

What are local foods and what are they good for?

**Therese Costello
Earth Systems 2011**

Local Food:

Agenda

Presentation (25 minutes)

Definition & Consumer Motivation for Participation

Relevance

Determining the Value of Local Foods

Environmental Impact

Economic Impact

Health

Social Justice

Discussion (20 minutes)

Local Food:

Definition

Primarily a geographic definition

Popular Culture: “golden rule” 100 mile radius: Oxford University Press

Congress: 400 mile radius, 2008 Food Conservation and Energy Act

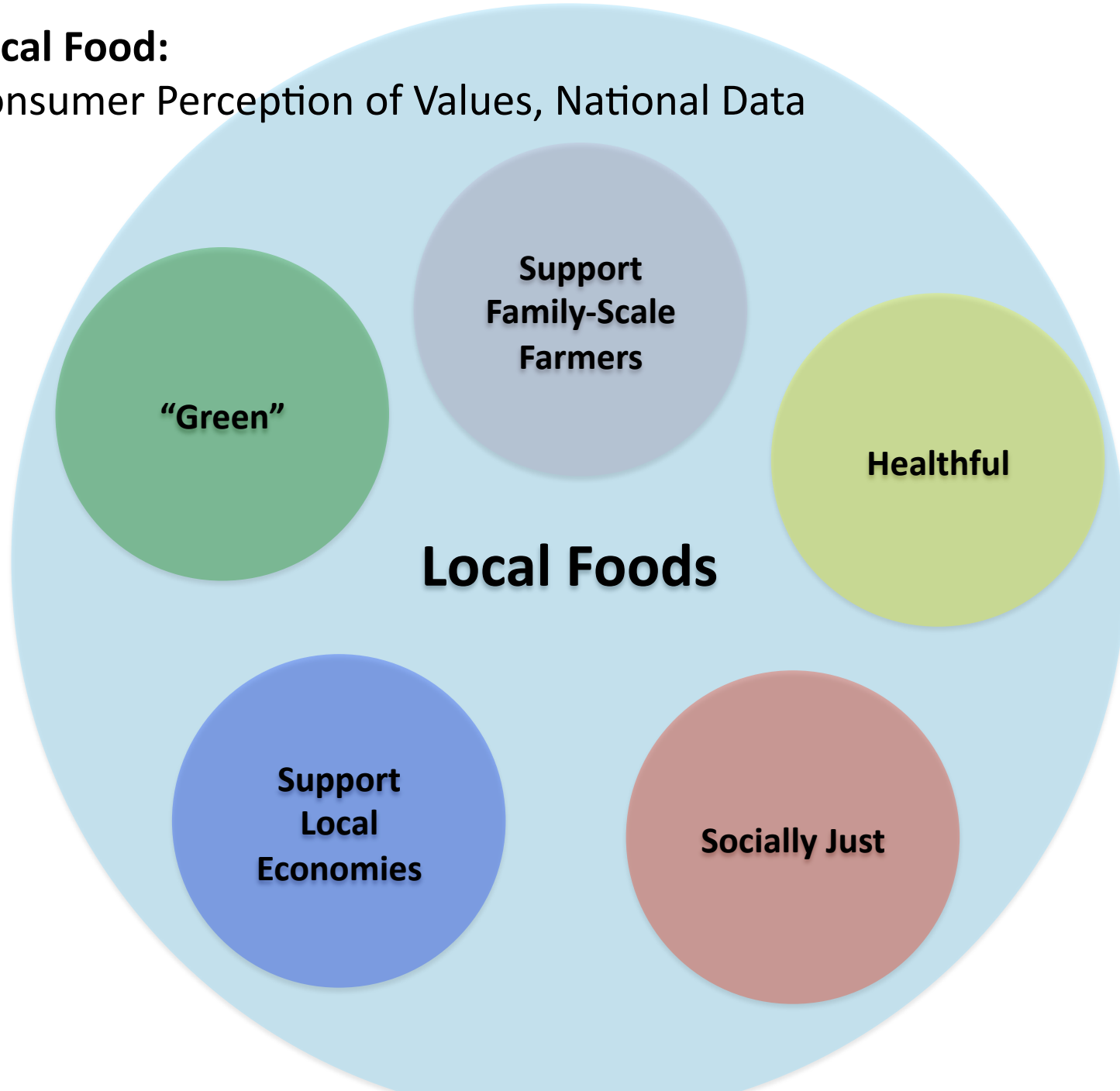
Wal-Mart: In-State

Local Food:
Audience Poll

Why do you purchase local foods?

