



Beef Sustainability Research



Building a Better Beef Community

Sustainability has become a common word at the kitchen table of consumers and it is rapidly becoming an expectation for today's production systems. The consumer's demand for greater transparency with respect to how their food is produced will result in sustainability becoming a major demand driver. However, the consumer's definition of sustainable often differs from industry and academic definitions. This creates a significant challenge for all agriculture commodities including the U.S. beef industry. The Beef Checkoff Sustainability Research program is the only research initiative focused on addressing both scientific and consumer concerns regarding sustainable food production along all phases of the beef value chain.

2006

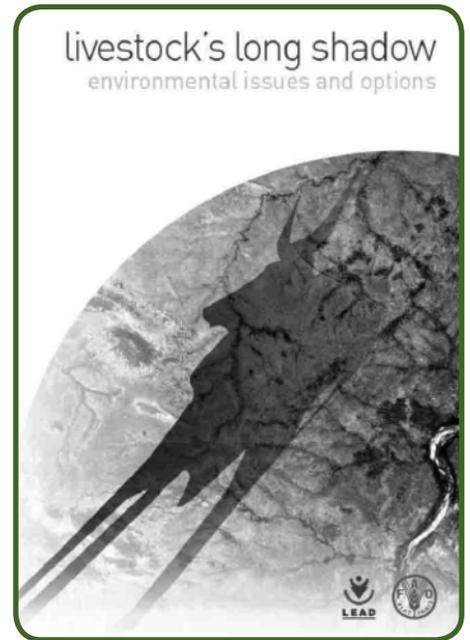
The United Nations Food and Agriculture Organization released a report titled **Livestock's Long Shadow – Environmental Issues and Options**. This report suggested that livestock are responsible for 18 percent of all manmade greenhouse gases which is a larger contribution than all of the world's transportation.

2007

The media dramatized the findings of **Livestock's Long Shadow**. *TIME* magazine stated that "A 16-ounce T-bone is like a Hummer on a plate. If you switch to vegetarianism, you can shrink your carbon footprint by up to 1.5 tons of carbon dioxide a year."

2009

Frank Mitloehner, PhD, associate professor and air quality specialist in cooperative extension, Department of Animal Science, University of California, and colleagues published "**Clearing the Air: Livestock's Contribution to Climate Change,**" which identified a major scientific flaw in *Livestock's Long Shadow* – an inaccurate and unfair comparison of livestock to transportation.



The Sustainability Consortium formed in July 2009 as an organization of diverse global participants working to make the world more sustainable through better products, services and consumption. The stated mission of the Consortium is to design and implement credible, transparent and scalable science-based measurement and reporting systems accessible for all producers, retailers, and users of consumer products.

On October 30, 2009, the U.S. Environmental Protection Agency (EPA) published a rule for the mandatory reporting of greenhouse gases (GHG) from large GHG emissions sources in the United States. The **Greenhouse Gas Reporting Rule** requires facilities that emit 25,000 metric tons of CO² equivalent (CO²e) or more per year of greenhouse gases to report GHG emission levels annually to the EPA. *Cattle operations with fewer than 29,300 head are NOT required to report.*

2010

San Francisco became the first U.S. city to officially declare **Meatless Monday**, a day to be meat-free in an effort to curb the cities carbon footprint and improve health.

The **Dairy industry** completed a lifecycle assessment for their carbon footprint (an account for all greenhouse gases) normalized by a gallon of milk beginning with crops grown to feed the cows all the way to the purchase and disposal of the gallon of milk by the consumer.

The **Pork industry** completed the pork carbon footprint study suggesting that it takes somewhere between 1.8 to 2.7 pounds of carbon dioxide equivalents for a four-ounce portion of pork to be produced, cooked and consumed.



Health Benefits Improve Your Diet
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 Health Benefits ♥ Health Benefits ♥ Health Benefits
 ♥ Reduce Heart Disease ♥ Reduce Heart Disease
 Limit Cancer Risk ♥ Limit Cancer Risk ♥ Limit Cancer Risk
Meatless Monday
 ♥ Fight Diabetes ♥ Fight Diabetes ♥ Fight Diabetes
 ♥ Live Longer ♥ Live Longer ♥ Live Longer
 ♥ Curb Obesity ♥ Curb Obesity ♥ Curb Obesity
 Reduce Fossil Fuel Dependence
 Reduce Carbon Footprint ♥
 Minimize Water Usage
 Reduce Fossil Fuel Dependence
 Reduce Fossil Fuel Dependence
 ♥

2010

A broader definition of "Sustainability," based on social, economic, and environmental pillars: **The Triple Bottom Line**, became popular.

