

# Upstate Food Networks: Linking Farmers & Consumers in South Carolina

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## BACKGROUND & ABSTRACT

According to the United States Department of Agriculture, the number of U.S. farmers' markets increased by 79 percent between 1994 and 2002. However, the volume of produce sales at these markets accounts for less than two percent of total U.S. produce sales (Kremen, 2004). In this project, GIS was used to evaluate the spatial relationships between farmers and consumers in Upstate South Carolina, with a particular focus on the accessibility of local food sources to Furman University. The resulting maps and graphs will help local farmers identify the most efficient means of supplying their products to consumers. An accompanying interactive map created in Google Earth™ will help consumers locate local food sources in Upstate South Carolina.

## DATA: SOURCES & CONTENT

### 1. Local Food Data

Sources

- Local Food Guide
- Carolina Guide to Local & Organic Food & More
- agricultural websites (see references)

Content

- farms that sell their products locally, as well as farmers' markets, grocery stores, and cooperatives that sell local foods
- addresses, contact information, products, seasonal availability, sales methods, natural or organic practices

### 2. Furman Data

Content: university address

### 3. South Carolina County Data

Source: ESRI's 2003 Data and Map Series

Content: county boundaries

### 4. South Carolina Roads Data

Source: ESRI's 2003 Data and Map Series

Content: road locations

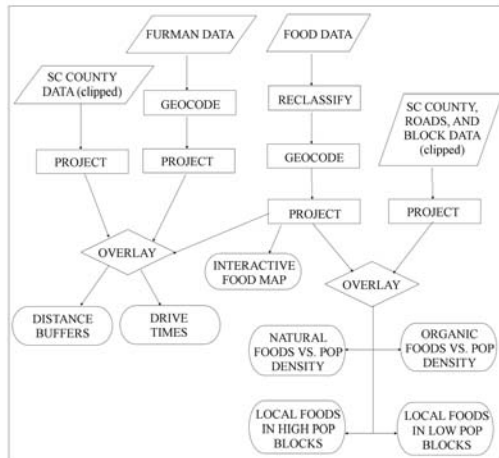
### 5. South Carolina Blockgroup Data

Source: ESRI's 2003 Data and Maps Series

Content: blockgroup boundaries and demographics

**Note:** County, Roads, and Blockgroup data were clipped to the following counties: Anderson, Cherokee, Greenville, Laurens, Oconee, Pickens, Spartanburg, and Union.

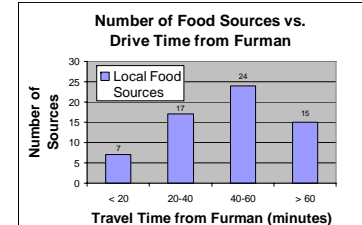
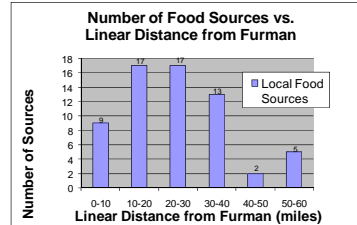
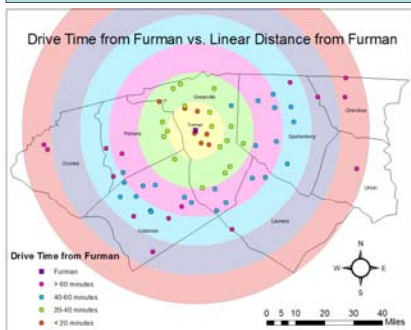
## PROJECT METHODOLOGY



### PROJECTION INFORMATION

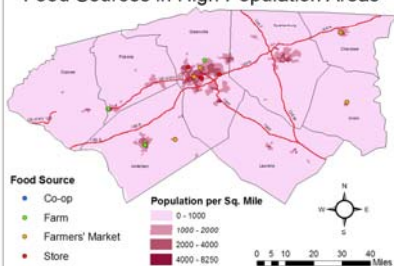
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## RESULTS & EXPLANATION

