Foodshed Calculator: Concept and Applications

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Introduction & Purpose

Many communities in Minnesota see local foods as a real opportunity. Advocates have many reasons for promoting local foods, including improved nutrition, quality of life, and local business development.

Currently two Blue Cross-Blue Shield funded projects in West Central Minnesota are exploring the use of a foodshed analysis to move from a general discussion about how local foods may benefit communities to what capacity a local community has to feed itself. The foodshed calculator helps estimate the size of the local foods market to identify gaps which may be filled by local growers, targeting those foods which are commonly direct marketed in Minnesota. It improves upon other demand calculators like the Leopold Center's US Food Market Estimator to translate the demand in lbs to acerage needed to supply the product.

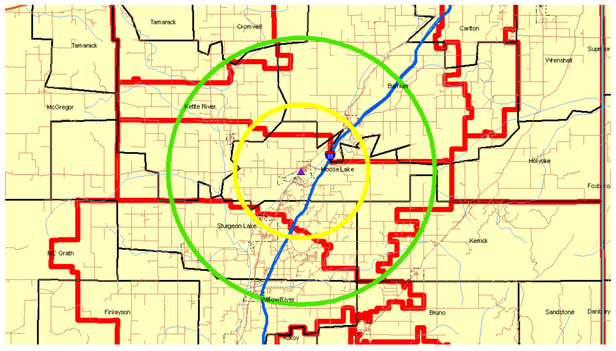
The **objectives** of this project were to create
1) a methodology for using measuring gaps in a local foodshed

2) a tool communities can use to identify needs and opportunities

What is a Foodshed?

A foodshed is the supply area where a community sources its food. In reality, today, this is the world. But, when the aim is to develop a working local food system, community members often define a foodshed as a more immediate area not unlike a community's retail trade area.

Applying the tools and methods of the Community Economics Program Area in retail development, we are incorporating the foodshed calculator data into ESRI's Business Analyst to make estimates based on customized community trade areas.



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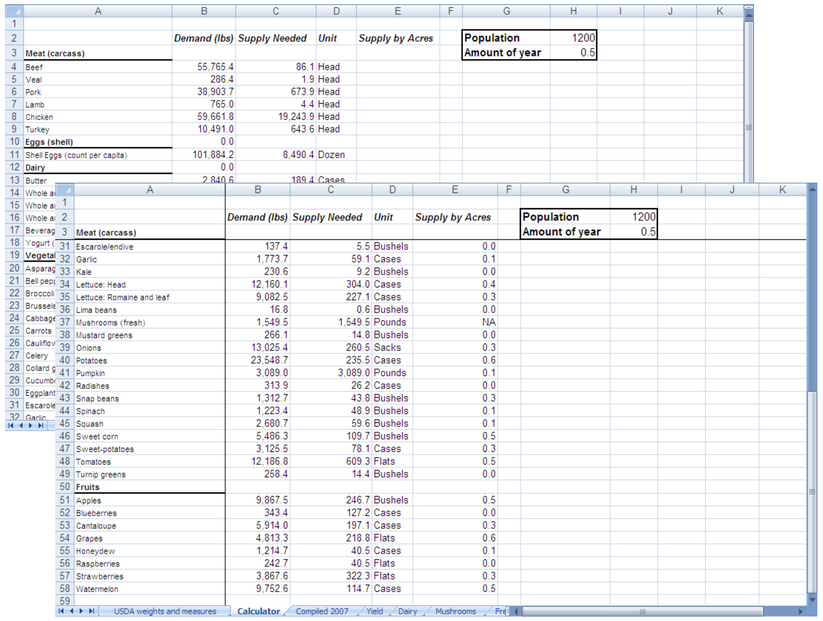
What does the tool look like?



	Demand (lbs)	Supply Needed	Unit	Supply by Acres
Meat (carcass)				
Beef	55,765.4	86.1	Head	
Veal	286.4	1.9	Head	
Pork	38,903.7	673.9	Head	
Lamb	765.0	4.4	Head	
Chicken	59,661.8	19,243.9	Head	
Turkey	10,491.0	643.6	Head	
Eggs (shell)	0.0			
Shell Eggs (count per capita)	101,884.2	8,490.4	Dozen	
Dairy	0.0			
Butter	2,840.6	189.4	Cases	

