

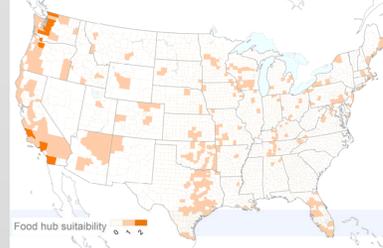
# REGIONAL FOOD HUB SUITABILITY ANALYSIS

## Data Input Variables

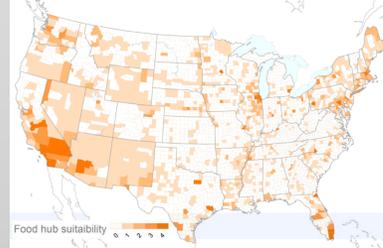
- Commercial fishing operations
- Farms with < \$100K in annual sales
- Miles of highway
- Refrigerated warehouse and storage facilities
- Farm product warehouse and storage facilities
- Local freight trucking establishments
- Frozen fruit and vegetable manufacturing
- Fruit and vegetable canning, drying, and pickling
- Animal slaughter and processing
- Seafood processing
- Percent of total farmland in organic production
- Number of organic operations
- Percent of total farm operations that are organic
- Farm to school programs
- Farms with direct sales
- Percent of total farm operations with direct sales
- Percent of total farm sales sold directly to consumer
- Farmers markets
- Grocery stores
- Post-secondary educational Institutions
- Elementary and secondary schools
- Hospitals

## Concept Maps

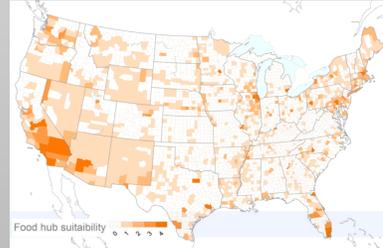
### Regional food production



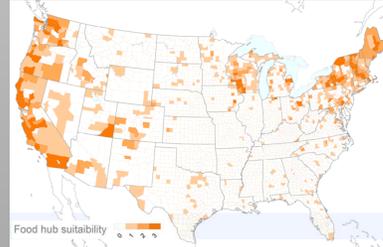
### Transportation and storage



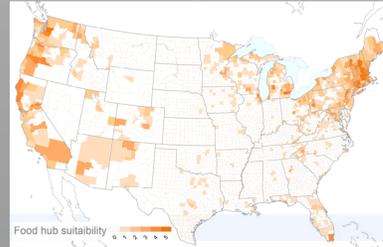
### Food processing infrastructure



### Environmental services



### Demand for regional food



### Markets for regional food



## methods

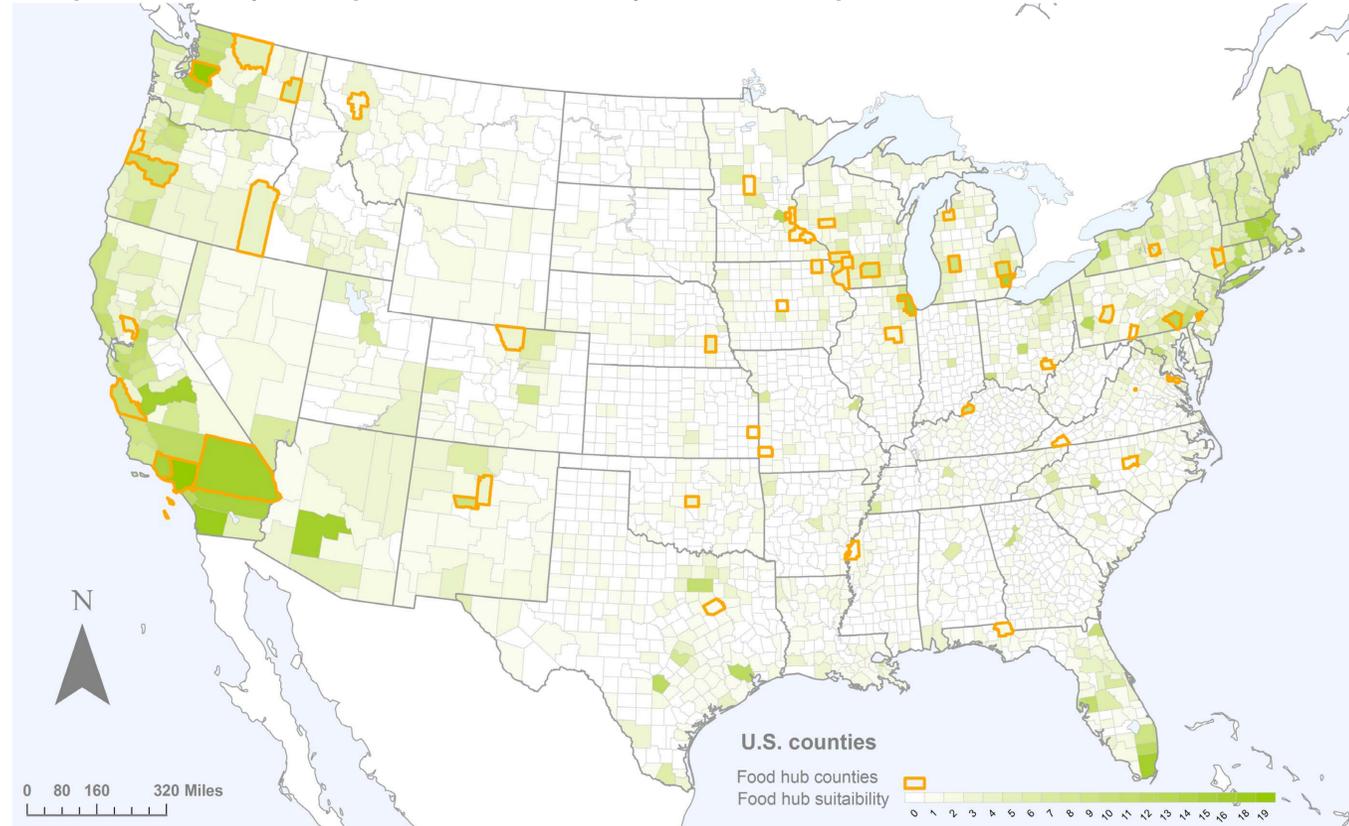
This analysis uses county level data from a variety of government sources including the U.S. Population Census, the USDA Agricultural Census, and U.S. County Business Patterns. Variables were included in the analysis based on six key suitability concepts: Regional food production, transportation and storage infrastructure, food processing infrastructure, environmental services, demand for regional food, and potential markets for regional food.

