# 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?

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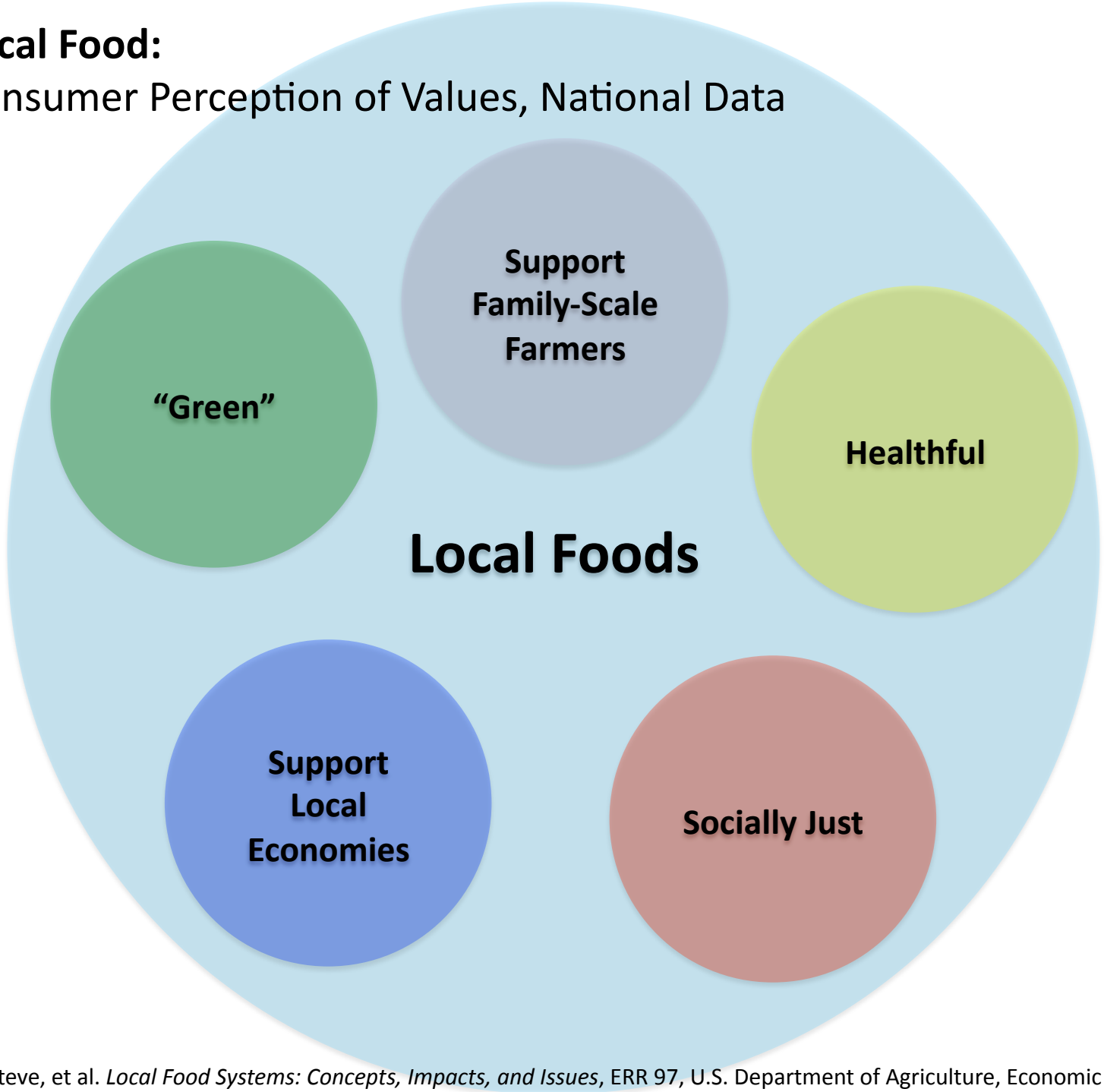
**Local Food:**
Consumer Perception of Values, National Data