2011

Dr. Jude Capper published "**The Environmental Impact of Beef Production in the United States: 1977 compared with 2007.**"

From the cow-calf through the feedlot systems, Dr. Capper found modern beef production requires considerably fewer resources than the equivalent system in 1977. The modern system was found to use less feed, water, land and the carbon footprint was reduced by 16.3 percent below that of the 1977 production system.

Sustainability became a "**bigger and more complex issue**" for the beef industry than just greenhouse gases. Concerns include but are not limited to, environment (water, land, air), social (animal welfare, food safety, occupational health and safety), and economic (consumer price, profitability, traceability).

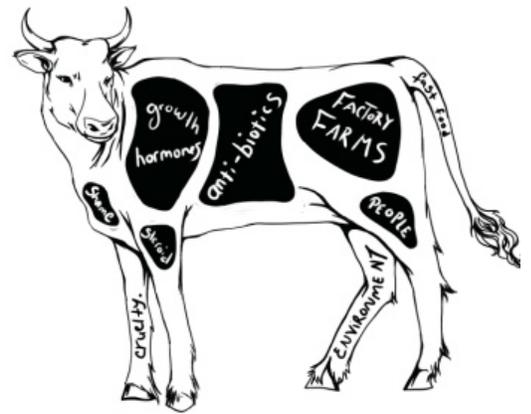
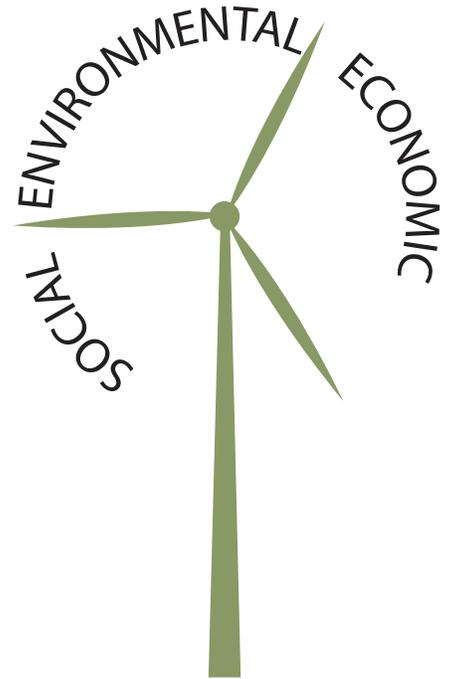
The Beef Checkoff initiated the **U.S. Beef Sustainability Project** based on defining sustainability to include environmental, social, and economic pillars. The U.S. Beef Sustainability Project is the largest and most holistic sustainability assessment ever attempted for an agricultural commodity. This benchmarking project includes a survey of perceived sustainability hotspots by stakeholder groups, a scientific lifecycle assessment taking into account all three pillars of sustainability, and a producer tool to improve individual sustainability. Results were presented at the Beef Checkoff Sustainability Research Summit in January 2013.

2012

The Sustainability Consortium launched Beef Key Performance Indicators (KPIs) that focus on hotspots and improvement opportunities (based on the limited scientific evidence) to improve beef sustainability. KPIs are a set of quantifiable measures that companies or industries can use to gauge or compare performance in terms of meeting strategic and operational goals. Beef suppliers will be required to comply with the Consortium's Beef KPIs in order to sell product to retailers like Walmart.

2013

The **Beef Checkoff Sustainability Research Summit** brought together over 140 producers, operators, and owners along the beef value chain from cow-calf and feedlot producer to retailers. The objective of the research summit was to discuss the data from the U.S. Beef Sustainability Project, rank the areas where the greatest improvement is needed and can be achieved, and develop working groups to improve the sustainability of beef.



2013

The U.S. Beef Sustainability Project has an ultimate goal of real-world practicality. Once completed, the **producer lifecycle assessment tool** will be a computer-based software program producers can use to enhance the sustainability of individual operations. The program will utilize mathematical representations of biological processes as they occur in nature, thereby allowing producers, for example, to predict the amount of ammonia their operation might produce given prior knowledge of the number of animals present, the stage of their growth cycle, their health, their diet, and other factors such as weather, temperature, management practices, etc.

Next Steps

The Beef Checkoff 2013 Sustainability Research Program will work to better understand improvement opportunities identified by the 2011 U.S. Beef Sustainability Project, begin to access sustainability regionally, and examine how sustainability changes based on management decisions.



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