

## Grass-fed livestock

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The sustainability of grass-fed versus conventionally raised livestock may be compared across three major domains:

1. Environmental impact
2. Human health
3. Cost

### Environmental impact

*Renewable vs. non-renewable energy inputs.* Conventional production relies on heavy inputs of fossil fuels in the production of fertilizer and use of machinery to maximize yields of grain, which are in turn fed to livestock. Grass-based systems, in contrast, utilize solar energy to produce grass with minimal input of fossil fuels. Total energy input (largely from fossil fuels) for conventional systems are approximately 60% higher than for pastured livestock.<sup>1</sup>

*Agroecological balance.* Conventional production often removes animals from the farm in favor of confined animal feeding operations (CAFOs). Within this system, animals are raised on a grain-based diet, producing manure at levels much greater than the surrounding land can absorb.<sup>2</sup> In grass-based systems, animals are raised on the farm in numbers supportable by the farm. Additionally, pastured livestock often contribute to the overall health and balance of a farm by consuming grass from land unfit for crops or by-products of harvested crops otherwise wasted.

*Miscellaneous.* The stomachs of livestock species have evolved to digest and absorb nutrition from grass. However, when raised on a largely grain-based diet many livestock develop acid reflux, abscesses within the gastrointestinal tract, and chronic infection.<sup>3</sup> In addition to positively affecting the animal's health relative to a conventional grain-based diet, livestock raised on pasture provide the additional environmental benefit of decreased soil erosion and increased soil fertility, and improved water quality as a result of decreased pollution.<sup>4</sup>

### Human health

*Fatty acids.* Grain-fed beef is fattier and more highly concentrated in the saturated fats most often associated with heart disease, diabetes, stroke, and cancer. In contrast, grass-fed beef is leaner with a greater percentage of omega-3 fatty acids, those least associated with disease.<sup>5</sup>

*Antibiotics.* The Union of Concerned Scientists estimates that over 70% of antibiotics produced within the U.S. are used in animal production to minimize infectious disease and optimize rates of growth.<sup>6</sup> The systematic administration of antibiotics is most common in the conventional system where the spread of disease between confined animals is a constant danger. Many of these drugs are similar to human antibiotics and their continued use within industrial animal production fosters antibiotic resistance.

### Cost

*True costs.* While conventionally raised meat and dairy products remain significantly cheaper than grass-based products, the true costs remain hidden. Consumers pay for these products in

several ways beyond the grocery store, including tax dollars that subsidize the production of grain, increased health care costs, and ecological degradation and pollution, to name a few. These are costs not associated with grass-based systems for the production of meat and dairy, but are generated by the conventional production of livestock based on grain. These costs are not borne by the industry and passed directly to the consumer. They are passed indirectly to everyone as governmental agencies foot the bill for sewage, water treatment and environmental cleanup. As a result, the choice to purchase or consume meat and dairy from grass-fed systems shifts the market away from a system in which the true costs of production are hidden.

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- <sup>1</sup> Pimentel D, Oltenacu PA, Nesheim MC, Krummel J, Allen MS, and Chick S (1980) The Potential for Grass-Fed Livestock: Resource Constraints. *Science* 207:843-848
- <sup>2</sup> American Public Health Association (2003) 2003-7 Precautionary Moratorium on New Concentrated Animal Feed Operations: Association News: American Public Health Association
- <sup>3</sup> Russell JB, Rychlik JL (2001) Factors That Alter Rumen Microbial Ecology. *Science* 282: 1119-1122
- <sup>4</sup> Walker P, Rhubart-Berg P, McKenzie S, Kelling K, and Lawrence RS (2005) Public health implications of meat production and consumption. *Public Health Nutrition* 8:348-356
- <sup>5</sup> Clancy K (2006) Greener Pastures: How grass-fed beef and milk contribute to healthy eating. Cambridge, MA: Union of Concerned Scientists
- <sup>6</sup> Walker P, Rhubart-Berg P, McKenzie S, Kelling K, and Lawrence RS (2005) Public health implications of meat production and consumption. *Public Health Nutrition* 8:348-356

#### *Additional references*

- American Public Health Association (2003) 2003-7 Precautionary Moratorium on New Concentrated Animal Feed Operations: Association News: American Public Health Association.
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