

# Food Is Plentiful!

## Therefore Farming is EASY... right?



Jennie Schmidt, MS, RD  
Schmidt Farms, Inc.

# Schmidt Farms Inc.

3<sup>rd</sup> Generation in USA

2100 Acres in Maryland

- Corn (biotech & conventional production; formerly certified organic)
- Soybeans (food, feed & seed)
  - Wheat (feed & seed)
    - Barley (seed)
- 150 acres Roma tomatoes
- 160 acres fresh market green beans
- 80 acres processing lima beans
  - 250 acres of hay
  - 22 acres winegrapes
- Custom Hire Vineyard Mgt Co.



## Our Farm Goal =

to maximize value per acre producing safe, high quality foods, while preserving and improving our soils and sustaining the family farm for the next generation

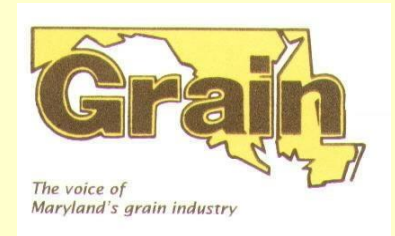




# Who Am I? Farmer, Dietitian, Promoter of Food & Farming



- 2011 America's Farm Mom of the Year
- CommonGround Volunteer
- Board Member
  - 1<sup>st</sup> Female V.P. - Maryland Grain Producers
  - US Wheat Foods Council
  - Past-Pres, MD Grape Growers Assoc.
  - Chairman, Maryland Farm Bureau Specialty Crops
- AND workgroup on Advance Food Technology
- HEN DPG member



# 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?

# Let's Talk Farming Systems



Agriculture

Conventional: uses  
Modern technology  
And mechanization.  
Stems from  
Green Revolution

Biotechnology: plant  
Breeding techniques  
To develop or improve  
Living organisms.  
“RoundUp/Bt/Stacked”

Organic: ecological  
Production system  
Minimizing off farm  
Inputs; only OMRI  
Approved materials.

