Linking Sustainable Agriculture and Public Health: Opportunities for Realizing Multiple Goals

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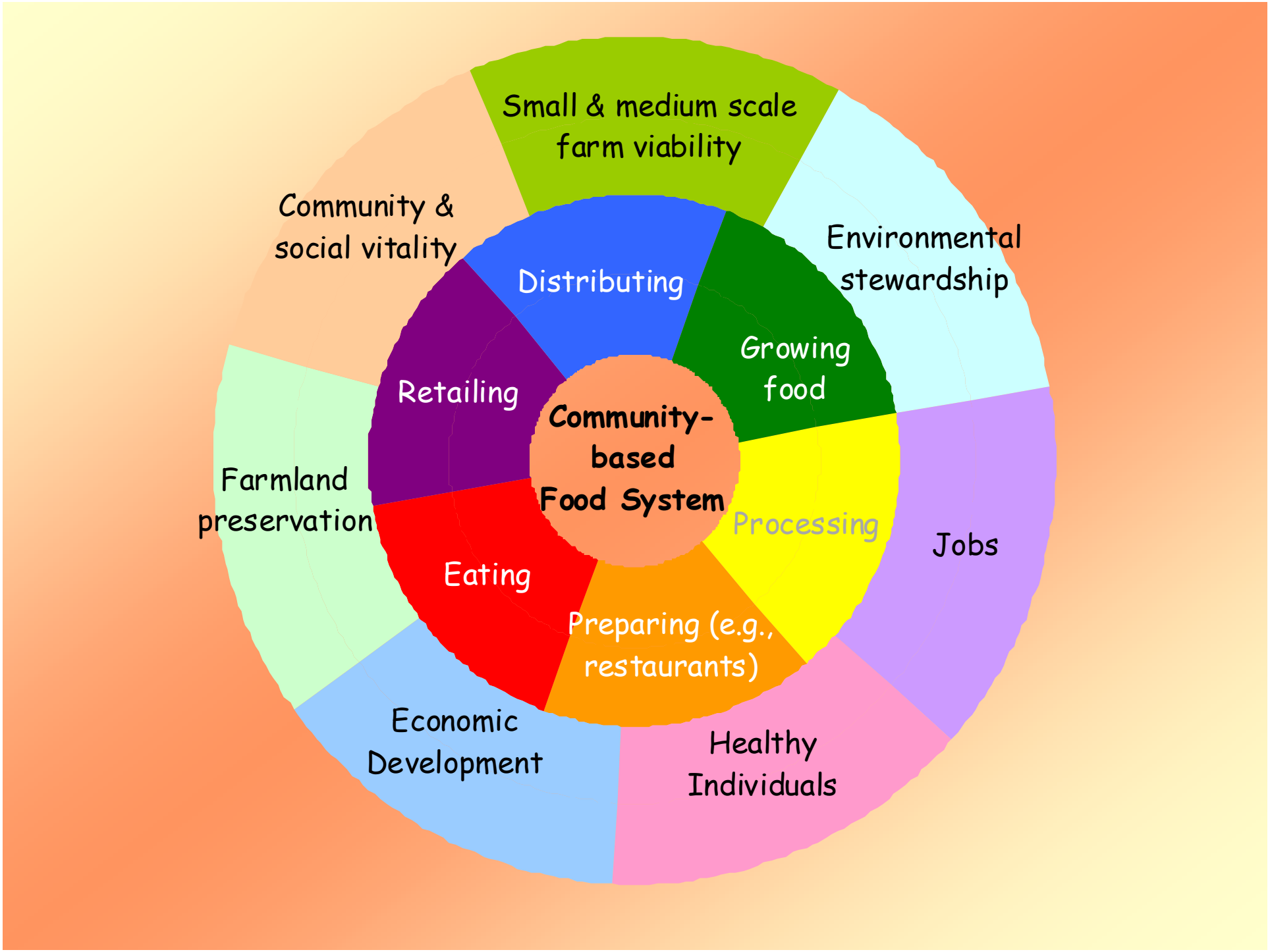
What Do We Want?