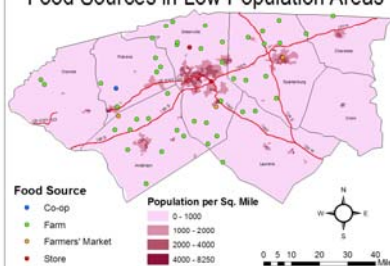


The linear distance from Furman to local food sources and the drive time from Furman to local food sources do not always correlate. For example, six food sources that fall within 10 miles of Furman require fewer than 20 minutes of driving time while three sources that fall within 10 miles of Furman require 20-40 minutes of driving time. In addition, the greatest number of food sources fall 10-30 miles from Furman, but the most common driving time is 40-60 minutes. This discrepancy may be due to the fact that many local food sources are located in rural areas to which there are no fast, direct routes from Furman's campus.

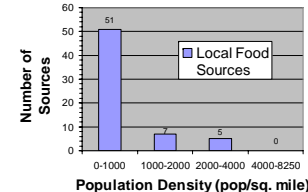
### Food Sources in High Population Areas



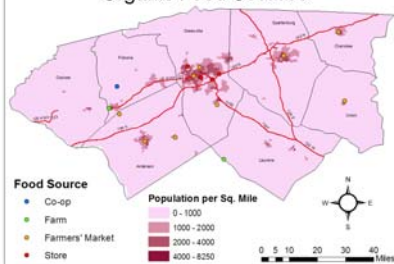
### Food Sources in Low Population Areas



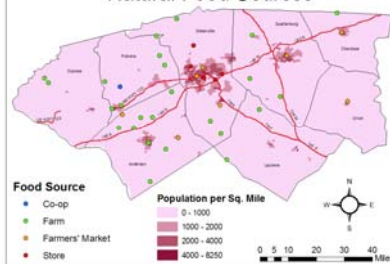
### Number of Local Food Sources vs. Population Density



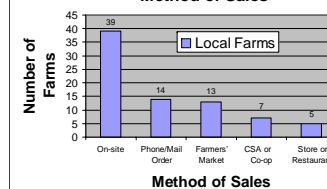
### Organic Food Sources



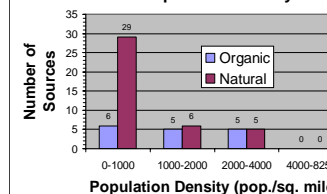
### Natural Food Sources



### Number of Farms vs. Method of Sales



### Organic and Natural Food Sources vs. Population Density



Local food sources, particularly farms, are concentrated in low population (LP) areas. Although stores and farmers' markets are more common in high population (HP) areas, they are not located in the areas of densest population. Furthermore, most farmers sell their products to local customers through on-site sales. This suggests that local food transactions occur primarily by consumer travel to farms rather than by transportation of farm products to HP areas. In addition, most of the organic food sources (those that have obtained organic certification for their products) are stores or markets in HP areas while most of the natural food sources (those that self-describe their products as natural or organic but have not obtained certification) are farms in LP areas. This suggests that most organic foods in stores are not local and that most upstate farmers choose not to pursue organic certification although many of these farmers use natural practices, such as rotational pastures or organic fertilizers.

## DISCUSSION

The concentration of food sources in low population areas combined with the on-site sales of most farms indicates that the local food movement could benefit from greater use of farmers' markets, grocery stores, co-ops, and other methods of centralized food sales. By bringing their products to highly populated areas, farmers could benefit from higher sales, while consumers could benefit from greater convenience. For example, given the long drive times that are required to reach many rural farms, Furman students would be more likely to purchase local foods at nearby stores or markets, particularly since each farm might produce only one or two of the foods that the consumer wishes to purchase. In addition, by bringing their products to highly populated areas, farmers could reduce the number of trips that occur between farms and consumers, thereby reducing the greenhouse gas emissions from food transportation. Finally, the reluctance of farmers to acquire organic certification indicates a need to reevaluate the certification process and to perhaps develop a better method of informing consumers about the natural practices of many Upstate farmers.

## REFERENCES & ACKNOWLEDGEMENTS

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