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

**Local Food:**
Consumer Perception of Values

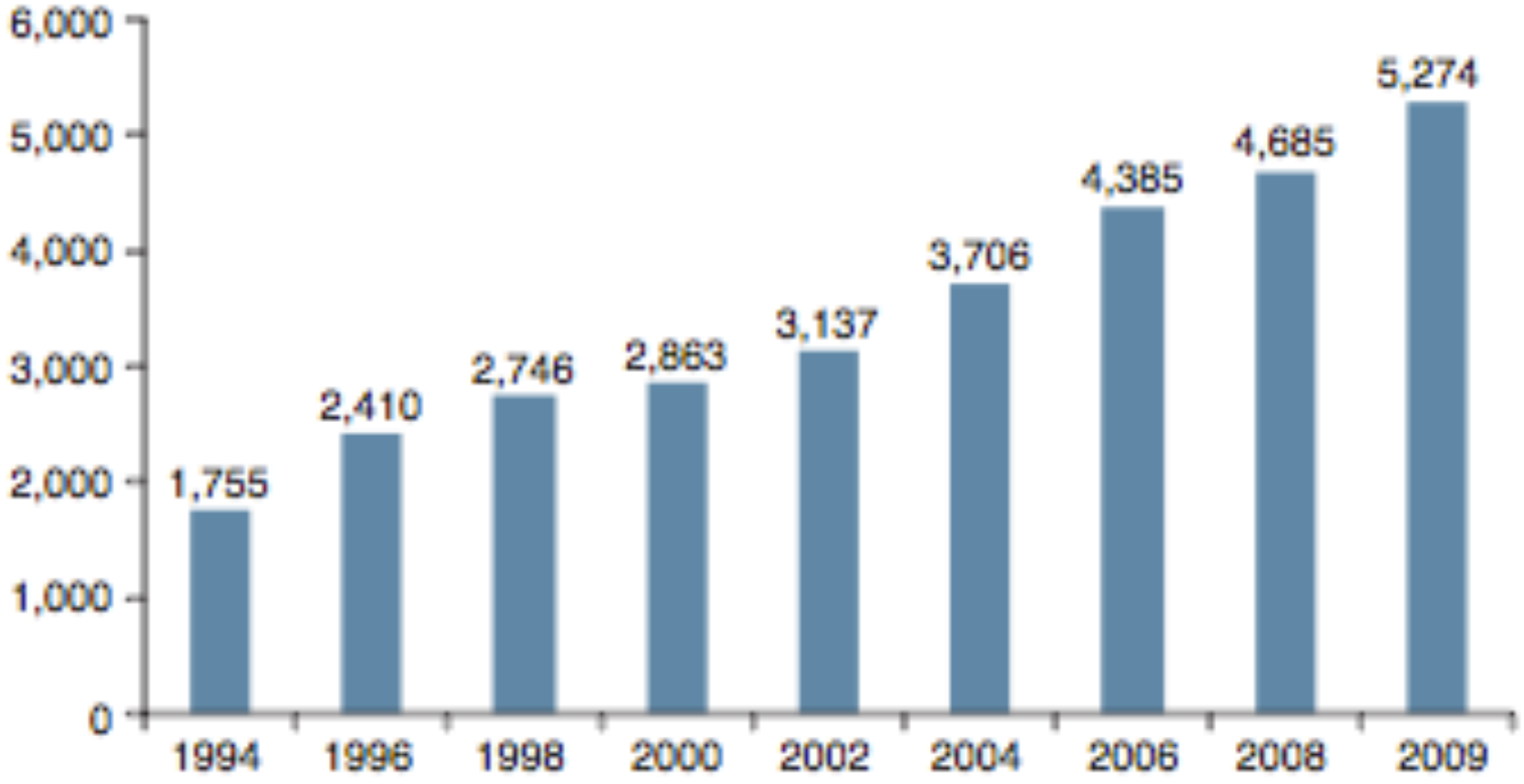
# Reality or Myth?

**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 | "Green": Transportation "Food Miles" | Support Local Communities: retain $ in the community | Healthful | Socially Just | Support Family Scale Farmers |
|---|---|---|---|---|---|
| ~ Sometimes | ~ Sometimes | ? Unknown | ? Unknown | ? Unknown | ? 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

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.

