

Ohio Ecological Food and Farm Association

The Changing Climate of Agriculture
Granville, Ohio
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“Opportunities in a New Agricultural Climate”

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Why Have Some Civilizations Thrived While Others Have Collapsed?

- Jared Diamond Analysis: Those civilizations that
 - correctly assessed their current situations
 - anticipated the changes coming at them
 - and got a head start in preparing for them
 - tended to thrive
 - those that failed in that exercise tended to collapse,

Our Current Situation: Approaching A Food Crisis?

- End of Cheap Energy
- Depleting Fresh Water Resources
- More Unstable Climates
- Deteriorating soil health
- Ecological degradation: According to the *Millennium Ecosystem Assessment Synthesis Report*, “Agriculture is the single largest threat to global biodiversity”...
- Increasing human population and decreasing farm population

What About the *Human Capital*?

- *Percentage* of Very Small and Very Large Farms are increasing.
- Farmers in the Middle are Disappearing
- Total number of farmers is declining---**or not**
- Only 5.8% of farmers are under age 35
- The bad news---there are many obstacles to entering a farming career---access to **land**, affordable **capital**, financially rewarding **markets**
- The good news---the number of young people who want to farm is increasing. Small farms don't require a lot of land or capital, and the general public is becoming aware of the importance of preserving land for farming.

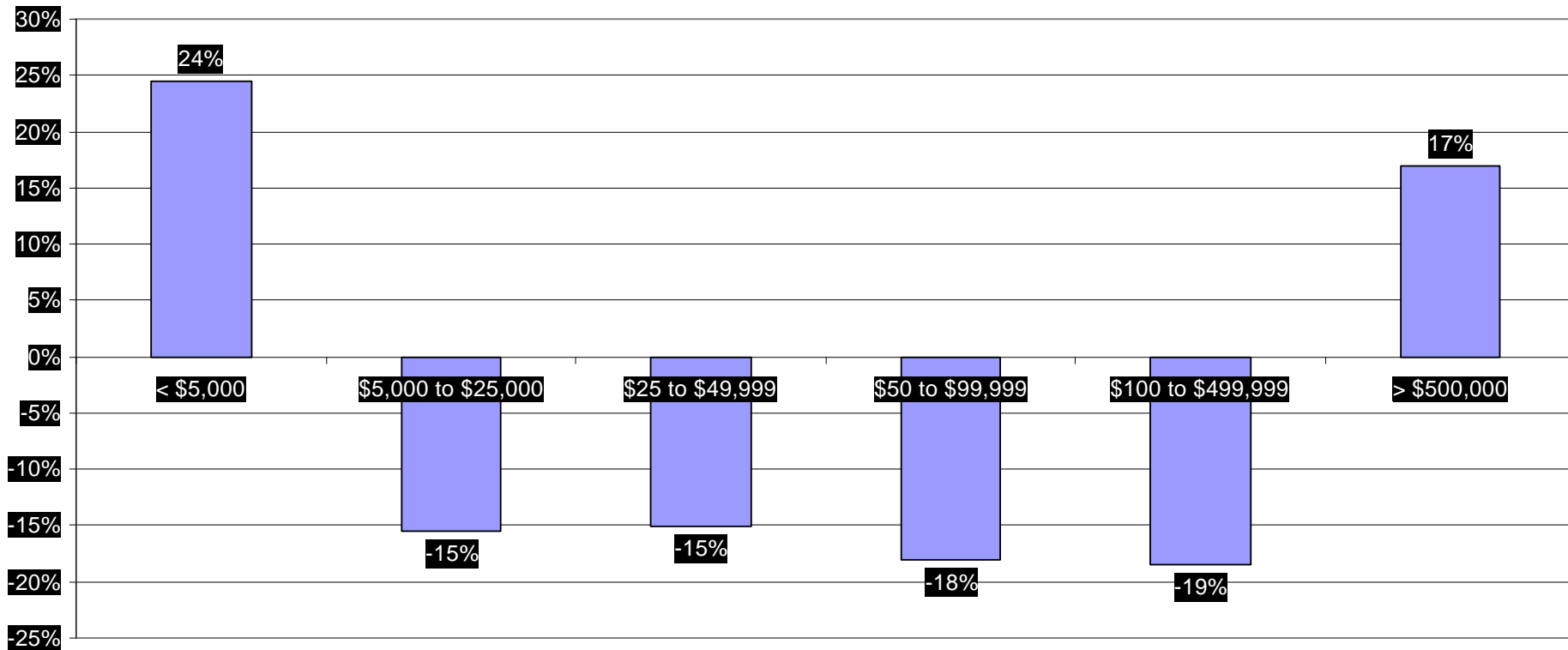
- **“Good News From Iowa”---or not**
- By VERLYN KLINKENBORG

When I was born in 1952, there were 203,000 farms in Iowa, only 11,000 fewer than when my dad was born in 1926. By 2002, the number had dropped to about 90,000, with roughly the same acreage in production in a state with a population that had remained roughly the same..

- So it comes as a pleasant surprise to find in the 2007 Census of Agriculture that the number of farms in Iowa has risen to 92,856, a level last seen in 1992. Some 4,000 new small farms have been created since 2002. These are very small farms, 9 acres or less, and they are producing a much wider array of crops than the rest of Iowa, which specializes in corn and soybeans

The declining middle

Percent Change in Iowa Farms Based on Sales Category, 1997 to 2002



1997 Farm statistics

Very large
corporate farms,
family proprietorships

Family
sized

Low
production,
residential,
retirement



163,000

575,000

1,300,000

Number of farms

Source: Willard Research



LEOPOLD CENTER FOR SUSTAINABLE AGRICULTURE

2002 Farm statistics

Very large
corporate farms,
family proprietorships

Family
sized

Low
production,
residential,
retirement

Farm sales (dollar value)

61%

33%

7%

70,650

381,225

1,677,115

Number of farms

Price and Scale

- “We just have to pay farmers more”
----Iowa farmer
- “Get big or get out.”
---Earl Butz

Are Economies of Scale the magic Bullet?

- Economies of Scale are important---but only up to a point.
- Mike Duffy on-farm study in Iowa
 - *Typical corn-soybean farm reaches peak efficiency at about 600 – 900 acres
 - *Typical market hog farm reaches peak efficiency at about 1200 hogs/year

Is “Going Local” the Answer?

