25 YEARS OF SUSTAINABILITY
Sustainable Farming Association

Solution Leaders in Agriculture

1990-2015... and beyond!

@johnmesko @sfamn #sfa25
1990
Agriculture in 1990

- “Fencerow-to-Fencerow”
- 80s debt crisis
- Farm Aid
FARM AID
A SONG FOR AMERICA
FOREWORD BY WILLIE NELSON
Agriculture in 1990

- 6% of land is no till
- Grassfed Beef?
- GMOs on the horizon
- No National Organic Certification
Adoption of conservation tillage for soybeans
United States and three major states

Source: CTIC
Wind and Water Erosion on Cropland, 2007

Legend
- Federal land

Each blue dot represents 100,000 tons per year of water (sheet and rill) erosion. Total of 959.9 million tons per year.

Each red dot represents 100,000 tons per year of wind erosion. Total of 765.1 million tons per year.

Source: USDA-NRCS
U.S. Organic Sales:
20% per year growth since 1990

Source: www.farmlandlp.com
Organic growth

Source: USDA, Nutritional Business Journal
Grassfed Beef:
It’s for Dinner

Des Moines, IA  Thur. January 29, 2015  USDA Market News

NATIONAL MONTHLY GRASS FED BEEF REPORT
For the Month of November

Report includes prices on a dressed carcass, wholesale, and direct marketed basis for grass fed beef. Dressed prices are quoted per hundred pounds, with wholesale and direct meat prices quoted per pound.

NEGOTIATED
Prices Paid for Domestic Slaughter Steers and Heifers:

<table>
<thead>
<tr>
<th>Dressed Basis</th>
<th>Steers/Heifers</th>
<th>($/cwt FOB Plant)</th>
<th>305.00 - 350.00 (Select)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuck Roll</td>
<td>3.34 - 9.98</td>
<td>($/lb)</td>
<td></td>
</tr>
<tr>
<td>Shoulder Clod</td>
<td>3.34 - 5.69</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>Ribeye, Boneless, Whole</td>
<td>9.95 - 13.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Loin</td>
<td>9.01 - 15.99</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>Tenderloin, Whole</td>
<td>16.56 - 31.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Striploin, Whole</td>
<td>8.71 - 19.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top Sirloin Butt, Whole</td>
<td>5.17 - 11.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knuckle, Peeled, Whole</td>
<td>5.69 - 5.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round Cut</td>
<td>5.29 - 5.69</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>Top Round, Inside</td>
<td>3.34 - 5.69</td>
<td>$</td>
<td></td>
</tr>
</tbody>
</table>
Principal Operators by Age Group, 2007 and 2012

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2012 Census</th>
<th>2007 Census</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 years and over</td>
<td>257,705</td>
<td>243,472</td>
</tr>
<tr>
<td>65 to 74 years</td>
<td>443,571</td>
<td>412,182</td>
</tr>
<tr>
<td>55 to 64 years</td>
<td>608,052</td>
<td>596,306</td>
</tr>
<tr>
<td>45 to 54 years</td>
<td>466,036</td>
<td>565,401</td>
</tr>
<tr>
<td>35 to 44 years</td>
<td>214,106</td>
<td>268,818</td>
</tr>
<tr>
<td>25 to 34 years</td>
<td>109,119</td>
<td>106,735</td>
</tr>
<tr>
<td>Under 25 years</td>
<td>10,714</td>
<td>11,878</td>
</tr>
</tbody>
</table>

Farm Income as Percentage of Total Farm Household Income

- 1960: 47%
- 1970: 37%
- 1980: 23%
- 1990: 12%
- 2000: 5%
- 2009: 9%

Figure 23. U.S. Average Farm Household Income, On- and Off-Farm Sources, Since 1960

Number of Farms

1987 Census of Agriculture
2,087,759 Farms

2012 Census of Agriculture
2,109,303

Increase of 21,544 Farms = 1% increase
Changes...

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>2012</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td># farms 1-49 ac.</td>
<td>595,694</td>
<td>813,183</td>
<td>37% increase</td>
</tr>
<tr>
<td># farms 50-1,999 ac.</td>
<td>1.425 M</td>
<td>1.214 M</td>
<td>15% decrease</td>
</tr>
<tr>
<td># farms &gt; 2,000 ac.</td>
<td>67,000</td>
<td>82,000</td>
<td>22% increase</td>
</tr>
</tbody>
</table>
Women Farmers

- 1987 = 131,641
- 2012 = 288,264
- 119% increase
- Other minorities are similar.
Figure 2
Share of farms and ranches operated by women in each sales class, 1982 and 2007