**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] $CO_2$ emissions were used as an indicator for the radiative forcing effects of aviation, which are actually higher than just $CO_2$ 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

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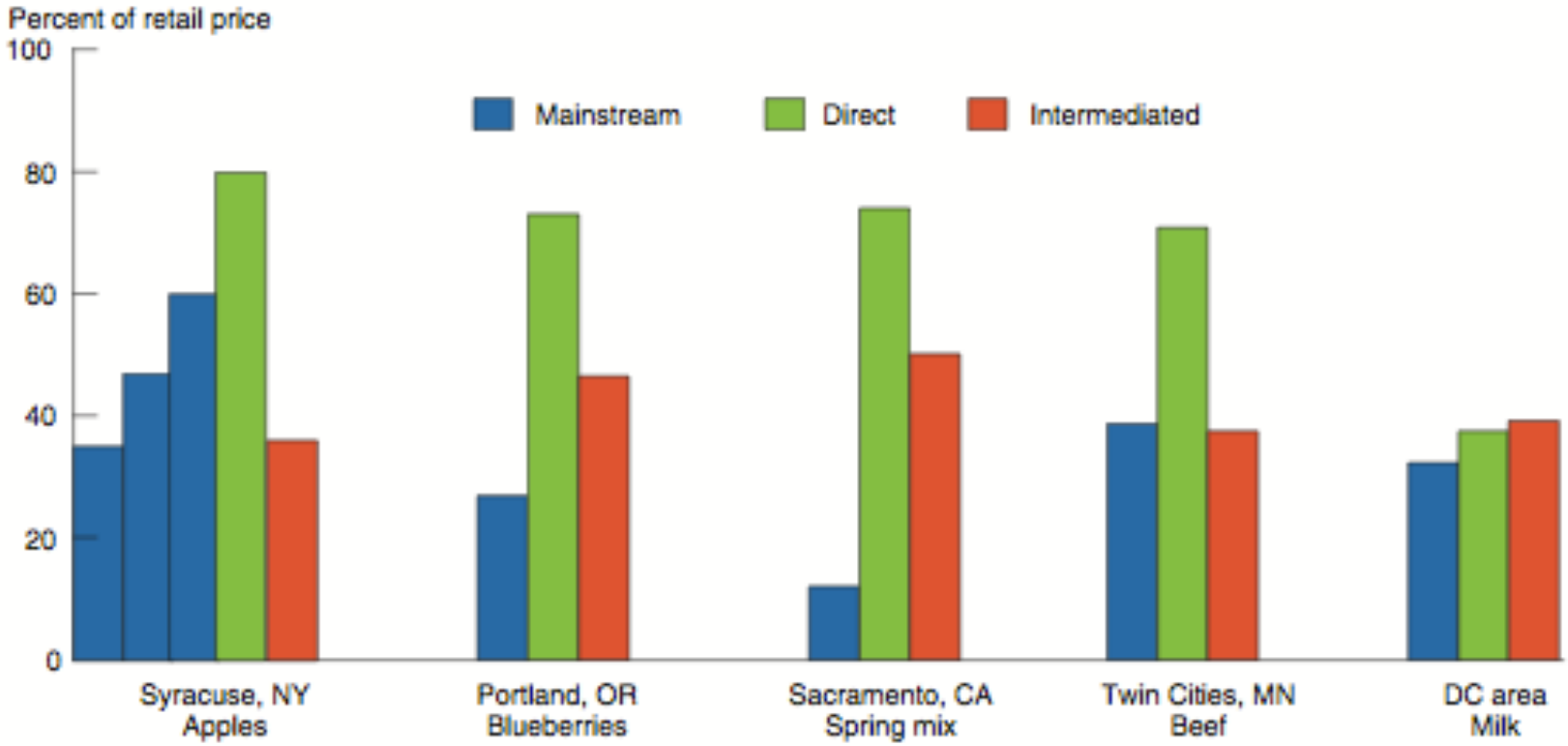
U.S. Department of Agriculture, Economic Research Service, May 2010.

**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?**