Local Food:

Consumer Perception of Values, National Data



Local Food:

Consumer Perception of Values

Reality or Myth?



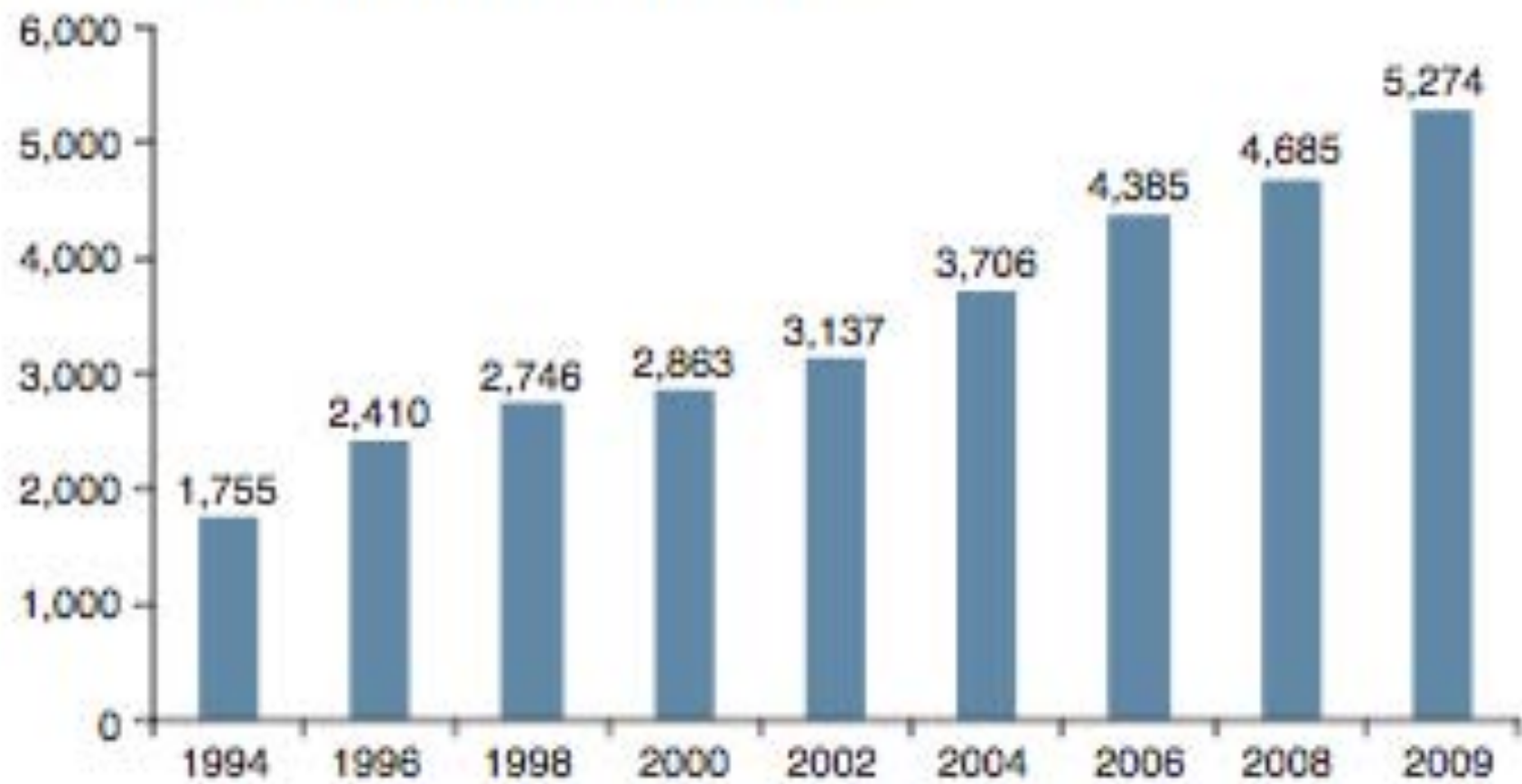
Local Food:

Relevance

- Current and future demand
- Federal, State, Local government activity
- Institutional purchasing policies
- Individual consumers making every-day choices

Local Food: Relevance

Figure 1
U.S. farmers' market growth, 1994-2009



Source: USDA, Agricultural Marketing Service, Farmers' Market Survey.

