Fact Sheet: Tough Questions about Beef Sustainability

Project Title: Is Local Beef More Sustainable?

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Consumer interest in locally produced food has increased dramatically over the past few decades. While there is no single formal definition of local food, the term local food commonly means food grown or raised between 100-400 miles of where it is purchased, or simply food produced within the same state.[1] However, local can mean different things to different people, especially if we consider the size of different states (take Rhode Island vs. Texas as an example). It is important to note that local does not imply one production system was used over another, it simply means that the product was produced within a certain distance of where it is being sold.

From an environmental sustainability perspective, the primary difference between local and non-local products is the type of transportation used in moving postharvest beef from processors to consumers, as shown in Figure 1. Measuring and comparing GHG emissions due to transportation

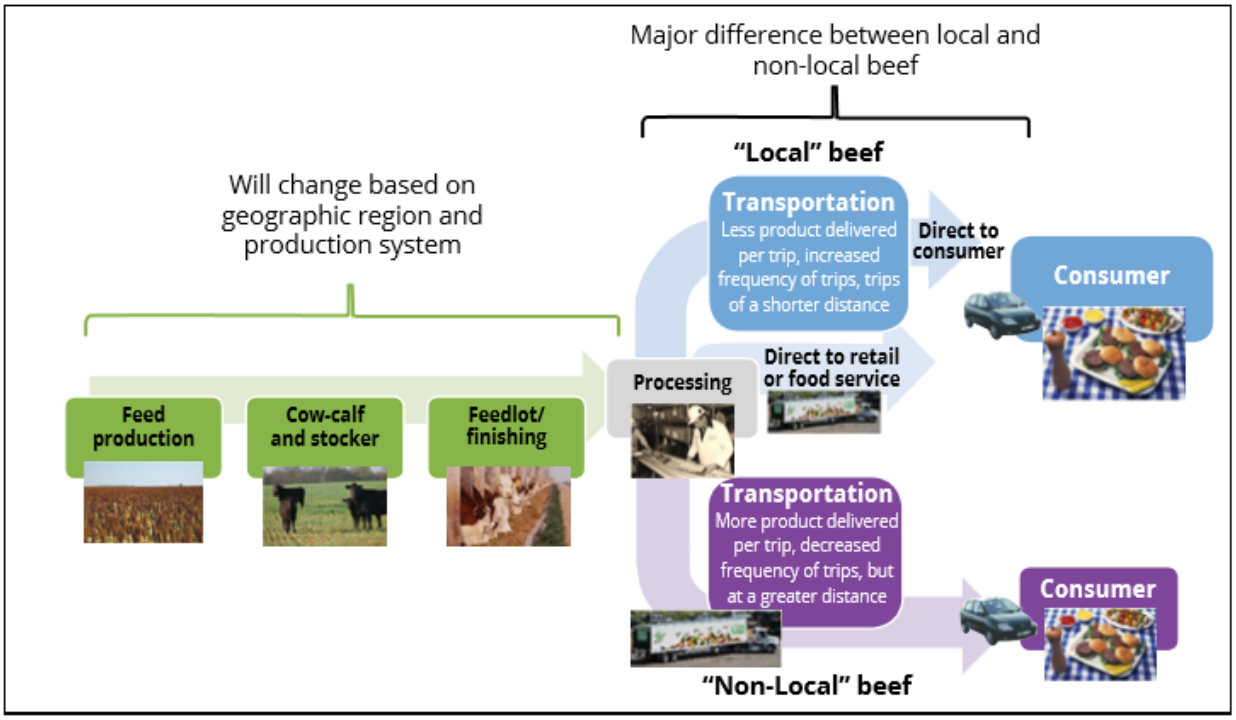

Figure 1. Major differences in the beef value chain between local and non-local beef are primarily due to transportation.*
*Photos courtesy of Oklahoma State University, USDA-ARS, USDA-NRCS, and openclipart.org

of beef from local and national locations is difficult because mode of transportation, load sizes, fuel type, distance to market, and frequency of trips are rarely similar.[1] However, approximately 80% of GHG emissions occur in the beef value chain before the animal is harvested[2] and approximately 1-3% of GHG emissions occur due to transportation of beef to the consumer.[3,4] Local food, including beef, is either marketed directly to consumers, or marketed to foodservice (e.g., restaurants) and

retailers and then purchased by consumers. The appeal of purchasing local foods is often associated with perceived reductions of greenhouse gases (GHGs) because the product travels shorter distances from the producer to the consumer, thereby reducing what is known as "food miles." However, there is a tradeoff between the increased frequency of trips and smaller load sizes versus the distance traveled per trip in local beef systems as compared to the mainstream beef transportation system. This is because more beef moved per trip will translate into lower fossil fuel energy use and lower GHG emissions per unit of beef transported.[1] Consequently, even if transportation distances were cut significantly for local beef, the impacts on GHG emissions are likely minimal.

While the environmental benefits of local beef (strictly considering transportation differences) may be minimal, many consumers that purchase local beef and other food products do so for social reasons, such as wanting to support their local economy and wanting to know where their food comes from.[5] To consumers that weigh those factors heavily in their purchasing decisions, local beef may be viewed as their most desirable choice. However, the effects of purchasing local food, including beef, on the local economy are not clear-cut nor are any economic benefits evenly distributed across communities (e.g., if a consumer shifts from purchasing at a retailer to a farmers market, the local owner(s) and operator(s) of the retailer will likely be negatively impacted).[1,6]

Additionally, it is unlikely that all U.S. consumers will have access to local beef if it is defined as within 100-400 miles of where one lives, due to land use constraints. For example, in highly populous cities, it would be unlikely that the land immediately surrounding the city would be able to support enough beef production to make local beef accessible to all consumers in that city. In more rural areas, rising land costs due to competition with crop production and expansion of residential housing may limit the ability to produce enough local beef to feed the population.

Regardless of where beef is produced, beef producers and researchers are continuously working toward improving the sustainability of beef production. As more of the environmental impact of beef production can be attributed to the raising of cattle and the feed fed to the cattle, focusing on improving the production efficiency of beef will have a far greater impact on environmental sustainability than reducing food miles. Sustainable beef production is not limited to a single production system, so all beef production systems (e.g., local, non-local, organic, conventional, grass-finished, grain-finished) can be sustainable if they are committed to constant improvement in all aspects of sustainability, including environmental impact, societal acceptance, and economic viability of production systems.[2]

Bottom line: The term "local" simply reflects the distance a product has been transported before being marketed and does not necessarily reflect differences in production practices or sustainability. The environmental sustainability benefit of purchasing local beef products are likely minimal as, 1) transportation accounts for only 1-3% of GHG emissions per unit of beef, and 2) local beef products can decrease transportation distance, but often at the expense of increased frequency of shorter distance trips due to smaller beef delivery sizes; therefore, GHG emissions from the burning of fossil fuels per unit of beef may not be greatly impacted.

Literature Cited

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