Existing food hub counties were identified based on a the USDA Agricultural Marketing Service working Food Hub Database. The mean value for each input variable was calculated for all counties with existing food hubs. This value was used as a threshold point to identify food hub suitability for each input variable.

For each suitability concept a scheme was developed to rank counties based on the number of input variables that met the determined suitability level. The maps to the left represent each of the six suitability concepts. Counties shaded in darker orange met the suitability threshold for more of the input variables.

Finally, a composite map was created to represent all six suitability concepts. The map below includes all nineteen input variables. The counties shaded in the darkest green met the suitability threshold for the most input variables. Existing food hub counties are outlined in orange to visualize the relationship between the model and actual food hub geographic locations.

### Compiled Suitability Concepts: food hub suitability based on all input variables



## discussion

**Observations**— Based on the variables and threshold values used in this analysis it is clear that the regions in the U.S. with the highest food hub suitability are the Northeast and the West Coast. A number of existing food hubs are located in areas that are designated as highly suitable based on this analysis. However, the largest cluster of existing food hubs is in the Upper Midwest, which was not ranked as highly based on the suitability criteria used for this analysis.

**Limitations and areas for future investigation**— The threshold criteria for each variable should be explored further to take account of the range of deviation from the mean value among existing food hub counties and to test whether the threshold values are significantly different from the mean value of all U.S. counties.

Some of the variables specifically reflect systems that are relevant to local and regional food systems, such as measuring demand for regional food using direct marketing activity as a proxy measure. However, other variables that were used are not specific to regional food system. For instance the food processing infrastructure variables includes facilities that are at a larger

scale than producers and distributors of regional food can access. Looking specifically at small-scale food processing infrastructure would be more relevant to regional food system mapping, however these data are not publicly available.

Finally, it is important to realize that the variables included in this analysis are only a few of the many components that contribute to a vibrant regional food system. A tool such as this could be used to identify potential new food hub counties based on existing factors. However, the most important work in determining food hub suitability is done on the ground through relationship building in the community.

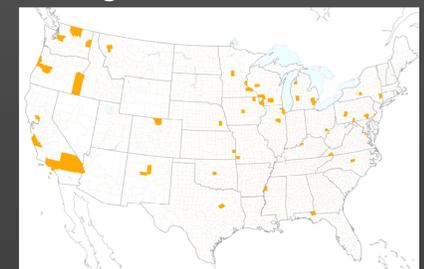
## Background

A Regional Food Hub (RFH) is a point of aggregation and distribution for locally and regionally produced food products. Additionally RFHs can serve in the storing, processing and/or marketing of food produced for regional consumption.

In recent years there has been tremendous growth in the number of RFHs across the country as demand for locally and regionally produced food has increased. The food hub concept is an emerging business model that holds a number of opportunities:

1. Stimulate community economic development through the creation of local jobs
2. Support small and mid-sized producers by marketing the value-added aspect of regionally produced products and expanding their distribution capacity
3. Increase access to fresh food for consumers, especially in underserved communities.

### Existing food hub counties



Lucy Myles | May 2011  
Projected coordinate frame: USA Contiguous Albers Equal Area Conic 1983

Data sources: 2000 U.S. Population Census, 2008 U.S. County Business Patterns, 2007 U.S. Agricultural Census, 2010 USDA AMS Farmers' Market Dataset, 2009 National Farm to School Network