



Consumer perceptions of the safety, health, and environmental impact of various scales and geographic origin of food supply chains

Rich Pirog

Associate Director and Marketing and Food Systems Program Leader
Leopold Center for Sustainable Agriculture – Iowa State University

Andy Larson

MBA graduate student - Iowa State University College of Business

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Executive Summary

Concerns have increased about the environmental impacts and safety of our food supply in the past several years. This public uneasiness has spurred multiple investigations of where and how food is produced and the corresponding impacts on our environment and climate. In addition, the consumer demand for local food products nationwide has risen. Given these developments, the Leopold Center's Marketing and Food Systems Initiative conducted consumer market research in July 2007 to examine the complex relationships among food safety, health, greenhouse gas emissions and climate change, and different food system scales (local, national, global).

Specific objectives for this research were to:

1. Ascertain consumer perceptions regarding food safety, within the context of where their food comes from and how it is grown;
2. Assess consumer understanding of the impact that various scales and production methods of the food system have on greenhouse gas emissions;
3. Determine whether consumers are willing to pay more for a food system that has a net reduction in greenhouse gas emissions; and
4. Gauge consumer perceptions of health benefits from local and organic foods.

Survey questions were designed to address these objectives and elicit consumers' responses regarding food safety and product origin, greenhouse gas emissions in the food system, willingness to pay for food products with lower emissions, and perceptions surrounding health benefits of local and organic food. The survey was designed and administered using Survey

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Monkey, a web-based survey software suite available at <http://www.surveymonkey.com/>. Survey distribution was contracted to Authentic Response, a third-party company (<http://www.authenticresponse.net/>). Five hundred usable surveys from a representative sample of the U.S. adult population were received.

Respondents to this survey placed high importance on food safety, freshness (harvest date), and pesticide use on fresh produce they purchase, with somewhat lower importance placed on whether the produce was locally grown, the level of greenhouse gas emissions it took to produce and transport the produce, and whether the respondent could contact the farmer who grew it.

The majority of respondents (70 percent) perceived the U.S. food system to be safe. But when asked about the safety of fresh produce based on continent of origin, respondents showed varying levels of confidence. North America was perceived as the most safe (85 percent) followed by Europe (50 percent) and Australia (48 percent). Products originating from Asia and Africa were least likely to be viewed as safe. When asked which specific countries raised the most concern, China was cited most frequently, with 31 percent of respondents singling it out.

Concern with the safety of the global food system was found among the respondents when comparing a global food system to a national (U.S.), regional, or local food system. Eighty-five and 88 percent of respondents, respectively, perceived local and regional food systems to be somewhat safe or very safe, compared to only 12 percent for the global food system.

Respondents were asked a series of questions about their perceptions of greenhouse gas emissions based on sector of the economy, modes of transportation, and links within food supply chains. Respondent perceptions of these issues did, to considerable extent, mirror existing data published by federal agencies and other organizations. One notable instance of disagreement was the perception of respondents that trucks emitted more greenhouse gases than airplanes on a per pound basis of product transported. In fact, airplane emissions are higher on a per unit weight basis than truck emissions.¹ The amount of food being transported by airplane has been the focus for much debate in Great Britain and elsewhere in Europe because of its potential impact on the environment. For example, only 1.5 percent of fresh fruits and vegetables are transported by air in Great Britain, but that portion produces 50 percent of all emissions from fruit and vegetable transportation.² These findings point to a need for more consumer education on this subject in the United States.

Are consumers willing to pay more for food from supply chains that emit half as much greenhouse gas as conventional chains? Nearly half of respondents were willing to pay a 10 to 30 percent premium, but a similar percentage was not. However, when looking at those respondents who had shopped at venues where locally-grown foods were more likely to be for sale, 58 percent were willing to pay more (compared to those who did not shop at venues were

¹ U.S. Congress, Office of Technology Assessment, Saving Energy in U.S. Transportation, OTA-ETI-589. Washington, D.C.: U.S. Government Printing Office, July 1994, 44.
<http://www.wvs.princeton.edu/ota/disk1/1994/9432/9432.PDF>.

² MacGregor, James, and Bill Vorley. 2006. "Fair Miles The concept of "food miles" through a sustainable development lens." International Institute for Environment and Development.
<http://www.iied.org/pubs/pdf/full/11064IIED.pdf>.

locally-grown foods were likely for sale), and 38 percent indicated they would pay the same. These results have marketing implications for small and midsize farmers and the associated organizations working with them to promote local foods.

There are few peer-reviewed research studies showing that organic products possess additional health benefits when compared to conventional products, but their number are increasing.^{3 4} Fifty-seven percent of respondents in this survey “somewhat” or “strongly” agreed that organic food was healthier than conventional. To the authors’ knowledge, there are no peer-reviewed studies that document increased health benefits related to consumption of locally-grown food when compared to food sourced from conventional locations in national and global markets. However, more than two-thirds of respondents (69 percent) “somewhat” or “strongly” agreed that local food is better for their personal health than food that has traveled across the country. When asked whether they perceived that science had indeed proven that local food was healthier than distant food, 40 percent of respondents “somewhat” or “strongly” agreed.

With the dramatic rise in popularity of local foods, the farmers who grow these foods and the organizations that champion both the farmers and the foods will be called upon to prove the existence of economic, environmental, and health benefits stemming from these products, and ensure their continued safety as part of the food supply. It is critical that government agencies (at the state and federal level), universities, health professionals, private companies, and non-profit organizations partner with those farmers growing and processing local foods to develop an appropriate research agenda for these food supply chains. This agenda must be focused on and responsive to the public questions that arise as local foods capture an increasing portion of per capita food consumption totals in the United States.

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³ The Organic Center. <http://www.organic-center.org/about.mission.html>.

⁴ A. E. Mitchell, Y-J Hong, E. Koh, D.M. Barrett, D.E. Bryant, R. F. Denison, and S. Kaffka. 2007. Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes. *Journal of Agriculture and Food Chemistry*. <http://www.pubs.acs.org/cgi-bin/abstract.cgi/jafcau/2007/55/i15/abs/jf070344+.html>.