Local Food: Relevance

Figure 2
Farmers' market locations by county, 2009



Source: USDA, Economic Research Service, Food Environment Atlas, 2010. Available at: <http://www.ers.usda.gov/foodatlas>.

Local Food:

Relevance

\$297 billion, Total agricultural sales including non-food commodities (2007)

Direct Sales

\$ 1.2 billion

0.4% of total agricultural sales (2007)

Indirect Local Food Sales

\$3.8 billion

1.28% total agricultural sales

Martinez, Steve, et al. *Local Food Systems: Concepts, Impacts, and Issues*, ERR 97, U.S. Department of Agriculture, Economic Research Service, May 2010.

Local Food: Determining Value

**“Green”:
Sustainable
Agriculture**

**“Green”:
Transportation
“Food Miles”**

**Support Local
Communities:
retain \$ in the
community**

Healthful

Socially Just

**Support
Family Scale
Farmers**

Local Food: Determining Value

**“Green”:
Sustainable
Agriculture**

~

Sometimes

**“Green”:
Transportation
“Food Miles”**

~

Sometimes

**Support Local
Communities:
retain \$ in the
community**

?

Unknown

Healthful

?

Unknown

Socially Just

?

Unknown

**Support
Family Scale
Farmers**

?

Unknown

Local Food:

Market Typology

Local Food Direct Sales

- Direct-to-consumer (farmers' market, Community Supported Agriculture)
- You-Pick, On-farm Sales Stands

Local Food Intermediate Sales

- One of more intermediary players where information about the products origin and producers are communicated to consumers

Local Food Mainstream Sales

- Retail and commodity markets where information about origin of product is not defined

Local Food:

“Green”: Sustainable Agriculture

Local does not mean...

-  Organic
-  Sustainable growing practices

Does mean....

-  Seasonal (season extension)

Metric: specific growing practices

Local Food:

“Green”: Food Miles

“Food Miles” insufficient measurement of energy cost associated with food

Metrics:

1. Life Cycle Analysis (LCA) of food production from seed to waste disposal
2. More “simplistic” analysis- energy use in supply chain

TABLE 1. Energy and Greenhouse Gas Emissions Per ton-km for Different Modes of Transport^a

	MJ/t-km	t CO ₂ e/t-km × 10 ⁶	source
inland water	0.3	21	(23)
rail	0.3	18	(23)
truck	2.7	180	(23)
air ^a	10.0	680 ^a	(25)
oil pipeline	0.2	16	(23,24)
gas pipeline	1.7	180	(23,24)
int. air ^a	10.0	680 ^a	(25)
int. water container	0.2	14	(26)
int. water bulk	0.2	11	(26)
int. water tanker	0.1	7	(26)

^a CO₂ emissions were used as an indicator for the radiative forcing effects of aviation, which are actually higher than just CO₂ emissions (27).

“Food-Miles And The Relative Climate Impacts Of Food Choices In The United States” Christopher L. Weber - H. Scott Matthews – Environmental Science & Technology – 2008

Local Food:

“Green”: Food Miles

Table 7.3
Total energy and carbon dioxide indicators for NZ and UK apple production