- “Localization . . . has the decisive argument in its favor that there will be no alternative.” ---David Fleming

Problems:

Urban Concentration

Human Capital

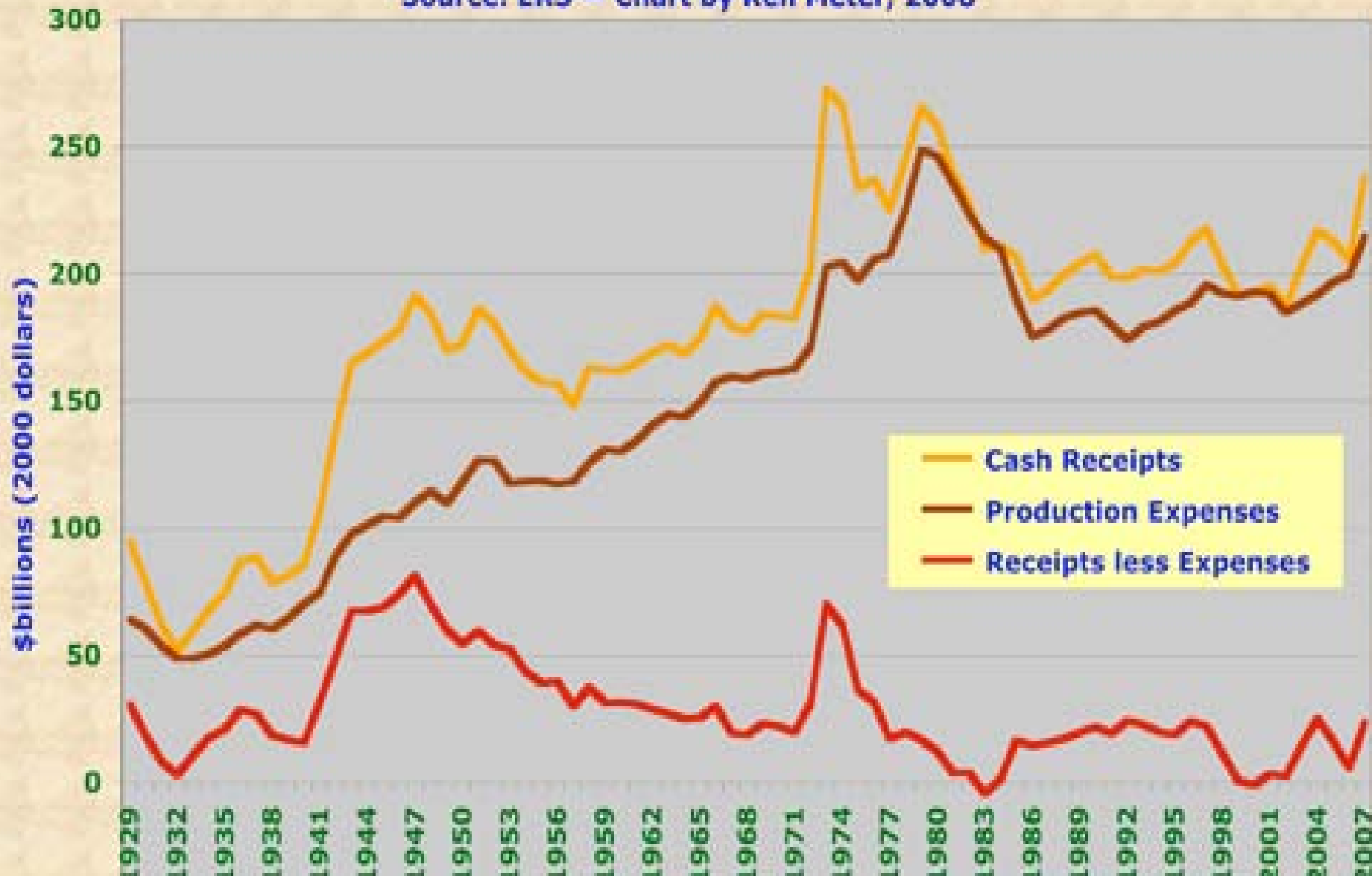
Transaction Costs

Are Higher Prices paid to farmers the magic Solution?

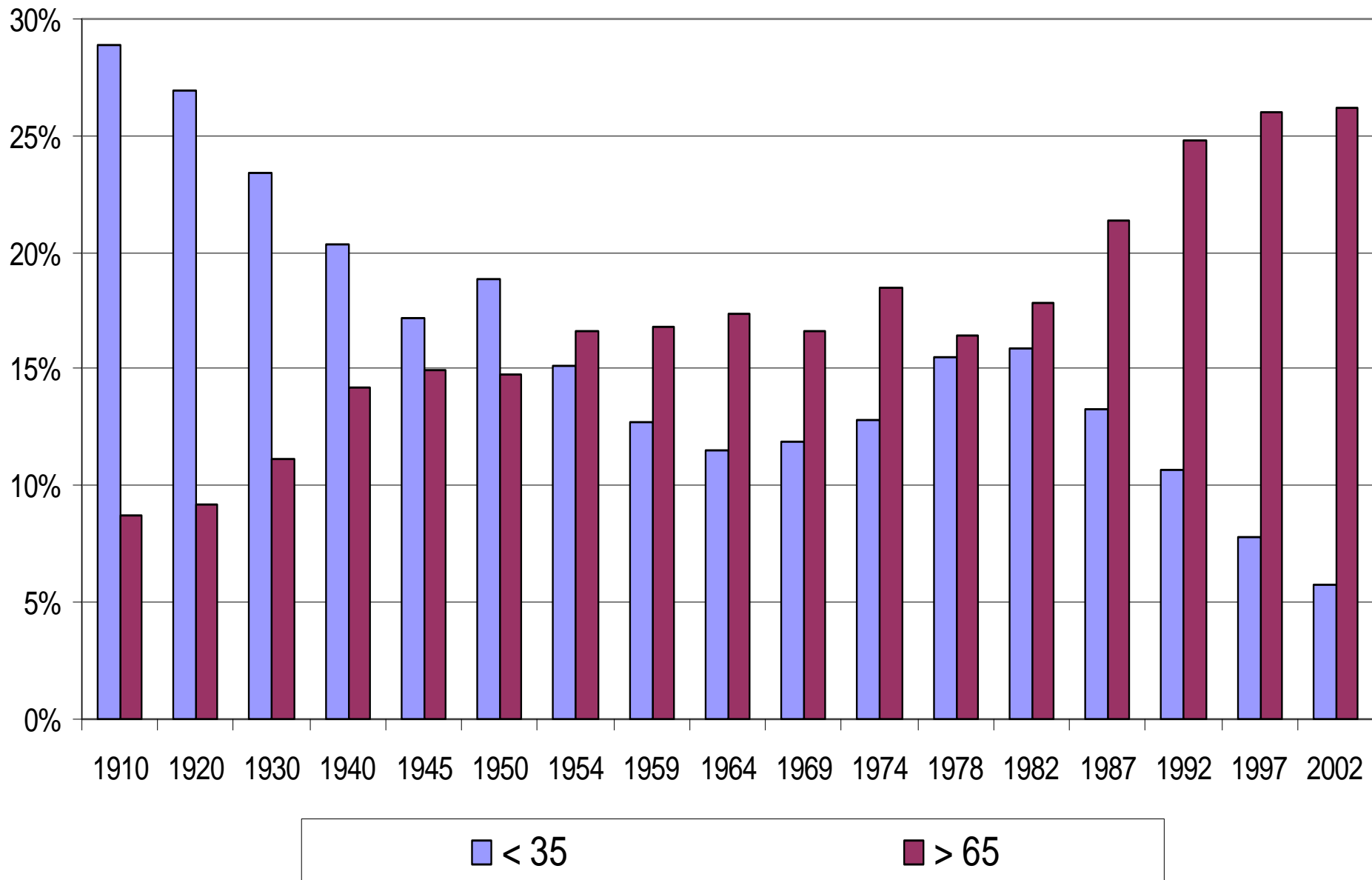
While price is important, It is *Net* income that attracts and keeps farmers in business

