Pennsylvania Agriculture: Where the Action is!

$7.4$ Billion Sales - $1.8$ Billion Farm Income
A Graphic Update

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Pennsylvania agriculture in 2017 is in a rough spot. Prices of major commodities have plummeted since 2012. This raises the question “Which farms can readily adjust and continue farming successfully? The long-run trend in Pennsylvania has been more “large” farms and fewer “small” farms – suggesting bigger is better.

For a close-up check on “bigger is better” this report takes a detailed graphic look at farm size and farm incomes on Pennsylvania farms in 2012 – the latest year of detailed Agriculture Census data. For an in-depth analysis, the state’s 59,309 farms in 2012 are grouped by farm product sales as follows:

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Farm Product Sales ($) – 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega</td>
<td>500,000 &amp; over</td>
</tr>
<tr>
<td>Large</td>
<td>100,000 – 499,999</td>
</tr>
<tr>
<td>Medium</td>
<td>10,000 – 99,999</td>
</tr>
<tr>
<td>Small</td>
<td>Less than 10,000</td>
</tr>
</tbody>
</table>

Data Source for Report

“2012 Census of Agriculture – Pennsylvania” – U.S. Department of Agriculture

Please Note: This report seeks to tell the story of agriculture in Pennsylvania in 2012 by minimizing text and maximizing graphics – a graph is worth a thousand words.

Also: The authors welcome any comments/questions on content or format.

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59,000 Farms – Mega to Small: A Summary

“The next farm-bust is coming.” – Wall Street Journal, Feb. 1, 2017

Pennsylvania agriculture in 2017 is in a rough spot. Prices paid to farmers for four major commodities – milk, soybeans, corn for grain and wheat – have plummed, since 2012 cutting profit margins and farm incomes. This raises the question “Which farms can adjust and survive an extended decline in commodity prices?”

The long-run trend in Pennsylvania and the U.S. has been for more “large” and fewer “small” farms, suggesting that farm size is often key to successful farming. It is too early to assess the impact of the 2012-16 decline in commodity prices on farm size and numbers in Pennsylvania, but a close-up look at Pennsylvania farms in 2012 shows farm incomes closely linked to farm size.

Is Bigger Better? Farm Product Sales and Farm Incomes - Pennsylvania Farms In 2012

To look at farm sizes and incomes of Pennsylvania’s 59,309 farms – 2012, we grouped farms by product sales: Mega, Large, Medium, and Small. The results showed Mega and Large farms dominating Pennsylvania agriculture with 95 percent of farm product sales and farm income in 2012. Key contrasts in product sales and income among the four size groups are:

<table>
<thead>
<tr>
<th>2,901 Mega Farms-2012: Sales $500,000 and Over</th>
<th>16,728 Medium Farms-2012: Sales $10,000–99,999</th>
</tr>
</thead>
<tbody>
<tr>
<td>• $4.6 Billion Farm Product sales – 62% of PA Total</td>
<td>• $0.6 Billion Farm Product Sales -8% of PA total</td>
</tr>
<tr>
<td>• $451,620 Net Cash Income Per farm</td>
<td>• $5,545 – Net Cash Income per farm</td>
</tr>
<tr>
<td>• 92% of Farms – Net Income Gain</td>
<td>• 68% of Farms –Net Income Gain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8,913 Large Farms-2012: Sales $100,000-499,999</th>
<th>30,767 Small Farms-2012: Sales under $10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>• $2.2 Billion Farm Product Sales – 29% of PA Total</td>
<td>• 0.1 Billion Farm Product Sales – 1% of PA Total</td>
</tr>
<tr>
<td>• $74,316 Net Cash Income Per Farm</td>
<td>• -$7,146 Net Cash Income per farm</td>
</tr>
<tr>
<td>• 88% of Farms - Net Income Gain</td>
<td>• 23% of farms – Net Income Gain</td>
</tr>
</tbody>
</table>


Productivity feeds farm incomes. Mega and Large farms outpaced Medium and Small farms on three key productivity measures in 2012.