Item	Quantity/hectare		Energy MJ/Tonne apples		CO ₂ Emissions kg CO ₂ /Tonne apples	
	NZ	UK	NZ	UK	NZ	UK
Direct						
Fuel, Electricity and Oil – (L of Diesel equivalent)		794		2,337		152.1
Fuel use - Orchard (L of Diesel)	436		380		26.1	
Electricity Use (kWh)	1,180		192		3.7	
Direct subtotal	-	-	573	2,337	29.8	152.1
Indirect						
Nitrogen (kg)	80	78	104	362	4.8	18.1
Phosphorus (kg)	8	11	2	12	0.1	0.7
Potassium (kg)	60	55	12	39	0.7	2.3
Lime (kg)	1,042		13		9.0	
Herbicide (kg ai)	3.2	1.46	20	57	1.2	3.4
Fungicide (kg ai)	15.6	6.21	65	93	3.9	5.6
Insecticide - General (kg ai)	2.2	1.24	14	28	0.8	1.7
Insecticide – Oil (kg ai)	29.0	3.51	70	30	4.2	1.8
Plant Growth Regulator (kg ai)		0.17		2		0.1
Indirect subtotal	-	-	300	624	24.7	33.8
Capital						
Farm buildings (m ²)	2.0		1		0.1	
Tractors (kg)	248		22		2.0	
Light trucks/utilities (kg)	78		7		0.6	
Machinery (kg)	294		17		1.7	
Support Structures						
Posts (#)	400		4		0.3	
Wire (m)	8,000		7		0.8	
Irrigation (m)	2,147		21		0.0	
Capital subtotal	-	-	78	-	5.6	-
Total Production	-	-	950	2,961	60.1	186.0
Yield (tonnes)	50	14				
Post Harvest						
Cold storage (UK 6 months)	-	-		2,069		85.8
Shipping (NZ to UK) (17,840 km)	-	-	2,030		124.9	
Post Harvest subtotal	-	-	2,030	2,069	124.9	85.8
Total Energy Input/Emissions	-	-	2,980	5,030	185.0	271.8

Saunders, Caroline, Andrew Barber, and Greg Taylor. "Lincoln U Research Archive: Food Miles - Comparative Energy / Emissions Performance of New Zealand's Agriculture Industry." <<http://hdl.handle.net/10182/125>>.

Local Food:

Support Local Communities: retain money within the community

Metric: “Input Output” Models” and “Multiplier Effect” (Import Substitution)

- % final retail dollar retained by producer
- Volume of product sold
- Money spent in community, direct, indirect, induced
- Multipliers for \$ spent in local community

Direct

(value of new production, processing, and retail output, and the additional jobs and labor income generated)

+

Indirect

(total value of locally supplied inputs and services provided by businesses that serve the producers (e.g., machinery, feed, seed, fertilizer, financial services), and processing and retailing activities)

+

Induced

(workers in the direct and input supply sectors spend their earnings in the region)

....