Cash receipts and production costs for U.S. farms, 1929 - 2007

Source: ERS — Chart by Ken Meter, 2008



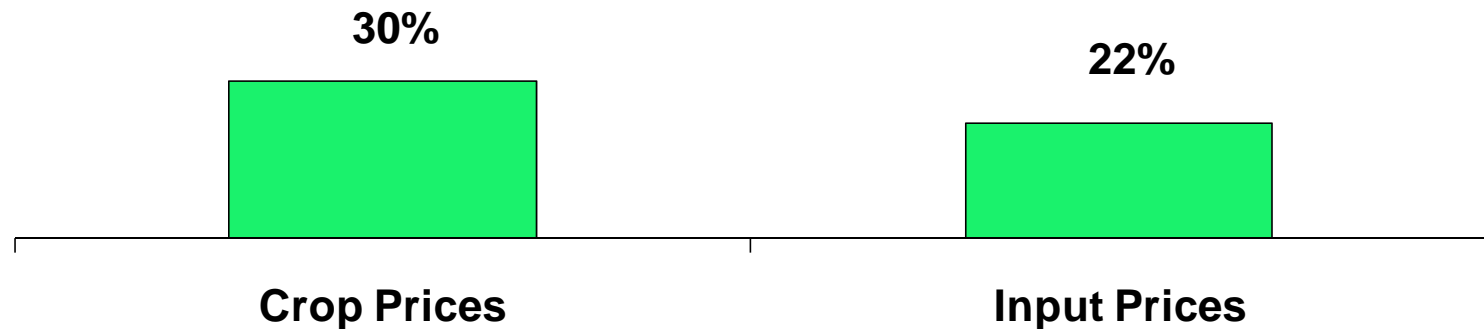
Percent of U.S. Farmers Under 35 and over 65





Increasing Crop Prices are ...

Comparison of Prices in July 2007 vs. Average 2001-05



... being followed by increasing costs for crop production inputs (including interest, taxes, and wage rates)

Source: original calculations using data from U.S. Department of Agriculture, National Agricultural Statistics Service.

Who are Farmers---Really?

- “Every Farmer is a CEO”
---Connie Hatfield, Country Natural Beef
- All Farmers Have Choices---although limited in today’s market infrastructure
- Farmers need to decide what type of farming they want to do
- Everyone benefits when we provide *more choices* for farmers---one size does not fit all

First Critical Decision--- Commodity or Differentiation?

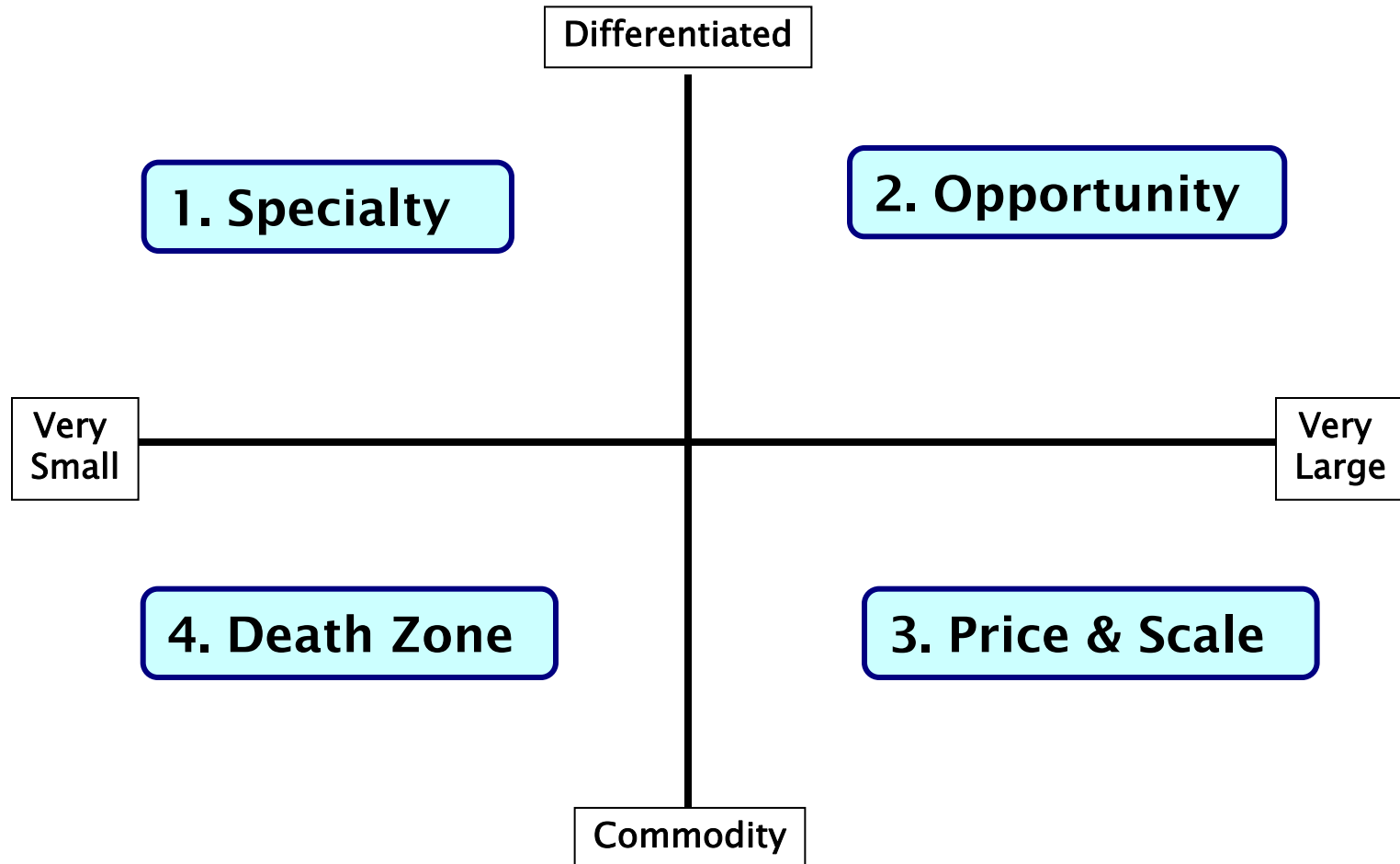
Michael Porter – There are **Two** ways to be competitive in a global economy:

1. being the lowest cost supplier of an undifferentiated commodity, **or**
2. providing the market with a unique and superior value in terms of product quality, special features or after-sales service.