<table>
<thead>
<tr>
<th>Productivity Indicator</th>
<th>Mega</th>
<th>Large</th>
<th>Medium</th>
<th>Small</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Expenses % of Product Sales</td>
<td>76</td>
<td>73</td>
<td>92</td>
<td>344</td>
</tr>
<tr>
<td>Milk Sales per Cow</td>
<td>$4,100</td>
<td>$3,500</td>
<td>$1,500</td>
<td>$100</td>
</tr>
<tr>
<td>Corn for grain (bushels per acre)</td>
<td>132</td>
<td>127</td>
<td>111</td>
<td>99</td>
</tr>
</tbody>
</table>

Bottom Line: Farm Size and Successful Farming – Pennsylvania Farms 2012

Is bigger better? - A good bet - if long-run profits are the goal.
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The Big Picture: Farms – Farmland

PA. – 2012: 59,000 Farms

Fig. 1 Number and Percent of PA Farms - 2012

<table>
<thead>
<tr>
<th>Size</th>
<th>Farms</th>
<th>Percent of PA Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega &amp; Large</td>
<td>11,814</td>
<td>19.9%</td>
</tr>
<tr>
<td>Small &amp; Medium</td>
<td>47,495</td>
<td>80.1%</td>
</tr>
</tbody>
</table>

4.9% of PA Farms are Mega & Large, and 80.1% are Small & Medium.

67 Counties

Top 7 Counties - Southeast: 15,796 Farms

Top Three Counties:
- Lancaster – 5,657 Farms
- York – 2,171 Farms
- Berks – 2,039 Farms

Highlights:

NUMBER OF FARMS

Four Sales Groups
- Mega & Large: 11,814 Farms
  - 19.9% of PA. Farms
- Small & Medium: 47,495 Farms
  - 80.1% of PA. Farms

67 Counties

Top 7 Counties - Southeast: 15,796 Farms

Top Three Counties:
- Lancaster – 5,657 Farms
- York – 2,171 Farms
- Berks – 2,039 Farms
PA. – 2012: 52,390 Farms – Family or Individually Owned

**Highlights**

**FAMILY/INDIVIDUAL OWNED FARMS**

**Four Sales Groups**

- Percent of Farms
  - Mega – 65%
  - Large – 85%
  - Medium – 88%
  - Small – 92%

**67 Counties**

- Percent of Farms
  - Top Three:
    - Cameron – 94%
    - Greene – 94%
    - McKean – 93%
  - Bottom Three:
    - Philadelphia – 41%
    - Delaware – 68%
    - Monroe – 77%

---

**Map 2: Percent of Family of Individual Owned Farms - 2012: 67 Counties**

- **40 - 79.9%**
- **80 - 84.9%**
- **85 - 89.9%**
- **90 - 94.9%**
PA. – 2012: Farmland – 7.7 Million Acres

Fig. 3 Acres and Percent of PA Land in Farms - 2012

- 27.2% of Farmland: 2,087,782
- 25.7% of Farmland: 2,013,331
- 21% of Farmland: 1,982,994
- 26.1% of Farmland: 1,620,337

Highlights

FARMLAND

Four Sales Groups

- Mega & Large: 3,603,331 Acres
  - 46.7% of PA Farmland
- Small & Medium: 4,101,113 Acres
  - 53.3% of PA Farmland

67 Counties

Farmland Percent of County Land Area

Top Counties - Southeast
- Lancaster – 72.8%
- Franklin – 53.5%
- Lebanon - 52.4%

Top Counties - Outside Southeast
- Montour – 52.2%
- Union - 46.1%

Map 3: Percent of County Land Area in Farms - 2012: 67 Counties

Legend:
- Under 13.4%
- 13.5-26.8%
- 26.9 - 40.4%
- 40.5% & Over
"You can make a fortune in Farming provided you start with a big one" –Anonymous

PA. Farms – 2012: Investment in Land & Buildings - 41.8 Billion

**Highlights**

INVESTMENT: LAND & BUILDINGS
Four Sales Groups

Mega & Large - $21.1 Billion
- 50.4% of PA Total

Small & Medium - $20.7 Billion
- 49.6% of PA Total

67 Counties

**Investment per Farm**

Top Counties - Southeast:
- Lehigh - $1,308,144
- Chester - $1,242,743
- Franklin - $1,101,505

Top Counties - Outside Southeast:
- Pike - $1,037,116
- Schuylkill - $860,377

Map 4: Estimated Market Value of Land and Buildings
($-Thousands) Per Farm - 2012: 67 Counties

- 205-474.9
- 475-699.9
- 700-924.9
- 925 & Over
PA Farms – 2012: Investment in Machinery & Equipment - $5.3 Billion

Fig. 5 Value ($-Billions) and Percent of PA Farm Machinery and Equipment - 2012

21.5% $1.1
24.4% $1.3
24.7% $1.3
29.4% $1.6

Mega  Large  Medium  Small

Highlights
INVESTMENT: MACHINERY & EQUIPMENT
Four Sales Groups
Mega & Large: $2.9 Million
  - 53.8% of PA Total
Small & Medium: $2.4 Million
  - 46.2% of PA Total