- A healthy population with each person able to realize their potential
- The preservation and enhancement of our natural resources for future generations
- A vibrant economy that 'fits' the 21st century

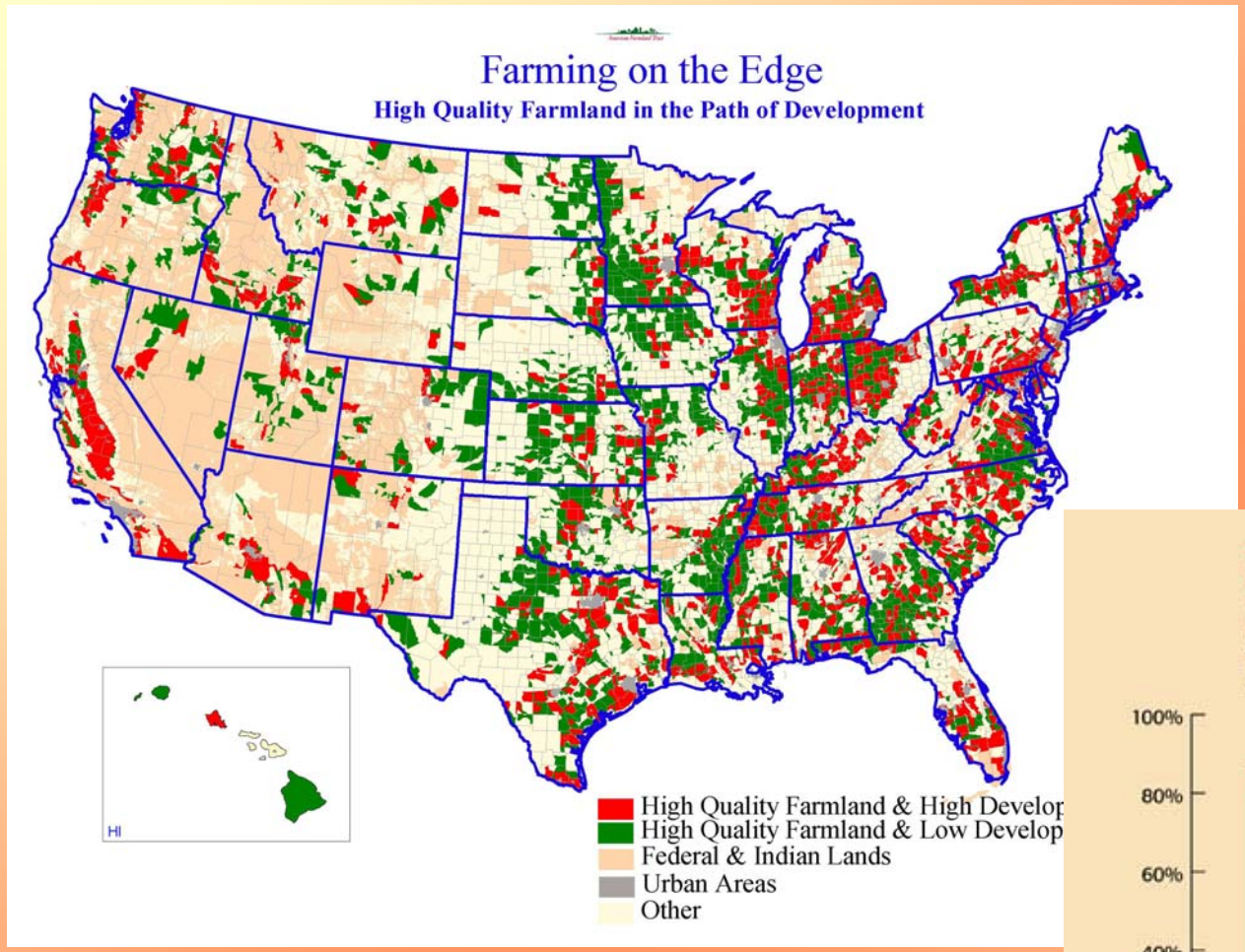


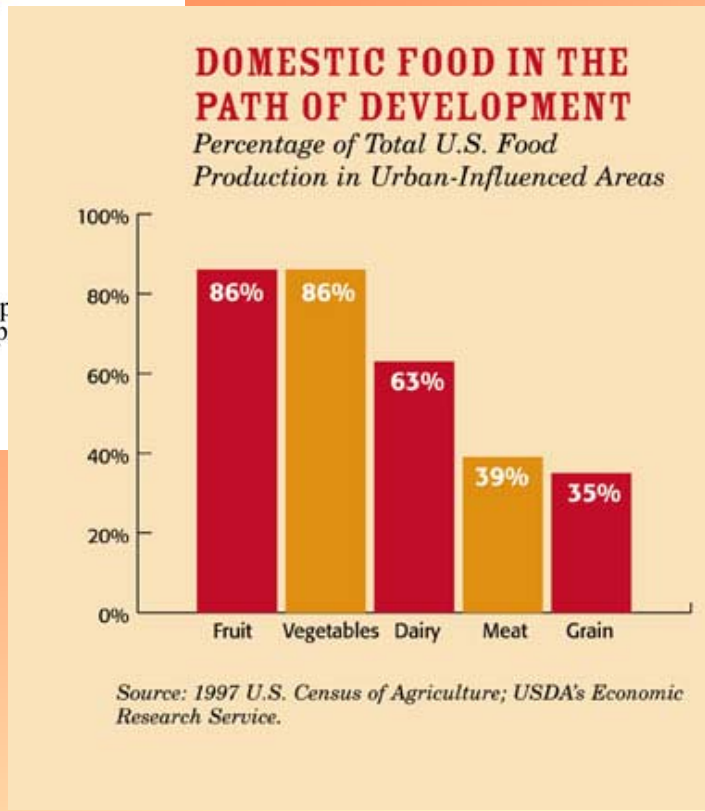
In a Global Context - Population 2007 - 2050

6.6 →9.1 billion

302 →420 million

- ✓48 countries water stressed/scarce
- ✓54 countries by 2050
- ✓parts of U.S. are today





American Farmland Trust http://www.farmland.org/farmingontheedge/downloads.htm

Case Study