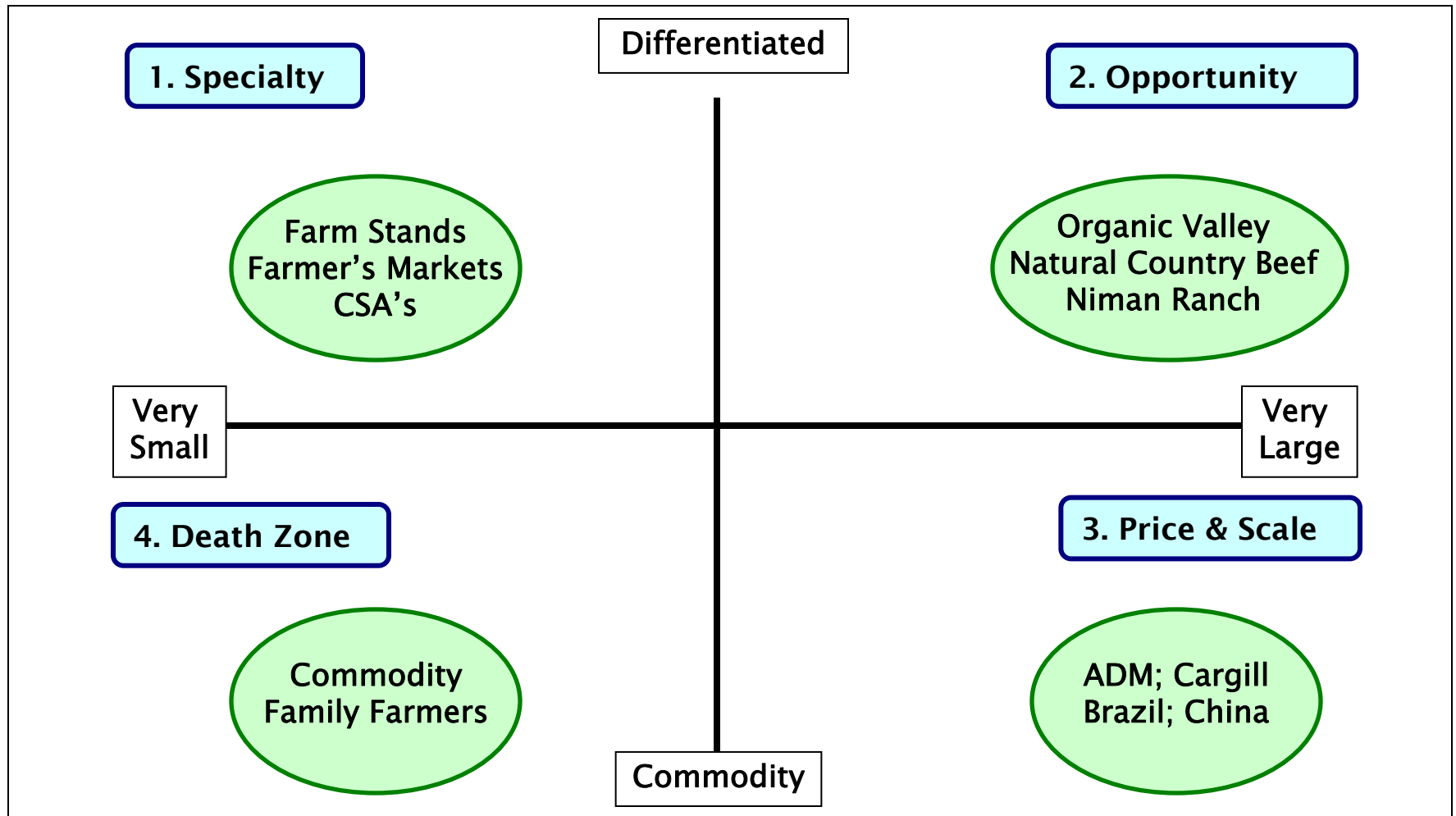
While not impossible it is “extremely difficult for the same firm [or farm] to do both”