67 Counties
Investment per Farm
Top Counties - Southeast:
  - Franklin - $133,634
  - Lebanon - $122,164
  - Berks - $120,253

Top Counties - Outside Southeast:
  - Northampton - $115,108
  - Blair - $106,917
  - Schuylkill - $105,597

Map 5: Estimated Market Value of Equipment ($-000’s) Per Farm- 2012: 67 Counties
The Balance Sheet: Sales – Expenses – Income

“To make agriculture sustainable, the grower has to make a profit.” – Sam Farr

PA Farms – 2012: Sales of Agricultural Products – $7.4 Billion

Fig. 6 Value ($-Billion) and Percent of PA Agricultural Product Sales - 2012

<table>
<thead>
<tr>
<th>Sales Group</th>
<th>Value ($-Billion)</th>
<th>Percent of PA Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega &amp; Large</td>
<td>$6.7 Billion</td>
<td>91%</td>
</tr>
<tr>
<td>Small &amp; Medium</td>
<td>$0.7 Billion</td>
<td>8%</td>
</tr>
</tbody>
</table>

Highlights

SALES OF FARM PRODUCTS

Four Sales Groups

- Mega & Large: $6.7 Billion
  - 91% of PA Sales
- Small & Medium: $0.7 Billion
  - 8% of PA Sales

67 Counties

Percent of Farms with Sales of $100,000 & Over

- 18 Counties – 20% & over:
  - Located mainly in Southeast and South Central PA
- Top Counties:
  - Lancaster - 48%
  - Union - 45%
  - Franklin - 40%

Map 6: Percent of Farms with Product Sales $100,000 and Over - 2012: 67 Counties

Legend:
- 0-9.9%
- 10.0-19.9%
- 20.0 - 29.9%
- 30% & Over
PA Farms – 2012: Net Farm Income: $1.8 Billion

Highlights:
NET FARM INCOME

Four Sales Groups
Percent of Farms with Income Loss
- Mega & Large - 10.2%
- Medium - 32.3%
- Small - 77.5%

67 Counties
Percent of Farms with Income Loss
Top Counties – Lowest Percent:
- Union - 32.8%
- Lancaster - 34.4%
- Franklin - 39.4%
- Northumberland - 41.2%
- Cumberland - 41.1%

Map 7: Percent of Farms with Income Loss - 2012: 67 Counties
Productivity: Sales vs. Expenditures & Investments

PA Farms – 2012: Sales vs. Operating Expenses

Highlights:

**PRODUCT SALES vs. OPERATING EXPENSES**

**Four Sales Groups**

- Mega - 132%
- Large - 138%
- Medium - 109%
- Small - 29%

**67 Counties**

**Sales Percent of Operating Expenses**

Top Counties:
- Northumberland - 134%
- Mercer - 133%
- Union - 133%
- Lebanon - 133%

Bottom Counties:
- Philadelphia - 62%
- Cameron - 69%
- Forest - 88%

Map 8: Product Sales Percent of Operating Expenses per Farm - 2012: 67 Counties

- 62.8 - 93.5%
- 93.6 - 113.2%
- 113.3 - 124.8%
- 124.9 - 139.5%
PA Farms – 2012: Product Sales vs. Investment in Land & Buildings

**Fig. 9 Farm Product Sales Percent of Value of Land & Buildings Per Farm - 2012**

![Bar chart showing sales percent of investment for different sales groups: Mega, Large, Medium, Small.]

**Highlights:**

**SALES vs. INVESTMENT IN LAND & BUILDINGS**

**Four Sales Groups**

- **Sales Percent of Investment**
  - Mega - 51%
  - Large - 20%
  - Medium - 7%
  - Small - 15%

**67 Counties**

**Sales percent of Investment**

- Top Four Counties:
  - Snyder - 31%
  - Chester - 31%
  - Lebanon - 27%
  - Union - 27%

**Map 9: Product Sales Percent of Value of Land & Buildings per Farm - 2012: 67 Counties**
Productivity - Milk Sales per Cow – Crop Yields

**Fig. 10 Milk Sales Per Cow - 2012**

![Bar chart showing milk sales per cow for different farm sizes in 2012.](chart1)

- **Mega** farms had the highest milk sales per cow at 4.1 thousand dollars, followed by **Large** farms at 3.5 thousand dollars, **Medium** farms at 1.5 thousand dollars, and **Small** farms at 0.1 thousand dollars.