Women operators increased their share of farms and ranches in all sales classes

Note: Sales classes are expressed in constant 2007 dollars, using the Producer Price Index (PPI) for farm products to adjust for price changes. Source: USDA, Economic Research Service, compiled from the 1982 and 2007 Censuses of Agriculture.
Minority Principal Operators, 2007 and 2012

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>2012 Census</th>
<th>2007 Census</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic*</td>
<td>67,000</td>
<td>55,570</td>
</tr>
<tr>
<td>American Indian</td>
<td>37,851</td>
<td>34,706</td>
</tr>
<tr>
<td>Black</td>
<td>33,371</td>
<td>30,599</td>
</tr>
<tr>
<td>Asian</td>
<td>13,669</td>
<td>11,214</td>
</tr>
</tbody>
</table>

What is “Sustainable?”

Sustainable Agriculture - monsanto.com
See what Monsanto is doing to help improve sustainable agriculture.

 enough Food for All
 Our Work

Let's Talk
 A Balanced Plate

Scholarly articles for monsanto sustainable agriculture
... crops: engineering a more sustainable agriculture? - Hubbell - Cited by 40
Advanced agricultural biotechnologies and sustainable ... - Lyson - Cited by 63
Conservation tillage for sustainable agriculture: an ... - Fowler - Cited by 115

Monsanto | Our Commitment to Sustainable Agriculture
Our vision for sustainable agriculture strives to meet the needs of a growing population, to protect and preserve this planet we all call home, and to help improve ...

Monsanto | A Sustainable Agriculture Company
Monsanto is a sustainable agriculture company. We deliver agricultural products that support farmers all around the world.
# Changes...

<table>
<thead>
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<th></th>
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<th>2012</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>acres with chemical weed control</td>
<td>171.3 M</td>
<td>285.6 M</td>
<td>67% increase</td>
</tr>
<tr>
<td>$ spent on chemical applications</td>
<td>$9.59 B</td>
<td>$16.5 B</td>
<td>72% increase</td>
</tr>
</tbody>
</table>
New Challenges: 10 x 50, Climate Change

World Population: 1950-2050

Source: U.S. Census Bureau, International Data Base, December 2009 Update.
More People, Eating More Food

Why does global food demand for food keep on increasing?

2005, World population: 6.5 bn.

- 7,029 US - $/per capita per year
- 2,750 kcal/per capita per day


- 12,652 US - $/per capita per year
- 3,130 kcal/per capita per day

Source: FAO 2012
Future Food Demand by Region

Source: PBL www.pbl.nl
Meat Demand is Growing

**Meat on the menu**
Global food demand, 1961=100

- **Meat**
- **Dairy**
- **Cereals**
- **Starchy roots**

Source: Food and Agriculture Organisation
Crop Yields and Climate

Most studies now project adverse impacts on crop yields due to climate change (3°C warmer world)

Percentage change in yields between present and 2050

Sources: http://ow.ly/rpFMN
Farming and Water Stress

Water stress will increase in many agricultural areas by 2025 due to growing water use and higher temperatures (based on IPCC scenario A1B)

Sources: http://ow.ly/rptMN
Meeting Future Needs

THE GREAT BALANCING ACT

The world must achieve a “great balancing act” in order to sustainably feed 9.6 billion people by 2050. Three needs must be met at the same time.

CLOSING THE FOOD GAP

Required increase in food calories to feed 9.6 billion people by 2050: 69%

SUPPORTING ECONOMIC DEVELOPMENT

Global population directly or indirectly employed by agriculture: 28%

REDUCING ENVIRONMENTAL IMPACT

Global greenhouse gas emissions from agriculture and land use change: 24%
Healthy Plants  Healthy Animals  Healthy People

Clean Water  HEALTHY SOIL  Clean Air

Source: Gabe Brown
Biological Primification!
Feeding the biology that sustains life
Diversity in the Cropping System

Cool-Season Grass

Cool-Season Broadleaf

Warm-Season Grass

Warm-Season Broadleaf

Source: Gabe Brown
MIDWEST SOIL HEALTH SUMMIT

sustainable farming association
Show Me the Data

- UC Berkeley, 2014
- 115 studies
- 1,071 Comparisons of Organic and Conventional Yields
- 38 Countries
- 52 Crop Species
- > 35 Years
We have the Data

• Diversification Practices Reduce Organic/Conventional Yield Gap.
• Published Dec. 9, 2014, Proceedings of the Royal Society of London.
blog.ucsusa.org
Soil Health Building Strategy