--*The Competitive Advantage of Nations*

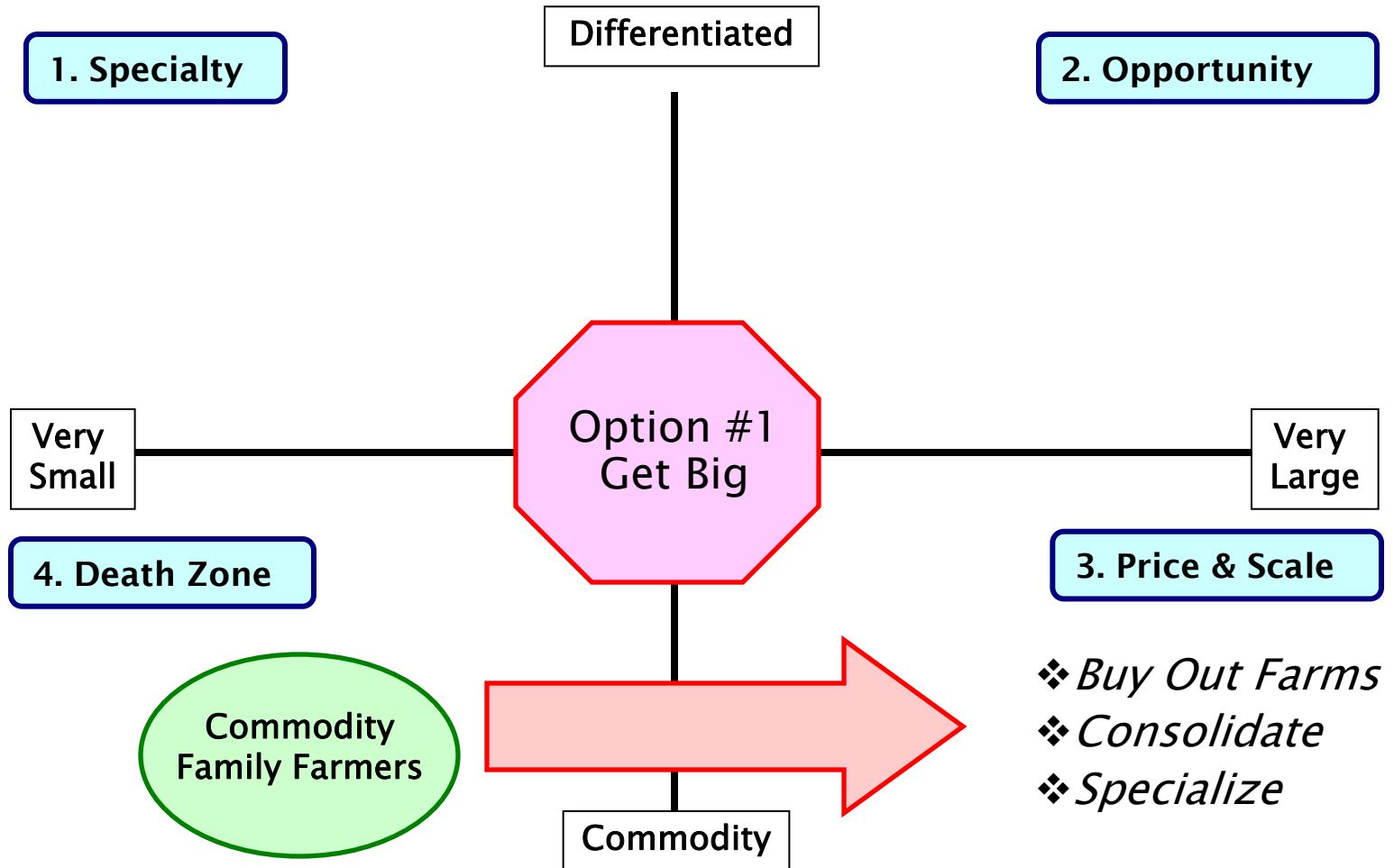
Agricultural Quadrants – Value & Scale



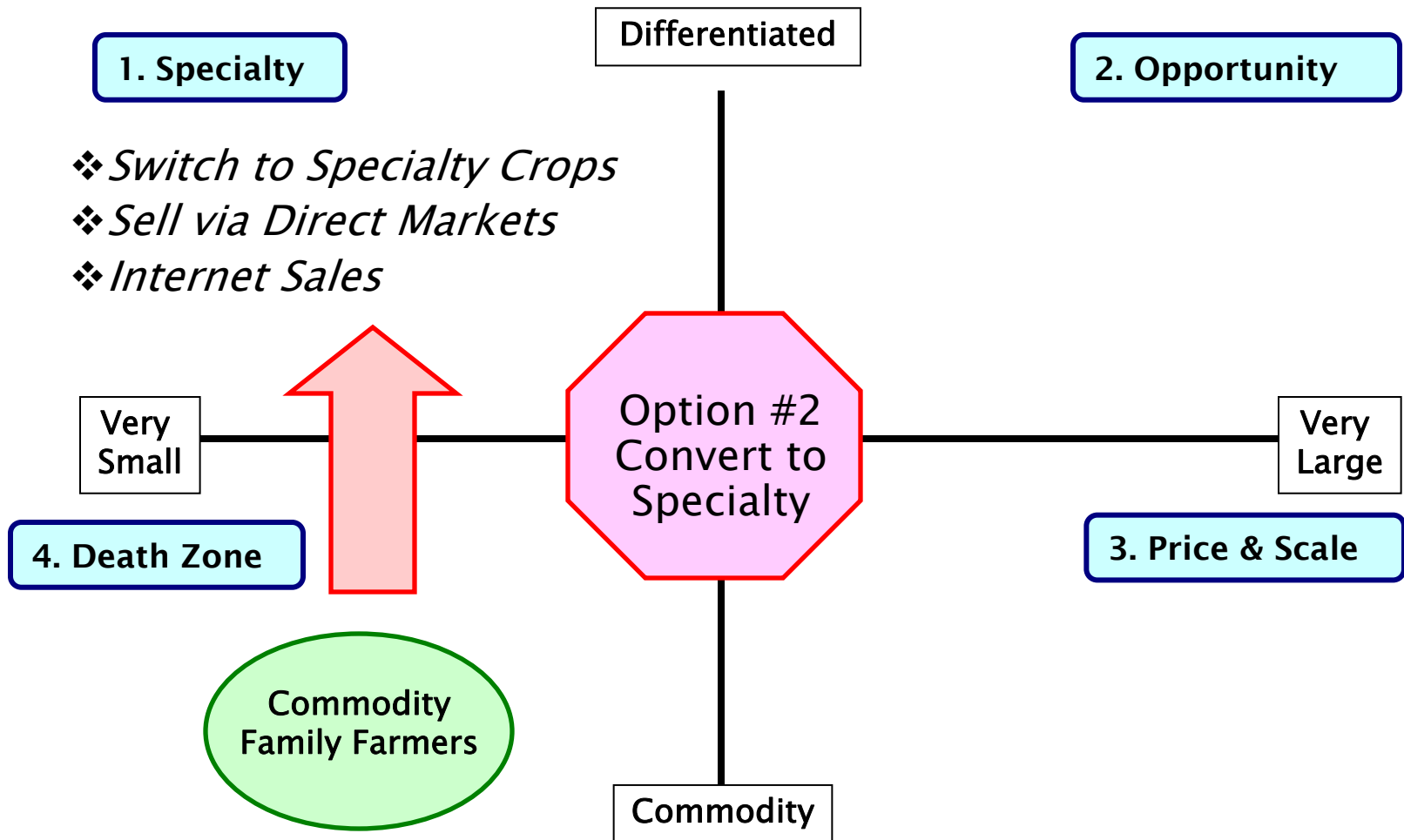
Examples of Participants



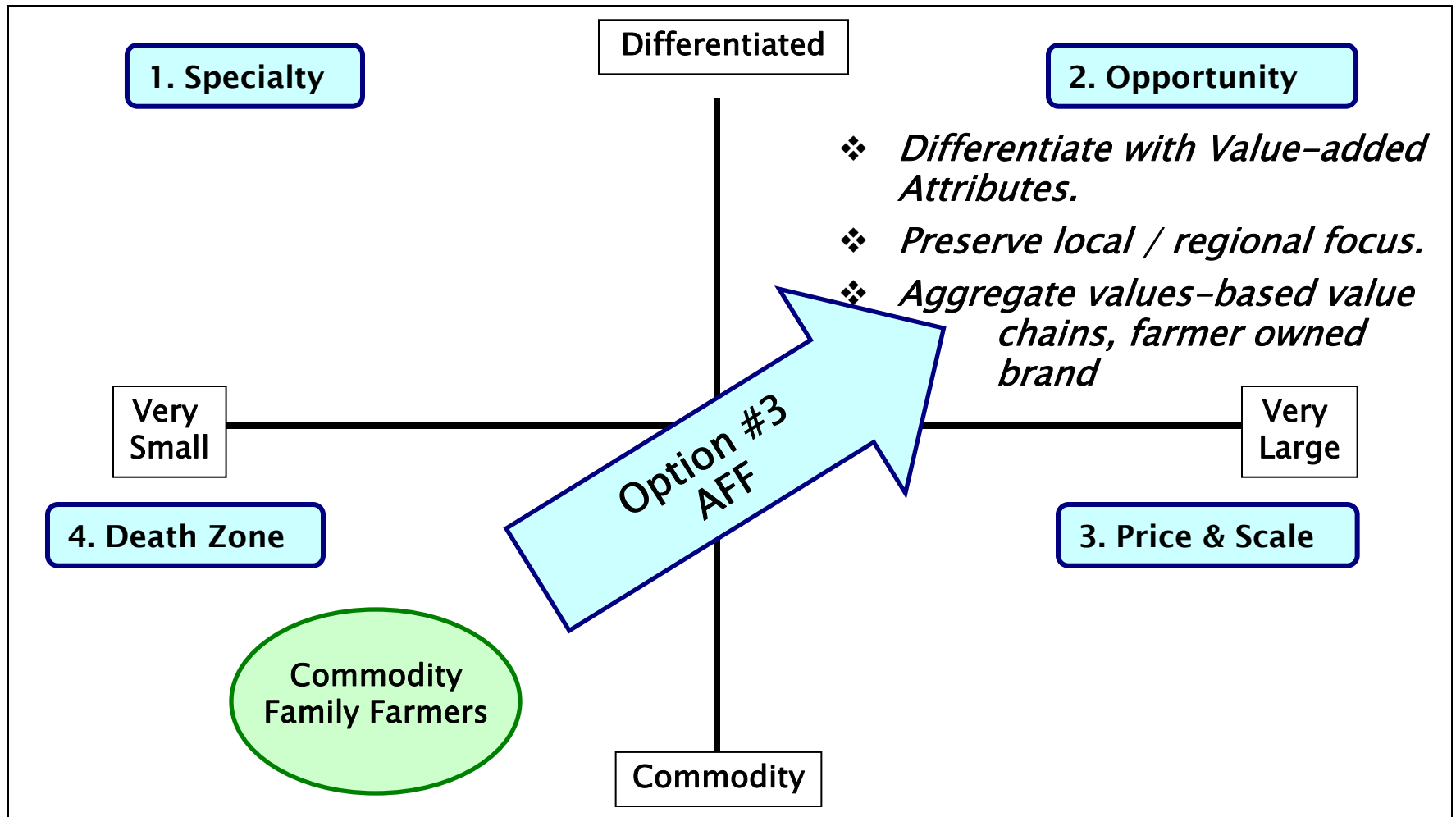
Option #1 – Get Big



Option #2 – Convert to Specialty



Option #3 – Create New Opportunity



A Third Tier in the Food System

- 1. Direct, specialty markets
- 2. Mass production, undifferentiated commodity markets
- 3. Highly differentiated, aggregated, farmer-branded, markets in the middle