MINUS

Displacement: direct, indirect, induced

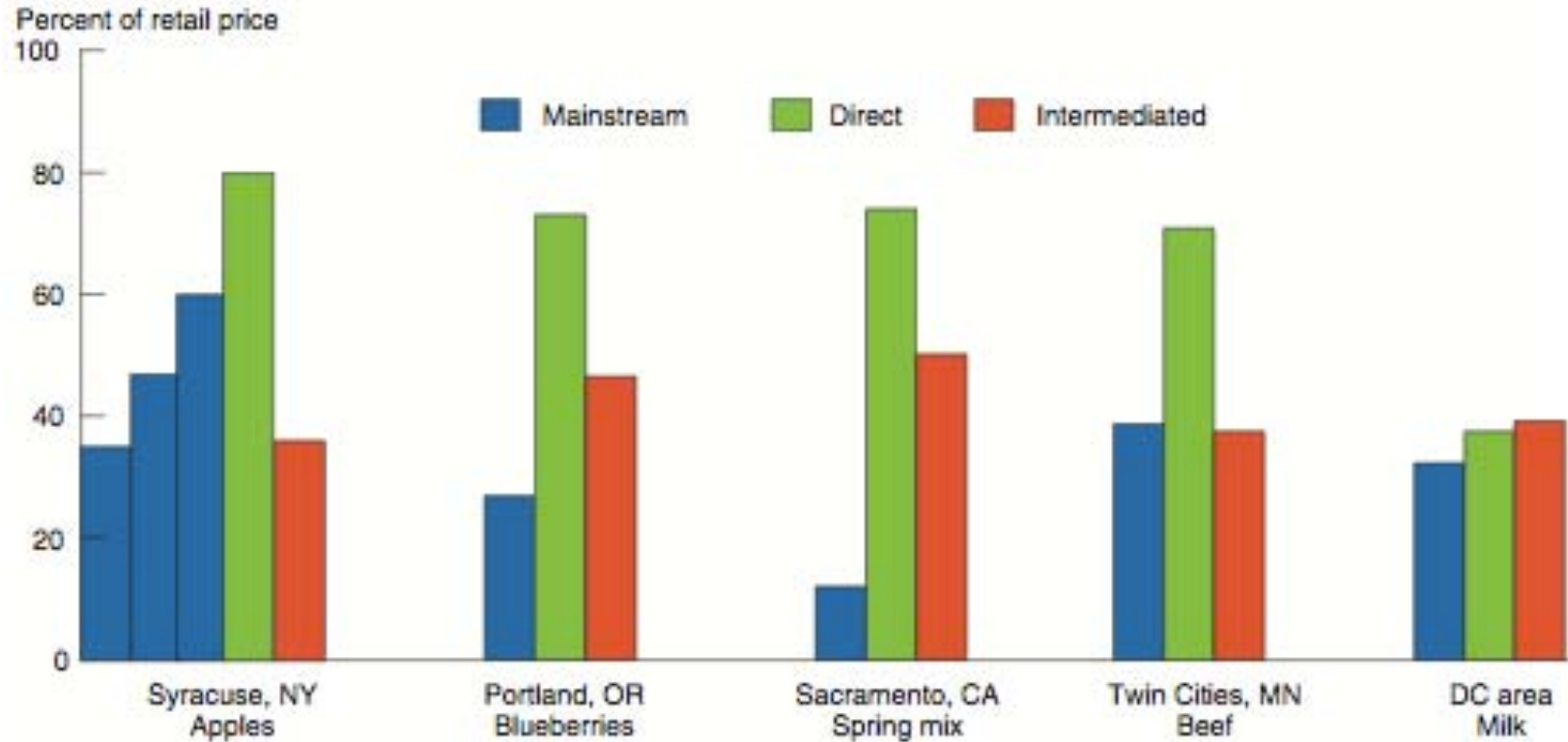
= Total Value

Local Food:

Support Local Communities: retain money within the community

Figure 2

Percent of retail prices received by producers net of marketing and processing costs, by place and supply chain type



Notes: Syracuse, NY - Mainstream reports the percent for GPS1, GPS3 bulk, and GPS3 bagged (see table 1). Twin Cities, MN - Beef direct marketing costs calculated for farmers market sales; processing costs are paid to a third party. The direct marketer in the DC area - Milk case processes its own milk; costs estimated based on case interviews. See text for other notes on direct market costs.

Source: USDA, Economic Research Service.

Local Food:
Healthful

Are fresh vegetables higher in nutrients?

- Point of comparison?
- How is fresh defined?
- The fresher the vegetable the higher the nutrient content?

Local Food:
Socially Just

What does social justice mean?

- Economic & ownership opportunities for minorities?
- Improved farm worker conditions?
- Improved access to fresh fruits and vegetables for excluded communities ? “food deserts”

Justice for who?

Local Food: Support Family-Scale Farmers



Image: Paul Mobley, *American Farmer: The Heart of Our Country*

Local Food:

Conclusion

Take away points:

- Local is not a “silver bullet”.
- Value must be determined on a case-by-case basis.

Questions going forward:

- What specific values are we hoping to add to food system via re-localization?
- Is local food a reasonable means of achieving these values? Or should we be considering more specific attributes? Producer size, Market Mechanism etc.
- In the absence of perfect information, is there are a need for a comprehensive “sustainable” third-party certification?

Local Food:

Important Resources

Martinez, Steve, et al. *Local Food Systems: Concepts, Impacts, and Issues*, ERR 97, U.S. Department of Agriculture, Economic Research Service, May 2010.

King, Robert P., Michael S. Hand, Gigi DiGiacomo, Kate Clancy, Miguel I. Gomez, Shermain D. Hardesty, Larry Lev, and Edward W. McLaughlin. Comparing the Structure, Size, and Performance of Local and Mainstream Food Supply Chains, ERR-99, U.S. Dept. of Agr., Econ. Res. Serv. June 2010.

National Good Food Network, The Wallace Center, Winrock International
Webinars and Case Studies

Local Food:

Where can local foods add value?

Discussion (20 minutes)

**“Green”:
Sustainable
Agriculture**

**“Green”:
Transportation
“Food Miles”**

**Support Local
Communities:
retain \$ in the
community**

Healthful

Socially Just

**Support
Family Scale
Farmers**

Direct Markets?

Family-Scale Farms?

Intermediate & Mainstream (optimized) supply chains?