# Comparison of Practices



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



# 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



# The Role of Biotech

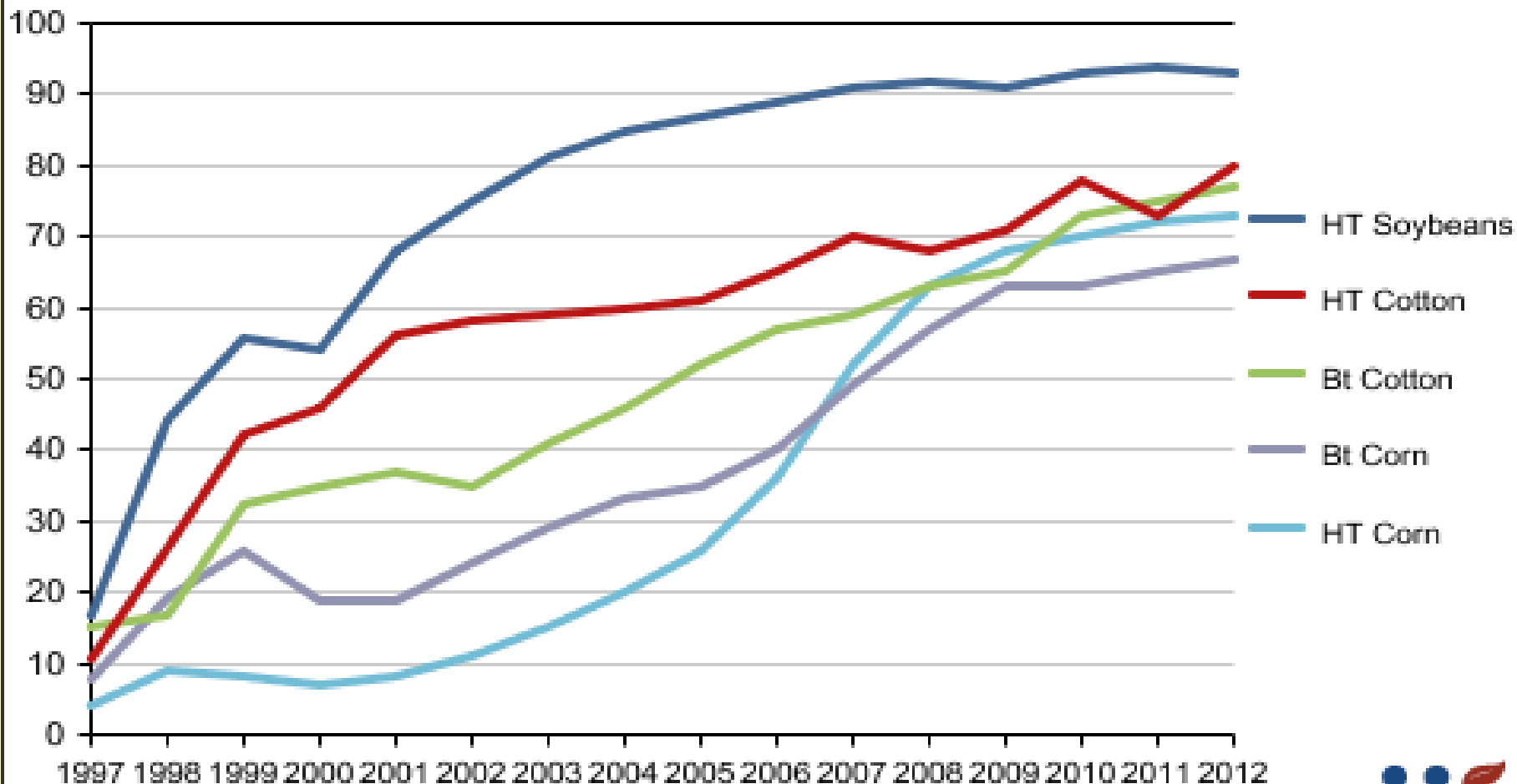
- Insect Protection
- Herbicide Resistance
- Virus Resistance
- Nutritional Enhancement





# Adoption of genetically engineered crops in the U.S.

Percent of planted acres



Data for each crop category include varieties with both HT and Bt (stacked) traits.  
Source: USDA, Economic Research Service.



# *Bt: Bacillus Thuringiensis*



Stalk tunneling by  
European Corn Borer



Root damage by rootworm



# Bt Corn





# Why Biotech?

Sprayed 32 times.



Sprayed once.



