# BY DESIGN

## Benchmarking environmental sustainability: conversation starters

*by Erin Cortus, University of Minnesota*

Individual producers and the cattle industry as a whole are responding to pressures to demonstrate sustainability. Documenting sustainability puts some numbers behind efforts. These numbers provide a benchmark for current conditions and help evaluate success over time.

Sustainability looks different to different organizations and people. Most definitions — including that of the U.S. Roundtable for Sustainable Beef (USRSB) — encompass dimensions of economics, social responsibility and environment, with the goal of maintaining or improving a system into the future.

Putting benchmarks in place is challenging, particularly for environmental sustainability indicators like greenhouse gas emissions. More often, we look to industry-wide assessments to support conversations about sustainability with our communities, supply chain and consumers. We do not need to be experts in these industry-wide assessment processes. Rather, recognizing some key features of the results deepens our discussions and understanding.

### Life-cycle assessment

To estimate greenhouse gas emissions and other environmental effects, scientists use life-cycle assessments. A life-cycle assessment (LCA) is a model, or complex series of calculations, to estimate the environmental impacts associated with each stage of production. These analyses are ongoing across the U.S. beef industry, and most livestock and food production sectors.

Footprints are a common way of expressing the results from an LCA analysis. An environmental footprint is the effect of a thing or action on natural resources per unit of production. A carbon footprint demonstrates the greenhouse gases produced per animal raised or per pound of beef.

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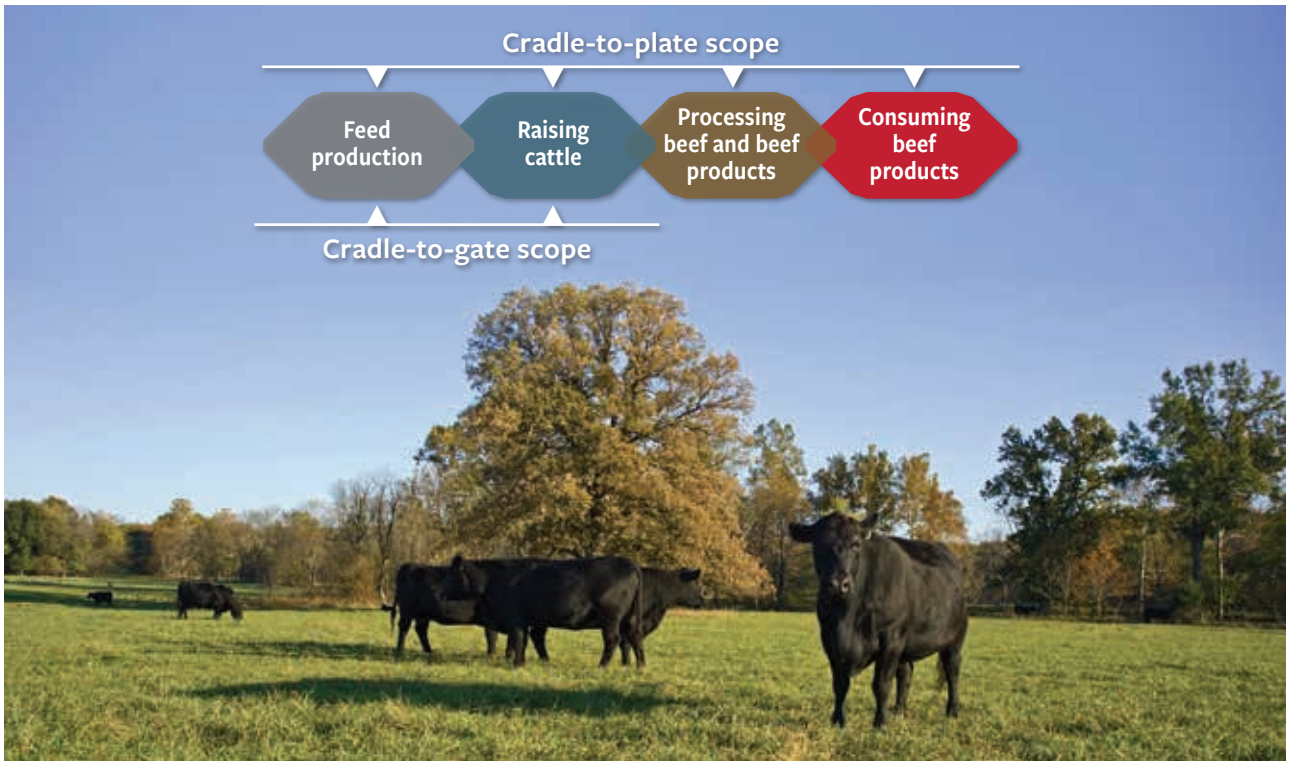
When presented with a footprint, it is important to understand how much of the production process is included in the number. At the farm level, we are most often interested in the emissions that are produced to raise an animal until it leaves the farm gate. This includes crop or feed production, processing and transport of the feed, housing and raising the animal, and the manure generated. We call this type of scope a cradle-to-gate scope.

If we also include transporting the animal to market, processing the meat, packaging, taking it to a store, and then the consumer, we call this a cradle-to-plate scope. Obviously, given the different boundaries of what is included in a calculation, cradle-to-gate and cradle-to-plate footprints will differ and cannot be compared to each other.

Environmental sustainability benchmarks, like carbon footprints or LCAs, promote transparency in the beef supply chain. Diving a little deeper into the perspective helps open conversations about what numbers represent and where individual producers play a role.

When presented with an environmental footprint, recognize the perspective. A cradle-to-plate footprint considers the environmental impact through more stages than a cradle-to-farm gate footprint.

Benchmarks of SUCCESS
ENVIRONMENTAL FOOTPRINT




Editor's note: "By Design" is a regular column of the *Angus Beef Bulletin* featuring facility and homestead design for cattlemen. Erin Cortus is an assistant professor and Extension specialist in the Bioproducts and Biosystems Engineering department of the University of Minnesota.