- Goal: Maximize choices for farmers and customers

A New Economy on the Horizon?

- **The industrial economy is now essentially over---it is “too exploitive, too heavy on the planet.”** ---John Thackara, *In The Bubble*

The Changes Coming at Us: The Transition

- “We are talking about the collapse of a complex system, in this case a social system which evolved gradually from a labor intensive agrarian society to a fossil fuel-supported industrial, technological society, it simply is not possible to step back to an agrarian society all at once, or to take a leap forward into some unknown high-tech society. Complex systems change gradually, bit by bit. Faced with *immediate* change, a complex system tends to collapse.”
- ---Dale Allen Pfeiffer, *Eating Fossil Fuels*

Choosing Our Future

- Which type of farming will function best given our new energy/climate/water/market future?

Good News for Small Farmers?

- “Peak Oil and Climate Change Mean that Small is Inevitable.” ---Rob Hopkins, *The Transition Handbook*
- “Any Intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius---and a lot of courage---to move in the opposite direction.” ---Albert Einstein

This is NOT About “Going Back”

- There are a lot of things about the agrarian agriculture of the 1930’s that are not appealing.
- We have learned a lot of things, especially from ecology and evolutionary biology that can help us design a much better agriculture for the future
- What we need to do is appropriate some of the **wisdom** from the past and marry it with the best science available today.

What do Farmers need to Start and Continue Farming?

- Access to Land
- Access to Affordable Capital
- Access to Markets that provide them with a Reasonable Return on their Investment

Access to Land

- November 13, 2008 issue of Colorado Springs “Independent” ---6 stories
- A new “commons”?---Intervale Center
- Galen Bontrager, Wellman, Iowa
- Organic Valley of Family Farms
- Land Trusts
- Land-Link Programs

Access to Markets: What will future markets stress?

“Our company’s marketing strategy is based on memory, romance and trust.”

---Rick Schnieders, President and CEO, SYSCO Corporation
(*Keynote, Practical Farmers of Iowa annual conference,
January 25, 2003*)

“Associate your product with nice people, and a nice place, and it should do well.”

“It’s all about relationship value.”

---John Thackara, *In The Bubble*

New Markets on the Horizon

Public Schools, Colleges and Universities

Health Care Institutions

“62 percent of the consuming public now wants to buy food that is consistent with their values”

---The Hartmann Group

Access to Affordable Capital

Government Sector:

- Producer Value-added grant program
- Neil Hamilton: A New “Farmer Corps”

Community Sector:

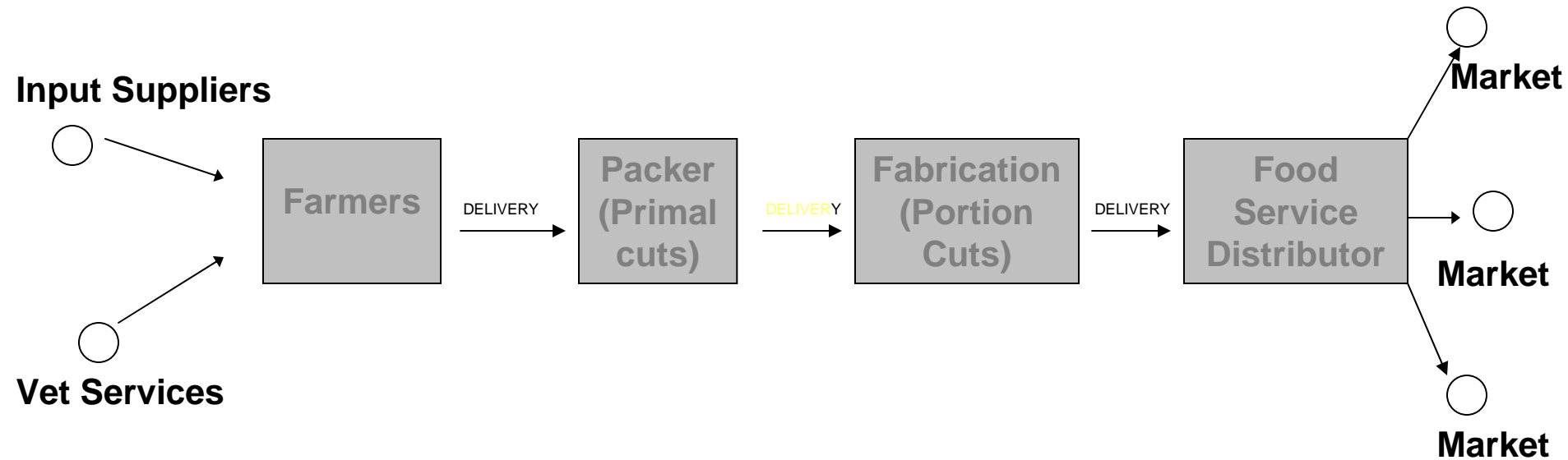
- Privilege communities, not commodities ---*Jack Manno*
- Communities of Practice
- Food sheds
- New UN Focus: Food Justice, Food Democracy, Food sovereignty

Private Sector:

- Values-Based Value Chains

What is a value chain?

A value chain is a long-term network of partnering businesses working together to maximize value for the partners and the end customers of a valued product.