Fresh fruit and vegetable production

People consuming recommended levels of fruits and vegetables

Health

A diversity of viable farms across communities

Farming

Environment

Maintaining open space for Future generations across the U.S.

Economics

Networks of small and medium businesses

Picture from SUSTAINABLE POULTRY: PRODUCTION OVERVIEW at http://www.attra.org/attra-pub/PDF/poultryoverview.pdf

Two Views

- An apple is an apple is an apple
- An apple is different depending…

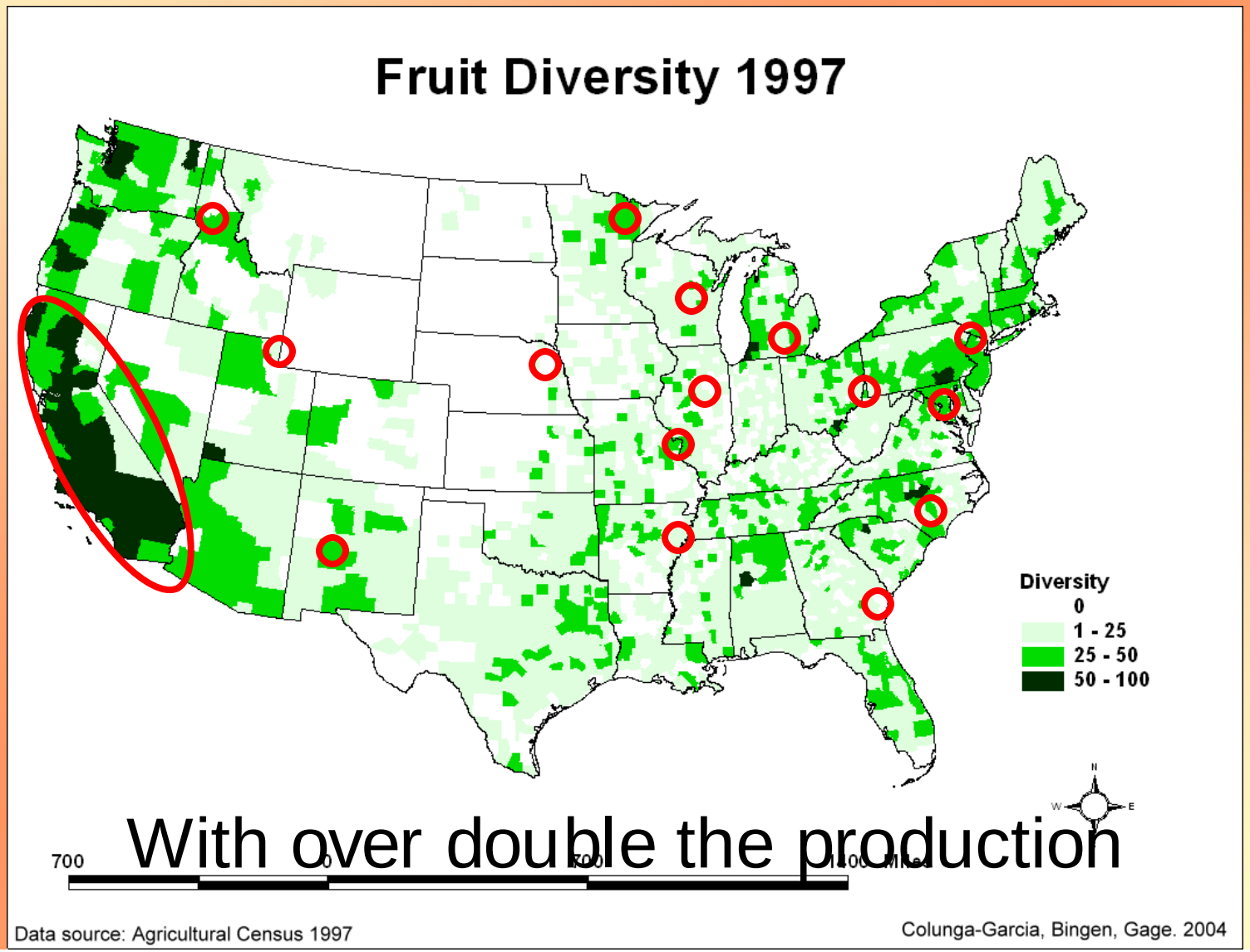
Photos from Michigan Apple Committee Website

