



### Product Description

Beef includes fresh, refrigerated, frozen, or processed food products with beef as the primary ingredient. Product types include steak, ground beef, hamburger patties, jerky, and sausage.

### Mission

The mission of The Sustainability Consortium (TSC) is to improve the sustainability of products when they are made, purchased, and used, with a focus on manufacturers and the retail buyers who decide what products to carry in stores. The information in this document is drawn from our detailed research on known and potential social and environmental impacts across product life cycles. TSC acknowledges that other issues exist, but we have included here those that are most relevant to the decision making of retail buying teams and manufacturers. The topics are listed alphabetically for ease of reading; the order does not represent prioritization or other criteria.

### Sustainability Insights



#### Animals

##### Animal Welfare

Beef producers should engage in comprehensive management plans, including certification programs, that ensure animal welfare for farm animals. Plans or programs should include practices that avoid painful procedures; ensure access to adequate housing and proper nutrition; require proper handling, proper transportation, and humane slaughter methods; and promote good health in ways that are appropriate for beef cattle.



#### Managing the Supply Chain

##### Fertilizer and Nutrients

Improper management and use of fertilizers can lead to local water pollution and release greenhouse gases. Feed and livestock producers should use a nutrient management plan to improve the efficiency of fertilizer and manure use for feed production, and use precision agriculture, which applies only the amount of fertilizer needed. Where appropriate, feed and livestock producers could plant vegetative buffer zones around streams to help prevent water pollution via nutrient runoff.

##### Land and Soil

If not managed properly, cattle can trample stream banks and eat grasses down to bare soil. Livestock producers can protect soil and water quality during grazing by taking steps to manage herds, such as fencing grazing areas into sections to rotate cattle and regularly changing the areas where cattle access water.

##### Pollution

Manure releases greenhouse gases and other emissions that pollute air and water. Livestock producers and feedlot operators can use manure management plans to reduce impacts from manure.

##### Supply Chain Transparency

Addressing many of the environmental and social challenges within an agriculture supply chain requires cooperation among companies at different

stages of the supply chain. Final product manufacturers should determine the locations of feedlots and farms that produce their supply and engage in initiatives that improve transparency, communication, and data sharing. Suppliers can work together or with multi-stakeholder collaborative efforts to address solutions to common challenges, such as energy use, water availability and quality, chemical use, worker health and safety, and labor rights.



## Use of Resources

### Climate and Energy

Cattle release greenhouse gases when they digest their feed and produce manure. The production and use of fertilizers and energy for growing feed, as well as energy use in beef processing, also emit greenhouse gases. Processors and final product manufacturers can reduce these impacts by measuring and tracking energy use, performing preventative maintenance on equipment, and replacing inefficient equipment. Additionally, livestock producers and feedlot operators can minimize impacts associated with feed production by sourcing from suppliers who implement a nutrient management plan, using precision agriculture to apply fertilizers, and using low-energy irrigation systems. Livestock producers and feedlot operators can also optimize feed yield and feeding of livestock, and the size and efficiency of farm vehicles.

### Water

Feed production for livestock can use a significant amount of water and contribute to freshwater depletion, which is problematic in water-stressed regions. Livestock producers can measure and track water use, and use methods such as precision agriculture, which applies only the amount of water needed, or irrigation water management to improve water efficiency.



## Workers and Communities

### Antibiotics

Therapeutic use of antibiotics has been shown to have positive effects on animal health and welfare, but care should be taken to prevent antibiotic resistance. To ensure responsible use, livestock producers and feedlot operators should follow label instructions exactly. Producers and operators should also consult veterinarians to implement antibiotic monitoring programs, plans, and systems that optimize animal welfare and health, while minimizing antibiotic resistance in animals and humans, as well as impact on the environment.

### Workers

Workers may be exposed to dust, chemicals, or other industrial hazards. To help ensure worker health and safety and labor rights, livestock producers should have a documented health and safety management plan, including a chemical management plan where needed, and provide safety training and personal protective equipment to workers in their facilities.