




Slide 4



### Food & Farming: Why the disconnect?

- USDA est. 1862  
"The People's Department"  
(90% of the population were farmers)
  
- Farmers now make up  
<2% of the US population
  
- Milk comes from a cow?

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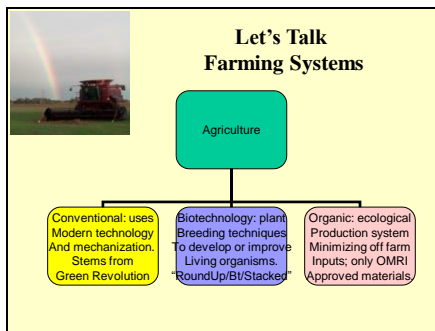


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Slide 5




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Slide 6



### Comparison of Practices

Practice	Conventional	Biotech	Organic
No-Till	√	√	
Crop Rotation	√	√	√
Cover Crop	√	√	√
Green Manure	√	√	√
IPM	√	√	√
Fertilizers	√	√	√ Manure
Pesticides	√	√	√ OMRI

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Slide 7



### Time & Fuel Consumption

Organic

- Plow
- Disc
- Spread manure
- Plant
- Rotary hoe
- Rotary hoe
- Rotary hoe
- Cultivate
- Cultivate
- Cultivate
- Monitor fertility/pests
- Scout fields
- Harvest

Conventional/Biotech

- No-till plant w/ injectable fertilizer
- Spray for weeds
- Monitor fertility/pests
- Scout fields
- Harvest

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Slide 8



### The Role of Biotech

- Insect Protection
- Herbicide Resistance
- Virus Resistance
- Nutritional Enhancement




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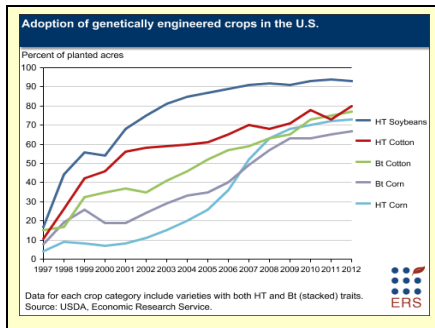


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Slide 9




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Slide 10

*Bt: Bacillus Thuringiensis*

Stalk tunneling by  
European Corn Borer
Root damage by rootworm

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Slide 11

**Bt Corn**

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Slide 12

**Why Biotech?**

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Slide 13



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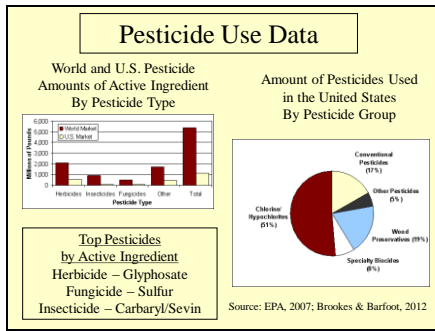
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Slide 14



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Slide 15

**What is a pesticide?**      “A pesticide is a chemical used to prevent, destroy, or repel pests.” *EPA*

Surprising Examples of Pesticides

- Baking Soda
- Warfarin
- Fluoride
- Hand Sanitizer
- Canola Oil

“The dose makes the poison”  
*Paracelsus*

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Slide 16



### Synthetic vs Organic Pesticides

Organic Pesticide – active ingredient derived from natural materials.  
 Synthetic Pesticide – manufactured active ingredient

**OMRI Lists**

- The *OMRI Products List®* is the most complete directory of products for organic production or processing. Includes over 2,500 products.
- "Natural compounds are not inherently less toxic to humans than synthetic ones. Some of the most deadly, fast-acting toxins and some potent carcinogens occur naturally. "Natural" does not necessarily mean safe or nontoxic, and it certainly does not mean nonchemical."<sup>19</sup> *Handbook of IPM, Weitzel and Henn, 1994.*

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Slide 17



### Oral LD50s

Synthetic	Organic
• Sevin 850 mg/kg	• Rotenone 60 mg/kg
• DDT (banned) 87 mg/kg	• Nicotine 55 mg/kg
• Glyphosate 5600 mg/kg	• BurnOut 3000 mg/kg
• Pounce 2200 mg/kg (synthetic pyrethroid)	• Pyrethrum 1350 mg/kg

FYI: LD 50 of Table Salt = 3000 mg/kg  
 (Smaller values indicate a more toxic product!)

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Slide 18

### Conservation vs Conventional

"No-Till" (L) does not work up the ground before planting.

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Slide 19



### Schmidt Farms, Inc.

<b>Soybeans - Year</b> (dryland)	1998	2000	2005	2010 (slight drought)	2011 (drought)	2012 (drought)
<b>Biotech Acreage</b>	195	322	416	270	522	527
Yield bu/a	54.2	50.3	53.5	46	37	43
<b>Conventional Acreage</b>	156	184	213	306	750	675
Yield bu/a	48.2	43.2	46.3	36	34	36
<b>Yield Difference</b>	<b>6 bu</b>	<b>7.1 bu</b>	<b>7.2 bu</b>	<b>10 bu</b>	<b>3 bu</b>	<b>7 bu</b>
Price/Bushel	\$6.90	\$6.62	\$7.25	\$11.30	\$12.52	\$14.55
Income Difference/Acre	\$41.40	\$47.00	\$52.20	\$113.00	\$37.56	\$101.85

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### Schmidt Farms Inc.

<b>Corn - Year</b> (dryland)	2000	2004	2010 (slight drought)	2011 (drought & Hurricane)	2012 (drought)
<b>Biotech Acreage</b>	10	276	573	397	464
Yield bu/a	171	182	110	44	111
<b>Conventional Acres</b>	647	415	195	213	261
Yield bu/a	165	167	91	18	57
<b>Bt Yield Advantage</b>	<b>6.4</b>	<b>15</b>	<b>19</b>	<b>26</b>	<b>54</b>
Price/Bu	\$2.35	\$2.55	\$5.18	\$6.47	\$7.40
Net/Acre	\$15.04	\$38.25	\$98.42	\$168.22	\$399.60
Certified Organic			40 bu/ac	Mowed	decert

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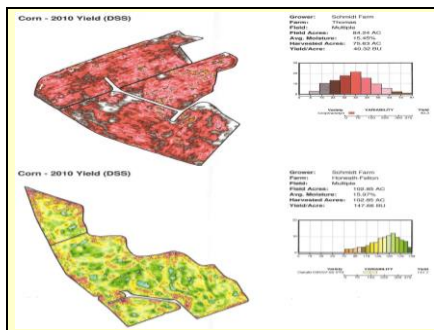
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Slide 21




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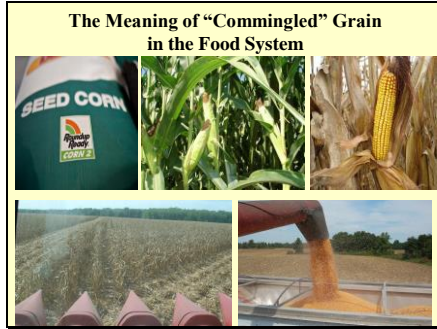
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Slide 22



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Slide 23



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Slide 24



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Slide 25



**Thank You!**  
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<http://thefoodiefarmer.blogspot.com>

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