



King County

Eat Local for Thanksgiving – Greenhouse Gas Emissions Background Information

prepared by Matt Kuharic, Air Quality and Climate Change Initiatives
King County DNRP's Director's Office

More than half of King County's greenhouse gas (GHG) emissions are created from the burning of fossil fuels for on-road transportation (~52% in 2003¹). Because transportation is such a huge source of these climate changing emissions, it is instinctive that food sourced locally should create less climate changing impact. However, quantifying the difference between local and distant food sources is hard to do.

In the spring of 2007, the Sound Food System Enhancement Group² at the University of Washington (UW) released a study³ that assessed the relative impacts of two "typical" Seattle area dinner plates with the same ingredients: one sourced locally and one from the primary non-local providers of the ingredients. Their analysis for a "typical" plate included salmon, asparagus, potatoes and apples. While these are not necessarily the same ingredients that make up a Thanksgiving meal, this research is one of the most thorough studies to date and the most pertinent for the Puget Sound region; it helps point out how eating locally can help reduce our contribution to climate change.

Using the Life Cycle Assessment technique (LCA), the UW research team evaluated the CO₂ equivalent emissions of growing, processing and transporting each ingredient in the typical plate to Seattle. The estimated emissions were based on the production, delivery, and application of fertilizers, herbicides, and insecticides. The estimates also included the emissions associated with extracting, refining, and transporting fossil fuels and their use in production (e.g. farm equipment) and delivery of the food (e.g. container ship or by truck).

The LCA technique is recognized as the gold standard for trying to understand climate change. The problem when trying to apply this analysis generally is that there is not enough information known about the differences in growing, processing and transporting other food items and whether the impacts of other foods would be comparable to the ones in this study.

The UW study indicated that if 1,000 people ate the local dinner as opposed to an imported one, roughly 2,200 pounds of GHGs emissions would be avoided. This is the equivalent of taking an average vehicle off the road for ~2,700 miles. While this may not seem like much, the positive impacts of eating locally can quickly add up. If half of all of King County's residents ate a local Thanksgiving dinner similar to the local one in the study, instead of an imported dinner, this would be the equivalent of reducing 2.4 million vehicle miles traveled. If half of King County's population replaced similar imported dinners with locally produced dinners all year, this would be the equivalent emissions reductions of all activities of ~14,000 Americans for a full year! Now that's a big difference, and that doesn't even count eating a local breakfast and lunch!

To estimate the impact of each person's pledge, we used the results of the UW study described above. In constructing the GHG emissions reduction estimates, we note the following:

- We do not know what local foods will be used for the Thanksgiving meal, where they are grown, or how they were processed and transported to market
- There is a large amount of variability in the GHG reductions that eating locally can provide.
- Quantifying the amount of GHG reductions is done so people can "get their arms around" the climate change impact of eating locally.
- Based on the UW study, we assume that for each local dish prepared, 2.2 pounds (981 grams) of GHG emissions are avoided (compared to preparing a dish of all imported ingredients).
- We in turn assume that preparing a local dish to feed multiple people provides the same emissions reductions as eating a local dinner.

¹ <http://dnr.metrokc.gov/dnrp/air-quality/pdf/2003-inventory-report.pdf>

² <http://courses.washington.edu/emksp06/SeattleFoodSystem/Index.shtml>

³ http://courses.washington.edu/emksp06/SeattleFoodSystem/Final_GHG_Report.pdf

⁴ Contact matt.kuharic@kingcounty.gov, DNRP's Director's Office, for questions about these estimates.