Supply chain – farmer as input supplier
Value chain – farmer as partner

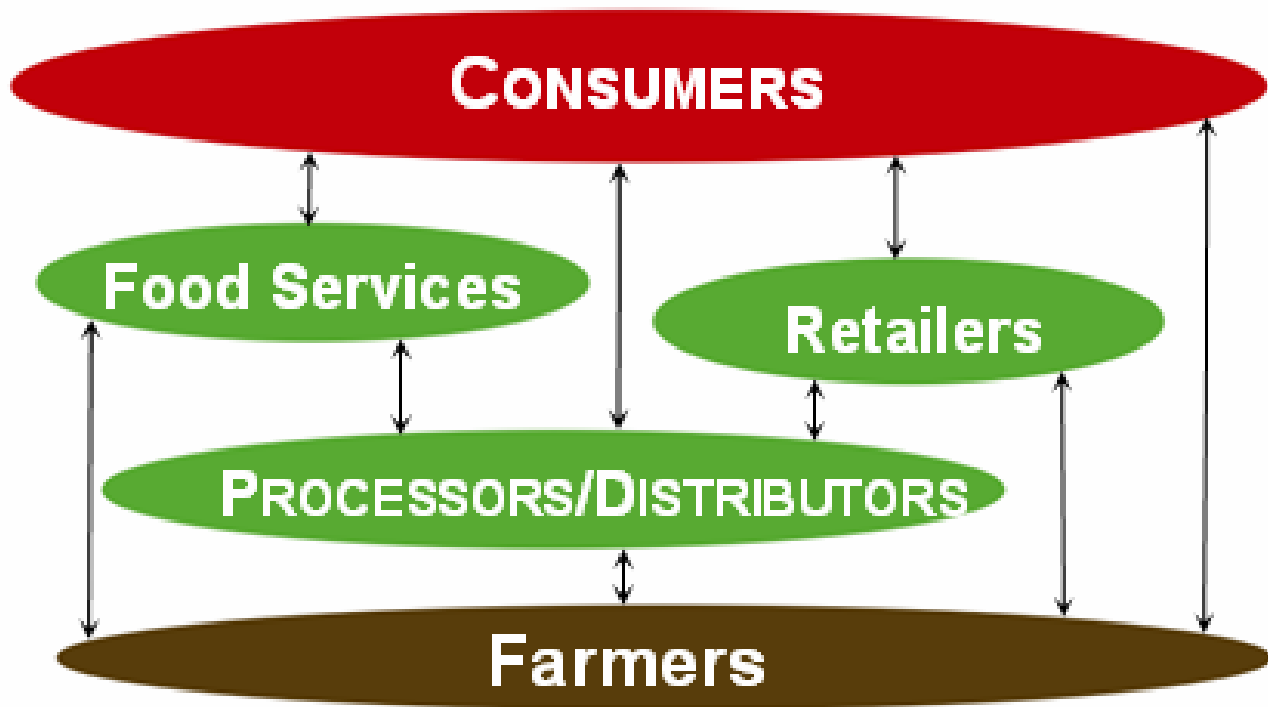
The Ideal Value Chain

- Produces a product of superior value:
quality, story, trusting relationships

“Quality” includes taste, health, nutrition

Story has to include values customers want

Trusting Relationship Extends from Farmer to Consumer



Food Value Chain Communication

Getting a Head Start: Broad Strategic framework

- 1. New business & marketing strategies*
- 2. Public policy changes*
- 3. Research and education support*

- **Long term we will need a new generation of farmers and a new generation of Extension Specialists who are**
- **not afraid of complexity,**
- **grounded in ecology, and**
- ***knowledge* intensive, rather than *input* intensive, farming systems.**

A New Food Revolution?

- A new urban/rural coalition consisting of a new generation of **food citizens** is already at work developing a new food system grounded in food democracy, food justice and food sovereignty.
- Ecuador—first nation to establish food sovereignty as a constitutional right. Sept, 2008
- Promising a new era in California agriculture policy, the Democratic-led state Senate announced a revamped agriculture committee that will put more emphasis on environmental and food safety issues. The panel, renamed the **Committee on Food & Agriculture**, will be led by state Sen. Dean Florez.
- New York City is in the process of developing a new **food charter** for the city. President Stringer included “foodsheds” in his “state of the borough” address, 2/19/09.

Redefining Sustainability

- From “Greening” or Steady State Sustainability, to developing **Resilient** Sustainability---the capacity for self-renewing and self-regulating production systems
 - From unlimited economic growth to “ecological economics”
- Brian Walker and David Salt, 2006. *Resilience Thinking*. Island Press
- Lance Gunderson and Lowell Pritchard (eds) *Resilience and Behavior of Large Scale Systems*
- Herman Daly, 2005. “Economics in a Full World,” *Scientific American*, September.

Essential Resilience Requirements

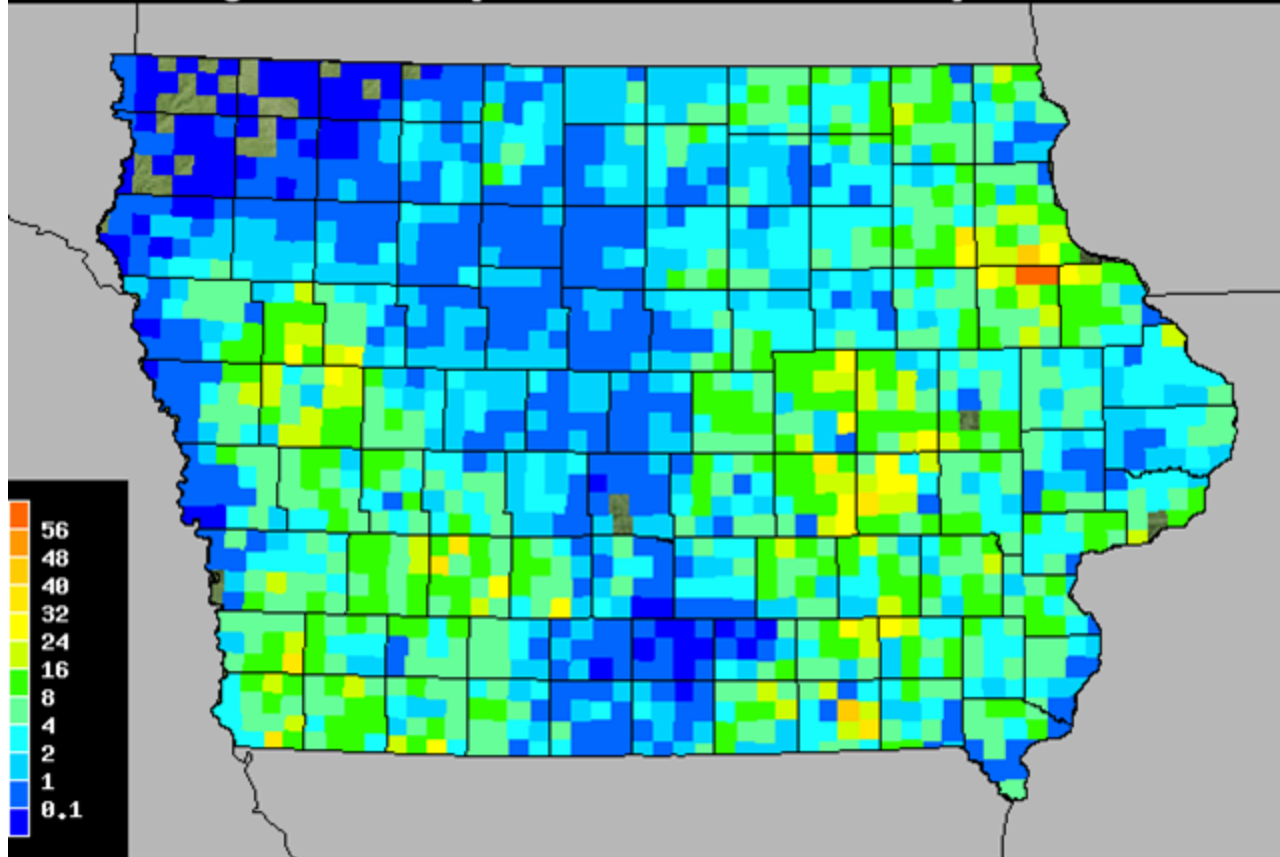
- Diversity
- Perennialization
- Perennial poly-cultures replace monocultures
- Biological synergies