**Fig. 11 Corn For Grain: Yields**

![Bar chart showing corn yield for different farm sizes in 2012.](chart2)

- **Mega** farms had the highest bushels per acre at 131.6, followed by **Large** farms at 126.7, **Medium** farms at 110.9, and **Small** farms at 99.2.

**Fig. 12 Soybeans: Yields - 2012**

![Bar chart showing soybean yield for different farm sizes in 2012.](chart3)

- **Mega** farms had the highest bushels per acre at 49.2, followed by **Large** farms at 47.6, **Medium** farms at 45.7, and **Small** farms at 42.7.

**Highlights:**

**PRODUCTIVITY: MILK – SOYBEANS – CORN FOR GRAIN**

- **Four Sales Groups**
  - Milk Sales per Cow
    - Mega and Large farms accounted for 98% of milk sales by PA farms.
    - Milk sales per cow declined sharply with farm size.
  - Crop Yields – Soybeans and Corn
    - Bushels per acre yields of both soybeans and corn for gran declined by sales group.
Farm Operators: Age – Off-farm Work – Female Operators

PA Farms – 2012: Age of Operators

Fig. 13 Average Age of Operators and Percent Over Age 65

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>52.7</th>
<th>49.2</th>
<th>56.0</th>
<th>57.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega</td>
<td>7.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>8.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>19.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>21.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

AGE OF FARM OPERATORS
Four Sales Groups
Percent of Operators Over 65
- Mega - 7.5%
- Large - 8.7%
- Medium - 19.4%
- Small - 21.6%

67 Counties
Percent of Operators Over 65
Lowest Percent:
- Lancaster - 9%
- Philadelphia - 9%
- Lebanon - 12%
- Union - 12%

Map 10: Percent of Operators over Age 65 - 2012: 67 Counties

24.5% & Over 19-23% 14-18% 9-13%
PA Farms – 2012: Off-farm Work of Operators

Highlights

OFF-FARM WORK OF FARM OPERATORS
Four Sales Groups

Percent Working Off-farm 200 Days or More
- Mega - 1.9%
- Large - 7.5%
- Medium - 28.9%
- Small - 61.6%

67 Counties

Percent Working Off-farm 200 Days or More

Lowest Percent:
- Delaware - 11%
- Monroe - 18%
- Chester - 19%

Highest Percent:
- Pike - 37%
- Cambria - 32%

Map 11: Percent of Operators Working Off-farm 200 or More Days - 2012: 67 Counties

Fig. 14 Number and Percent of Operators Working Off-Farm 200 Days or More - 2012
PA Farms – 2012: Female Primary Operator

Highlight

FARMS — FEMALE PRIMARY OPERATOR

Four Sales Groups

Percent of Farms
- Mega - 1.2%
- Large - 3.4%
- Medium - 21.1%
- Large - 74.3%

67 Counties

Percent of Farms

Highest Percent:
- Philadelphia - 45%
- Delaware - 38%
- Bucks - 28%

Lowest Percent:
- Clinton - 7%
- Union - 8%

Fig. 15 - Number and Percent of Farms with Female Primary Operators

Map 12: Percent of Farms with Female Primary Operators - 2012: 67 Counties
Specialty Farms: Organic & Direct Sales to Consumer

PA Farms – 2012: 600 Organic Farms - $78.5 Million Sales

Fig 16. Number and Percent of PA Organic Farms - 2012

Highlights:
ORGANIC FARMS

Four Sales Groups
Organic Sales Concentrated
Mega & Large
- 47.5% of farms
- 90.7% of sales

Medium & Small
- 52.5% of farms
- 9.3% of sales

67 Counties
Number of Organic Farms
Top counties:
- Lancaster - 139
- Juniata - 50
- Franklin - 29
- Bradford - 28
- Chester - 25
PA Farms – 2012: 7,577 Farms Direct Sales to Consumer - $86 Million Sales

Highlights:
DIRECT SALES TO CONSUMERS

Four Sales Groups
Sales Concentrated
Mega & Large
  - 19.4% of farms
  - 63.4% of sales

Medium & Small
  - 80.6% of farms
  - 36.6% of sales

67 Counties

Direct Sales to Consumers
Top counties ($-millions):
  - Lancaster - $11.9
  - York - $4.6
  - Berks - $4.1
  - Chester - $3.9
  - Bucks - $3.8