Harper, K•Coe Isom's director of sustainability and supply chain solutions, says the project will allow Cargill to assess critical factors important to its long-term sustainability that customers find increasingly relevant.

"This is a pioneering effort in transparency and collaboration that will help beef customers, consumers and those concerned about sustainability issues to better understand how the food they eat is produced and where it comes from," Harper says.

What food companies see as customer-driven initiatives, however, cattlemen can see as an insult. "I don't like the term 'sustainable beef,'" one cattleman wrote in an email to Beef Today last month. He believes his ranch is already sustainable and provided data that show improvements in feed efficiency and carcass quality as proof.

Similarly, national industry data can be used to help show how our industry has utilized genetics and other improvements to increase efficiency. In 1975, for instance, the U.S. cattle herd totaled 132 million head with 45 million beef cows. Beef production that year was 24 billion pounds.

Fast forward four decades and the U.S. cattle herd totaled 87.7 million head in 2014, with 29 million beef cows. Beef production in 2014 reached 24.3 billion pounds, slightly more than in 1975 but accomplished it with 33% fewer cattle.

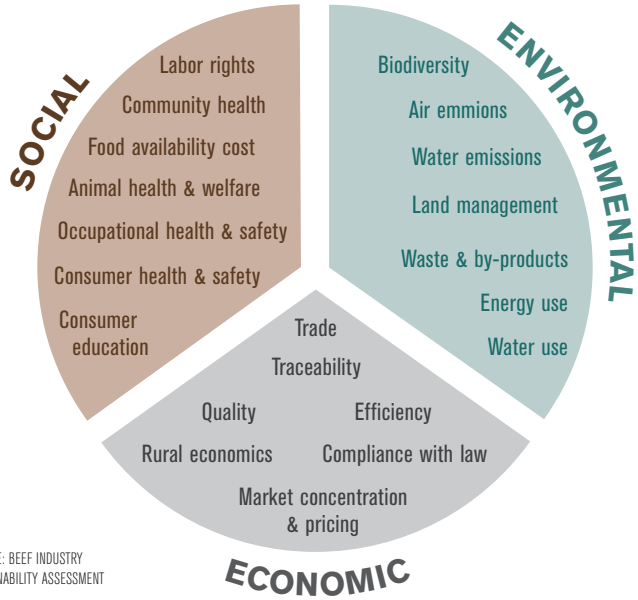
Recognizing the need to document the beef industry's current level of sustainability was the motivation behind the checkoff-funded Beef Industry Life Cycle Assessment. The assessment, released two years ago, documented a 5% overall improvement in beef's sustainability during the six years from 2005 to 2011.

The detailed life cycle assessment examined every aspect of beef production from the growth of crops for feed to the disposal of packaging by the final consumer, according to the report.

The report helps producers recognize "how management changes over time have improved the sustainability of beef and utilize that knowledge to produce more sustainable beef in the future," says Kim Stackhouse-Lawson, project coordinator.

Sustainability Perceptions

Industry stakeholders' perceptions of beef sustainability led to this industry definition: "balancing environmental responsibility, economic opportunity and social diligence."



SOURCE: BEEF INDUSTRY SUSTAINABILITY ASSESSMENT

Beef's life cycle assessment, the first food system to benchmark its current status in a holistic manner, revealed gains in all three components of sustainability—people, planet and profit. A 7% improvement was documented in both beef's social and environmental sustainability sectors.

Regarding beef's social impact in the assessment, two categories were highlighted: toxicity potential and occupational illnesses and accidents. The primary contributors to toxicity are agricultural chemicals and fertilizers. During the six year period from 2005 to 2011, toxicity potential was "essentially unchanged," according to the report.

The life cycle assessment found reductions in toxicity due to increase use of biogas from lagoons at harvest facilities and a decreased use of plastics in packaging. Other energy efficiencies were found with lower fossil fuel use. Those improvements were neutralized by an increased use of distillers' grains, which increased ammonia releases from urine.

The single greatest categorical gains in the life cycle assessment came in a 32% decline in occupational illnesses and accidents between 2005 and 2011. The U.S. Bureau of Labor Statistics found the industry's improvements in the number of working accidents, fatalities, illnesses and disease associated with industries related to the production of beef.

Beef's life cycle assessment also reported the following significant improvements in the social impact category:

- A decline in the number of pre-chain and packing sector accidents, illnesses, injuries and disease.
- Improvements in animal welfare, as reflected in a third-party audit result of packing plants and adoption of Beef Quality Assurance practices at the feedyard and cow-calf sectors.
- The installation of covered lagoons, which lowered community nuisance odors and reduced packing plant dependence on fossil fuels.

Beef's environmental impact showed a 7% improvement in the six years of the assessment, partly due to a 2% reduction in energy use attributed to the following factors:

- Reduced use of utilities and transportation throughout the value chain.
- Increased crop yields and less fuel use to produce required feed resources.
- Increased use of biogas capture and conversion by packing plants, leading to lower electricity use.
- Conversion of boilers at packing plants from diesel to natural gas.
- Reduced packing requirements through the use of right-sized packaging which reduced the pre-chain impacts of packaging production.

The life cycle assessment also found a 3% reduction in water use due to improved crop yields, improvements at packing plants and optimizations in the case-ready phase that reduce pre-chain water use. During the six years of the assessment a 10% decrease in the emissions to water were also revealed, along with a 7% decline in solid waste emissions to soil.

The economic and profit benefits to the beef industry of improvements in sustainability showed a 6% gain in the assessment. The researchers noted "measuring the economic benefit of 1 lb. of boneless, edible beef is challenging due to the complexity of the industry."

Researchers utilized the consumer price of beef to measure the economic sustainability of the entire beef value chain.

"The results of the life cycle cost analysis were adjusted to reflect current market conditions and pricing," the researchers said. "Therefore, 2005 pricing was adjusted to 2011 dollars. The results of the life cycle cost analysis showed a price increase of 6%."

Still, further research of economic impact is needed.

As a result of beef's life cycle assessment, Stackhouse-Lawson believes the beef community is able to understand how management changes over time have improved the sustainability of beef and utilize that knowledge to continue making improvements.

"The level of detail in the life cycle assessment allows farmers, farmers, ranchers, feedyard managers, packers, further processors, retailers and others along the beef supply chain to understand impacts of management decisions so they can focus time and energy on tangible results that improve sustainability," she says. ♦

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PHOTO: WYATT BECHTEL

Sustainability: *This is the second of a four-part series on sustainability and the beef industry. Next month: Sustainability and the new Beef Industry Long Range Plan.*