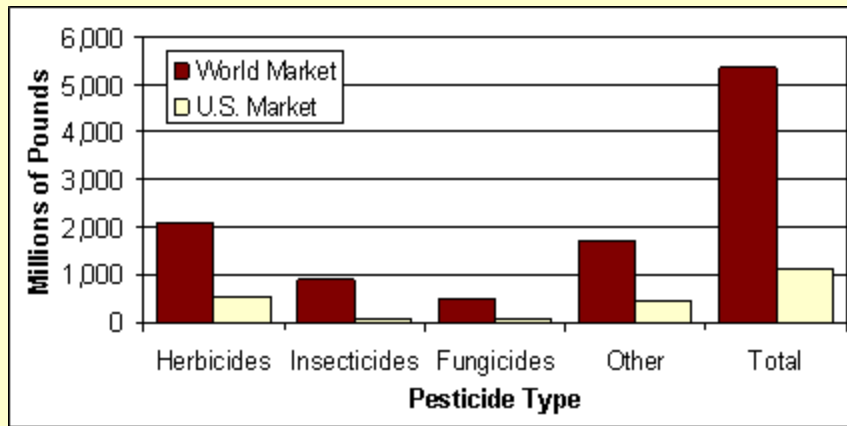


# “Round-Up Ready” Soybeans

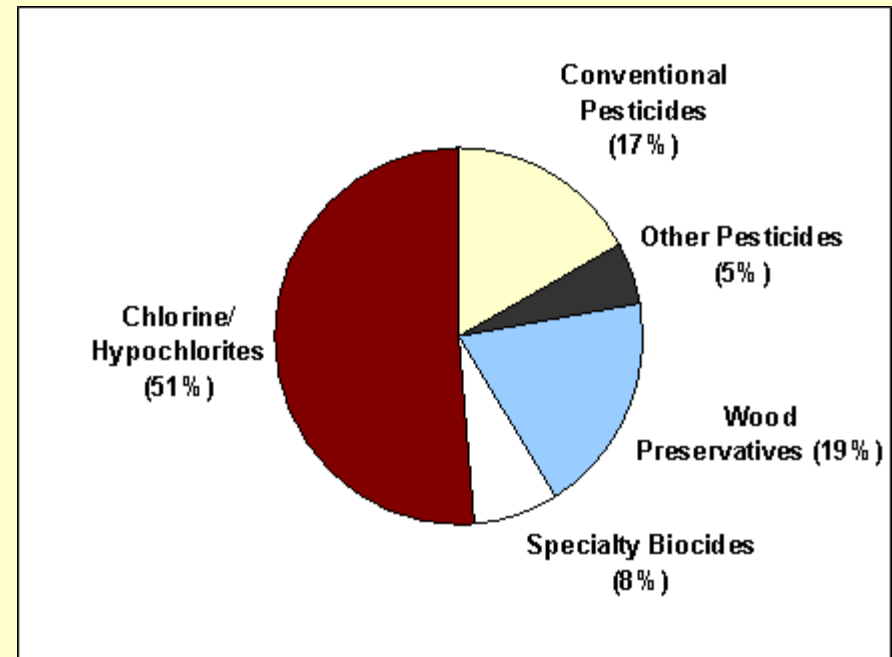


# Pesticide Use Data

## World and U.S. Pesticide Amounts of Active Ingredient By Pesticide Type



## Amount of Pesticides Used in the United States By Pesticide Group



### Top Pesticides

#### by Active Ingredient

Herbicide – Glyphosate

Fungicide – Sulfur

Insecticide – Carbaryl/Sevin

Source: EPA, 2007; Brookes & Barfoot, 2012

# What is a pesticide?

## Surprising Examples of Pesticides

Baking Soda

Warfarin

Fluoride

Hand Sanitizer

Canola Oil

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

“The dose makes the poison”

*Paracelsus*





# 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.” *Handbook of IPM, Weinzierl and Henn, 1994.*





# Oral LD50s

## Synthetic

- Sevin 850 mg/kg
- DDT (banned) 87 mg/kg
- Glyphosate 5600 mg/kg
- Pounce 2200 mg/kg  
(synthetic pyrethroid)

## Organic

- Rotenone 60 mg/kg
- Nicotine 55 mg/kg
- BurnOut 3000 mg/kg
- Pyrethrum 1350 mg/kg

FYI: LD 50 of Table Salt = 3000 mg/kg

**(Smaller values indicate a more toxic product!)**

# Conservation vs Conventional



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



# Schmidt Farms, Inc.

<b><u>Soybeans</u> – Year</b> (dryland)	<b>1998</b>	<b>2000</b>	<b>2005</b>	<b>2010</b> (slight drought)	<b>2011</b> (drought)	<b>2012</b> (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><u>Yield Difference</u></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