Focus on Nutrition, human health, Food is Medicine, Nutrient Dense Foods

Educational Model

Consumers

Food Co-ops

Lakewinds

Young Mothers

Facebook

Environmental Groups

Ducks Unlimited

National Wildlife Foundation

Nature Conservancy

Isaac Walton League

Trout Unlimited

Audubon

National Wild Turkey Federation

Pheasants Forever

ASWCD

MN Deer Hunters Association

BWSR

Watershed Districts

Lake Associations

MN DNR Div. of Fish and Wildlife

GLBW

Outdoor Writers

Promote a new Farmer Image

Organic isn't enough

Resilient/Regenerative Agriculture

GrazeFest

Producers

Midwest Soil Health Summit

KCIM

Farmer To Farmer Networking

Economics of Soil Health Building

(GOT 9 Billion by 2050)

Media/Marketing/Messaging

New Torch Bearers

Presentation Skills

Field Days/Skills

Messaging

New Node

Pasture Project

RTC?

MN NRCS

Other Partners

Farmer's Union

Food-related

Nutrition Related

Winrock/Wallace

Funders

McKnight

Food-related

Nutrition Related

Winrock/Wallace

Strategic Implementation
Keys to Rapid Adoption

• Economic Forces
• Knowledge Forces
• Community or Society Forces
Addressing Economic Forces

• Gabe Brown, “Let’s tie crop insurance premiums to soil loss.”

• Let’s see our tax dollars spent on what we want. Healthy food, healthy environment. If we really want to see vast acreages managed for soil health, we have to stop paying farmers to destroy soil. - John Mesko

• US Farm Bill = $96 B/yr.
US Farm Bill = $96B/yr.
US Farm Bill Spending

What's in the farm bill? (Costs from FY2014-2023)

- Food stamps and nutrition, $756 billion (79.1%)
- Crop insurance, $89.8 billion (9.4%)
- Conservation, $56 billion (6%)
- Commodity programs, $44.4 billion (4.6%)
- Everything else, $8.2 billion

Source: Washington Post
Knowledge Needs

Want to farm? Enroll today for SFA’s Deep Roots Farmer Development

FARM SKILLS 101

Spring & Fall 2015 semesters at farms near Alexandria, Minn.

This course covers hands-on essential skills necessary for forage-based livestock producers. Elevate your handiness while building community and competence.
Deep Roots Farmer Development

- Training and developing farmers in:
  - Farmer to Farmer Networking
  - Soil health building
  - Community building
Community/Societal Forces

• Build a community of soil health minded farms

• Bring everyone to the table
  • Large, small, crops, livestock, conventional, organic, sustainable. FARMERS

• The “culture” in Agriculture needs to be about building soil first.
My Tractor is Bigger...
Soil Health Adoption

Farmer to Farmer Networking

Unlock the Secrets in the Soil

USDA

Foundations/Corporations/Individuals

Universities
SFA Connections

Initiative Foundation
McKnight Foundation
Grazing Land Conservation Association
Wallace Center
Minnesota Farmer’s Union
Rural Advantage
The Minnesota Project
University of MN
MISA
Regional Development Partnerships
Small Farms Team
UMN Extension
Lakewinds Co-op
Pasture Project
Minnesota NRCS
Institute for Ag and Trade Policy
Otto Bremer Foundation
Northern Plains Sustainable Ag Society
Central Lakes College
Fourth Generation Fund
Leave It Better

Organic Farming Research Foundation
Budding Farmers Support Network
USDA/AMS
North Central SARE
Green Lands Blue Waters
Renewing the Countryside
Land Stewardship Project
National Sustainable Ag Coalition
Minnesota Food Association
Organic Field School
Center for Rural Affairs
USDA/NRCS
Minnesota Department of Agriculture
Iowa Organic Association
Grassfed Exchange
Seedstock
North Dakota State University
Together

• NRCS is making this a huge priority, but it may take a generation of people on the ground.
• Universities have inertia.
• Big ag alone may not change fast enough.
• Foundations, Corporations provide resources
• SFA is quick and nimble.
Over the next 25 years, SFA can and should play a lead role in advancing agroecological solutions and promoting the benefits of those solutions throughout the Midwestern Corn Belt, the US and internationally.
SFA in the Future

• We have the keys to the future, why would we hold this back??
• We have a history and legacy of leadership and innovation, why would we not take this role?
What can you do?

• Thank you for coming!
• Become a sustaining member. Join me, the staff many on our board and others.
What can you do?

• Join a Chapter or Networking Group
• Buy a t-shirt, Identify with Sustainable Agriculture
What can you do?

• NETWORK- Social Media (#SFA25)
• Talk to others, or invite John to speak.
• Get involved!