Maximum crop acreage adjustments implied by full adoption of select recommendations from the 2005 Dietary Guidelines for Americans

Crop	Average harvested area, 1999-2003	Adjustments in acreage	Acreage needed to meet *Guidelines*
		Million acres	
Fruit	3.5	4.1	7.6
Vegetables:	6.5	8.9	15.3
Dark green	0.3	0.5	0.8
Orange	0.2	0.4	0.6
Legumes	2.0	8.8	10.8
Starchy	2.3	-0.8	1.5
Other	1.7	--	1.7
Wheat (example for whole grains)	22.6	-5.6[2]	17.04
Dairy[3]	NA	NA	NA
Total[4]	32.6	7.4	39.9

J. C. Buzby, H. Farah Wells, and G. V. Possible Implications for U.S. Agriculture From Adoption of Select Dietary Guidelines (ERS Report #31, 2006)

Shift from highly concentrated production centers to more dispersed



With over double the production

Variety Variation

E.g. 8-fold variation in glucoraphanin concentrations across 32 varieties of broccoli

M.W. Farnham, P E. Wilson, K.K. Stephenson & J.W. Fahey (2004) Plant Breeding (123) p. 60-55.

Michigan Example

- Up to 1,889 jobs
- $187 million in new, personal income

P. Cantrell, D. Conner, G. Erickek, M. Hamm (2006)

Consume Seven Servings Per Day

Iowa Example

For 3 months- all from Iowa

Approx. 5600 net new jobs

D. Swenson (2006) The Economic Impacts of Increased Fruit and Vegetable Production and Consumption in Iowa: Phase II (downloaded at http://www.leopold.iastate.edu/pubs/staff/health/health.htm)

Numerous Strategies

Direct to consumers

- Farmers Markets
- Farmstands
- Community Supported Agriculture Farms

Indirectly to consumers

- Institutional Buying
- Restaurant Connections
- Supermarket and grocer stores
- Farm to School

High Tunnel Production: Sustainably Expanding the Season

Case Study –Dairy Production

People consuming recommended levels of dairy

Health

A diversity of viable farms across communities

Farming

Economics

Networks of small and medium businesses

Environment

Reducing pesticide use
Reducing soil erosion

Picture from SUSTAINABLE POULTRY: PRODUCTION OVERVIEW at http://www.attra.org/attra-pub/PDF/poultryoverview.pdf

What if Consumers Consumed Recommended Dairy (e.g. Michigan)?