	Demand (lbs)	Supply Needed	Unit	Supply by Acres
Meat (carcass)				
Escarole/endive	137.4	5.5	Bushels	0.0
Garlic	1,773.7	59.1	Cases	0.1
Kale	230.6	9.2	Bushels	0.0
Lettuce: Head	12,160.1	304.0	Cases	0.4
Lettuce: Romaine and leaf	9,082.5	227.1	Cases	0.3
Lima beans	16.8	0.6	Bushels	0.0
Mushrooms (fresh)	1,549.5	1,549.5	Pounds	NA
Mustard greens	266.1	14.8	Bushels	0.0
Onions	13,025.4	260.5	Sacks	0.3
Potatoes	23,548.7	235.5	Cases	0.6
Pumpkin	3,089.0	3,089.0	Pounds	0.1
Radishes	313.9	26.2	Cases	0.0
Snap beans	1,312.7	43.8	Bushels	0.3
Spinach	1,223.4	48.9	Bushels	0.1
Squash	2,680.7	59.6	Bushels	0.1
Sweet corn	5,486.3	109.7	Bushels	0.5
Sweet-potatoes	3,125.5	78.1	Cases	0.3
Tomatoes	12,186.8	609.3	Flats	0.5
Turnip greens	258.4	14.4	Bushels	0.0
Fruits				
Apples	9,867.5	246.7	Bushels	0.5
Blueberries	343.4	127.2	Cases	0.0
Cantaloupe	5,914.0	197.1	Cases	0.3
Grapes	4,813.3	218.8	Flats	0.6
Honeydew	1,214.7	40.5	Cases	0.1
Raspberries	242.7	40.5	Flats	0.0
Strawberries	3,867.6	322.3	Flats	0.3
Watermelon	9,752.6	114.7	Cases	0.5

Population 1200
Amount of year 0.5

Methods

The calculator works to estimate demand for a range of products and translate that demand into needed supply (by acreage where appropriate). This allows businesses and communities to quickly identify opportunities when compared with their existing grower base.

Demand Estimates

- The foodshed calculator estimates demand for a foodshed using a per capita consumption factor and an estimate of annual supply avaiability.
  - EG, 1,200 persons X 34 lbs. per person per year X 50% of the year
- *Source*: Food Dissappearance dataset from USDA ERS
  - Same dataset used by the Leopold Center of Iowa for their US Food Market Estimator tool online (http://www.ctre.iastate.edu/marketsize)

Supply Estimates

- The supply estimates simply are a conversion of demand estimates into a readily understandable and useful format.
  - EG, 5,400 lbs of carrots translates into 107 bushels (assuming a 50# bushel) or 0.1 acres (assuming 40K lbs/acre yield).
- *Sources*:
  - "Weights, Measures, and Conversion Factors for Agricultural Commodities and the Products," a USDA bulletin, 1992.
  - "Yield Data for Fresh Market Vegetables", Delahut, Wisconsin Extension.
  - Some fruit yield estimates supplied by Jim Luby, U of M

Application

The foodshed calculator gives community members some basis to begin targeting activities to grow their local food system, such as:
• Educating the public of what's possible with a functioning local food system in their community
• Recruiting "big gardeners" to become commercial operations if produce is a need
• Forming an appropriate marketing vehicle to meet local demand from a farmers market to a community CSA or organized marketing cooperative
• Setting targets for local activities, EG, getting local eggs in the community when none currently available.
•Informing growers of product gaps they can fill

Discussion

There are still lingering methodological issues we must explore to continue to improve the supply-demand estimates of the foodshed calculator:
1. How accurately can we measure the current supply of local foods?
2. Is the information reliable enough and in a format that will compel growers and community members to act?

Supply Measurement Accuracy
There are many factors which complicate supply measurements:
• The calculator's yield estimates are simply basic ballpark estimates, which, heretofore, have not been formally reviewed by knowledgeable growers or researchers.
• Supply estimates do not reflect local growing conditions
• Since many market gardening operations are a varied mix of crops in small acreages, it is difficult to translate the demand into a useable format.
• There are other sources of local production like home and community gardens which many supply a certain percentage of demand which is not easily measured for a foodshed.

Applicability
The whole premise of this project has been to create something in an accessible format which has some tangible applications. Still, no matter the intentions, the real test is the actual use by actual people. Therefore, the way this information will be presented and how community participants will interact with it will be paramount.
•We may consider supplementary activities and ideas for application to help community members put the information to work.
• Certainly we will evaluate the use of the tool in pilot communities which embark on foodshed analysis and planning