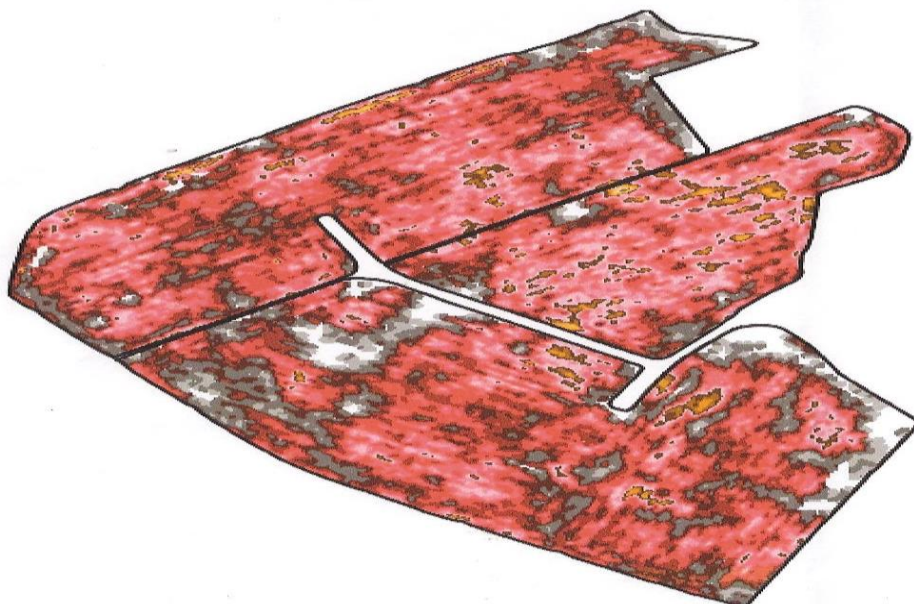


# Schmidt Farms Inc.

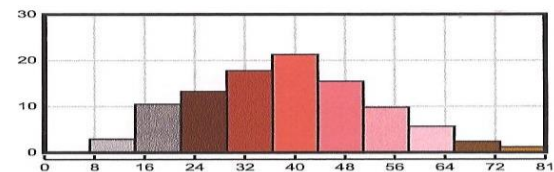
<b><u>Corn – Year</u></b> <b>(dryland)</b>	<b>2000</b>	<b>2004</b>	<b>2010</b> <b>(slight drought)</b>	<b>2011</b> <b>(drought &amp; Hurricane)</b>	<b>2012</b> <b>(drought)</b>
<b>Biotech Acreage</b>	10	276	573	397	464
Yield bu/a	171	182	110	44	111
<b>Conventional Acres</b>	647	415	195	213	261
Yield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



### Corn - 2010 Yield (DSS)



**Grower:** Schmidt Farm  
**Farm:** Thomas  
**Field:** Multiple  
**Field Acres:** 84.24 AC  
**Avg. Moisture:** 15.45%  
**Harvested Acres:** 75.63 AC  
**Yield/Acre:** 40.32 BU

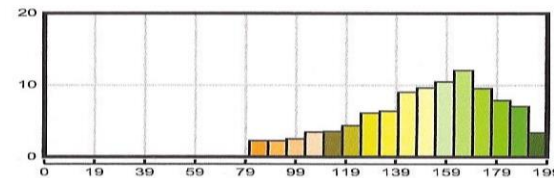


**Variety:** CropVariety3  
**VARIABILITY:** 0 75 150 225 300 375  
**Yield:** 40.3

### Corn - 2010 Yield (DSS)



**Grower:** Schmidt Farm  
**Farm:** Horwath-Felton  
**Field:** Multiple  
**Field Acres:** 102.85 AC  
**Avg. Moisture:** 15.97%  
**Harvested Acres:** 102.85 AC  
**Yield/Acre:** 147.66 BU



**Variety:** Dekalb DKC57-50 VT3  
**VARIABILITY:** 0 75 150 225 300 375  
**Yield:** 147.7



# The Meaning of “Commingled” Grain in the Food System





# Our On-Farm Grain Storage



# A few of the Off-Farm Grain Delivery Options for all farmers in the region







**Thank You!**

Jennie Schmidt, MS, RD

@FarmGirlJen

Facebook: The Foodie Farmer

[schmidtvineyardmgt@gmail.com](mailto:schmidtvineyardmgt@gmail.com)

<http://thefoodiefarmer.blogspot.com>