From current to sufficiency

↓

1.3 – 2.1 billion pounds of fluid milk

↓

58-94,000 Cows at 22,000 lbs. per cow
85-137,000 Cows at 15,000 lbs. per cow

↓

650-1520 ave. size dairy farms in MI (90 cows)

Total Pesticide Use by Crop

	Michigan	National	Michigan	National
	Lbs./acre		Acres	
Soybeans	1.916	1.281	1,694,872	66,143,049
Corn	2.872	2.985	2,402,069	75,522,035
Wheat	0.237	0.438	499,742	58,835,105
Pasture	0.078	0.044	820,405	489,332,864

[1] Pesticide data from National Pesticide DataBase http://www.ncfap.org/database/default.htm. Production acreage from 1997 Census of Agriculture

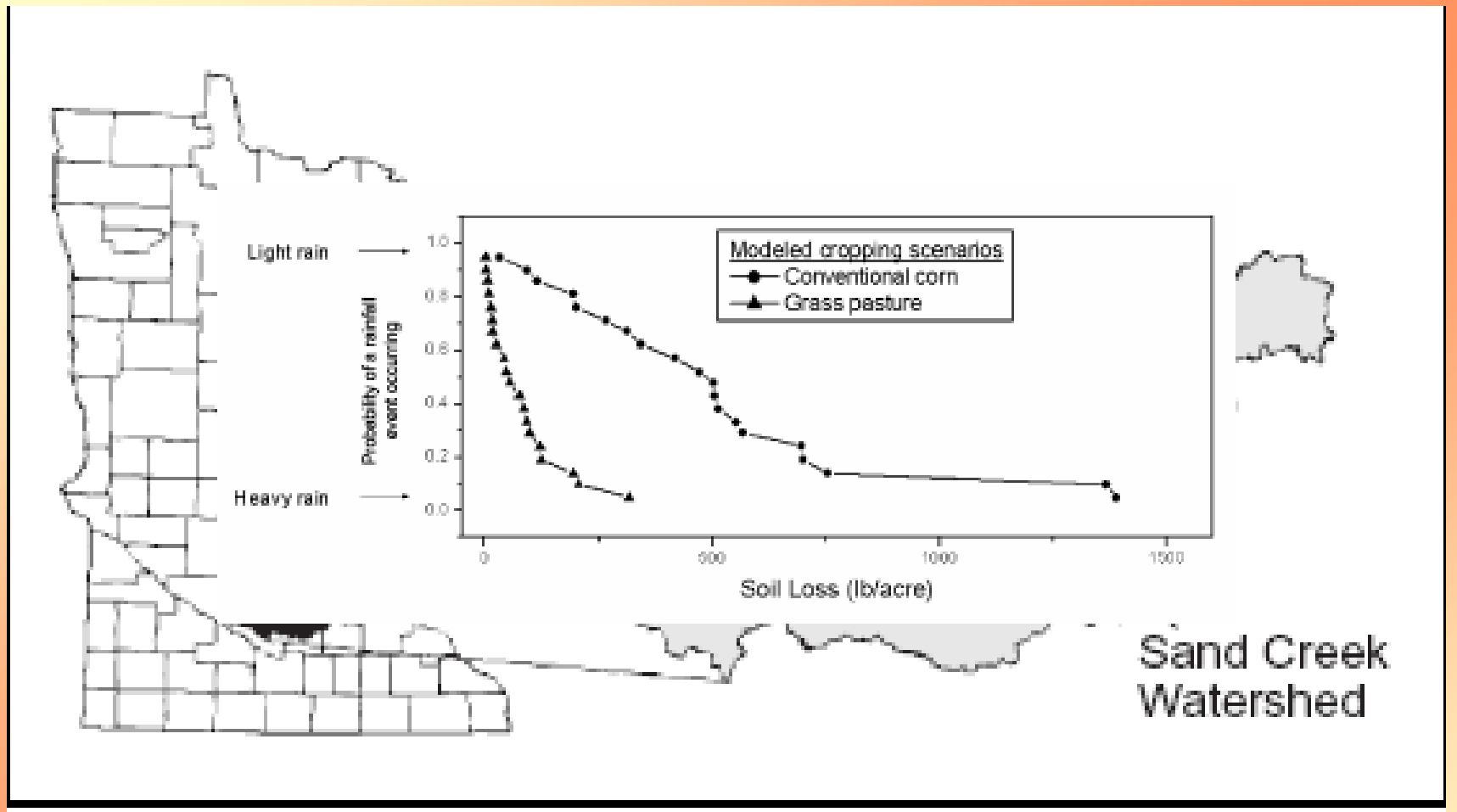


Figure 1. Lower Minnesota River Watershed.

Sustainable Farming Systems:: Demonstrating Environmental and Economic Performance
by Gigi Digiacomo et al

Summary

- Tremendous opportunity to link public health with sustainable agriculture and economic development in communities across the U.S.
- Needs to occur in a local and food system context
- Are a great number of ‘drill-down’ details within this
- Can be developed as win-win strategies

Thank You