Average Soil Loss: [2008-01-01 - 2008-06-16]



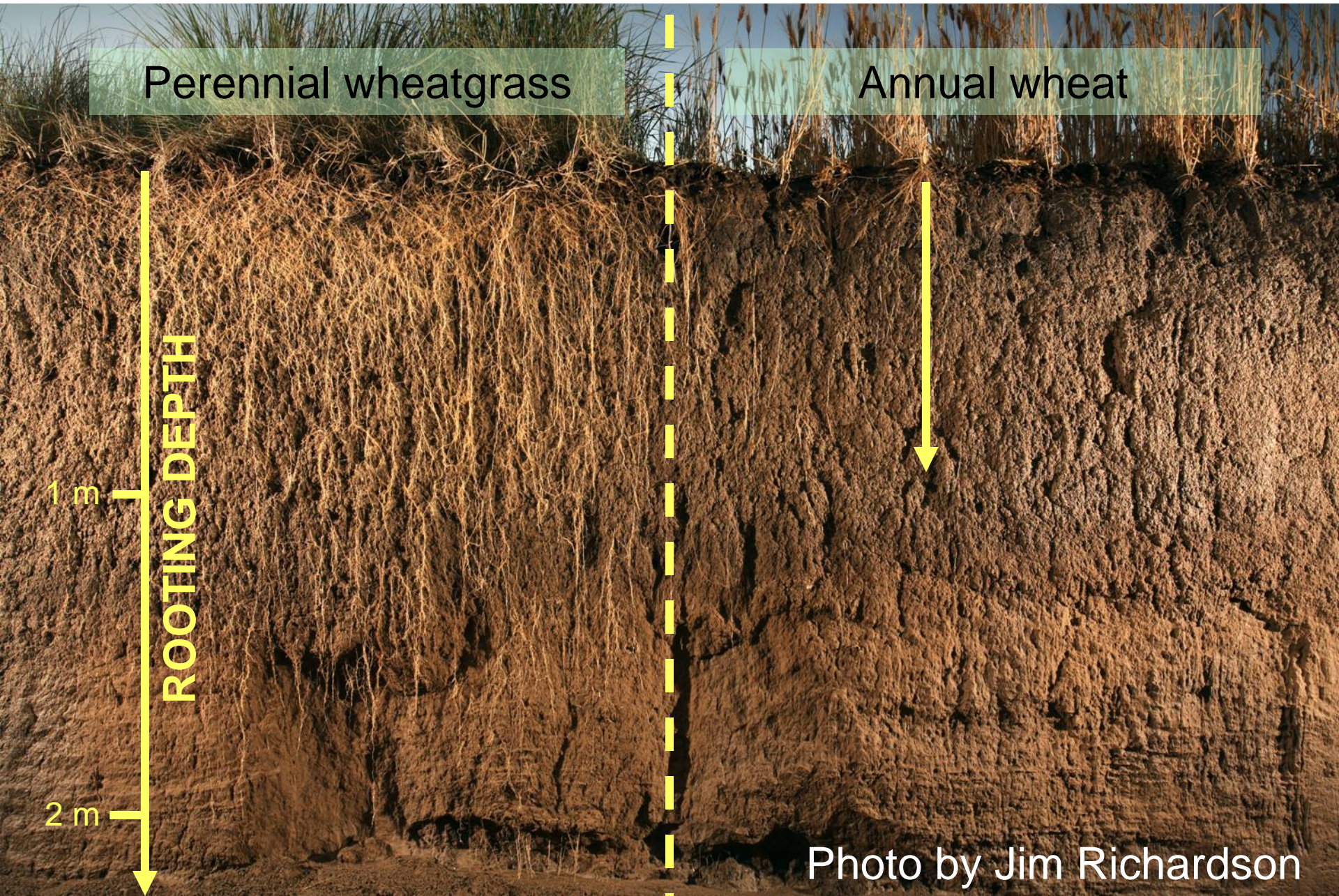
Map Units: tons per acre Iowa Daily Erosion Project

Map Generated on 2008/06/17

The Alpha and Omega

- It's all about the soil
- We need to launch a world-wide movement to restore the biological health of our soils.
- Let's assume that 10 years from now---- Oil will be \$300/barrel; We will only have half the amount of fresh water we have today for our food and agriculture enterprises; and that we have twice the severe weather events. **Could we still produce adequate food without healthy soil?**





Perennial wheatgrass

Annual wheat

ROOTING DEPTH

1 m

2 m

Photo by Jim Richardson

Sir Albert Howard had it right, 70 years ago

- “Mother earth never attempts to farm without livestock; she always raises mixed crops; great pains are taken to preserve the soil and to prevent erosion; the mixed vegetable and animal wastes are converted into humus; there is no waste; the processes of growth and the processes of decay balance one another; ample provision is made to maintain large reserves of fertility; both plants and animals are left to protect themselves against disease.”
---*An Agriculture Testament*

Bringing about Change!

“Only a crisis---actual or perceived--- produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around.”

---Milton Friedman

“A crisis is a terrible thing to waste”

---Hazel Henderson

Hope vs Optimism & Pessimism

- Bob Herbert's column in (January 31 *New York Times*). A new documentary film: "Pray the Devil Back to Hell"---about Ms Gbowee in Liberia.
- On January 31, 1865, the House of Representatives passed a constitutional amendment to abolish slavery.
- Only one of the women who led the women's suffrage movement got to vote.
- Paul Hawkin's *The Blessed Unrest*
- Change happens through "difficult hope"

A new renaissance challenge

“ . . . grow more food with less fuel, work *with* rather than *against* nature's cycles and flows, use less energy for everything, repair more than we replace, share more than we consume, rely on each other more, and use more creativity, and less material and energy.”

—Jack Manno, *Privileged Goods*

For More Information

- Thomas Lyson, G.W. Stevenson and Rick Welsh (eds) 2008. *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle*. MIT Press.

What's Happening in our Food System?

- Increased concerns on the part of consumers
- Increased costs associated with energy
- Increased health-related issues
- Not knowing, and “Just Eat It”
---Bill Heffernan
- Erosion of human capital---farmers!

The bifurcation of today's American food system

- Small-scale enterprises selling to direct markets, or
- Mega-farms selling commodities to consolidated food and fiber firms
- Resulting in the disappearance of the “ag of the middle”—usually family-operated farms---the very farms who are in the best position to supply a new expanding market!

But . . . “Ag of the middle” farms can thrive!

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---Connie Hatfield, Country Natural Beef
- All Farmers Have Choices---although not easy in today’s infrastructure
- Beginning Farmers need to decide where they fit

A New Model?

- Can “ag of the middle” farmers be competitive in this second market? The answer may be yes, but they will need to be part of a functional **value chain** structure which connects them to the markets, and organized into marketing networks to reduce transaction costs.