Appendix

Environmental scan

December 2015

Environmental Scan Document Guide

- Agriculture Industry Overview
  - U.S.
  - Indiana
- Impact of Indiana Agriculture
- Indiana Ag & Rural Infrastructure
- Indiana Farm Demographics
- Indiana Agriculture by Industry Segment
- ISDA Listening Session & Survey Data

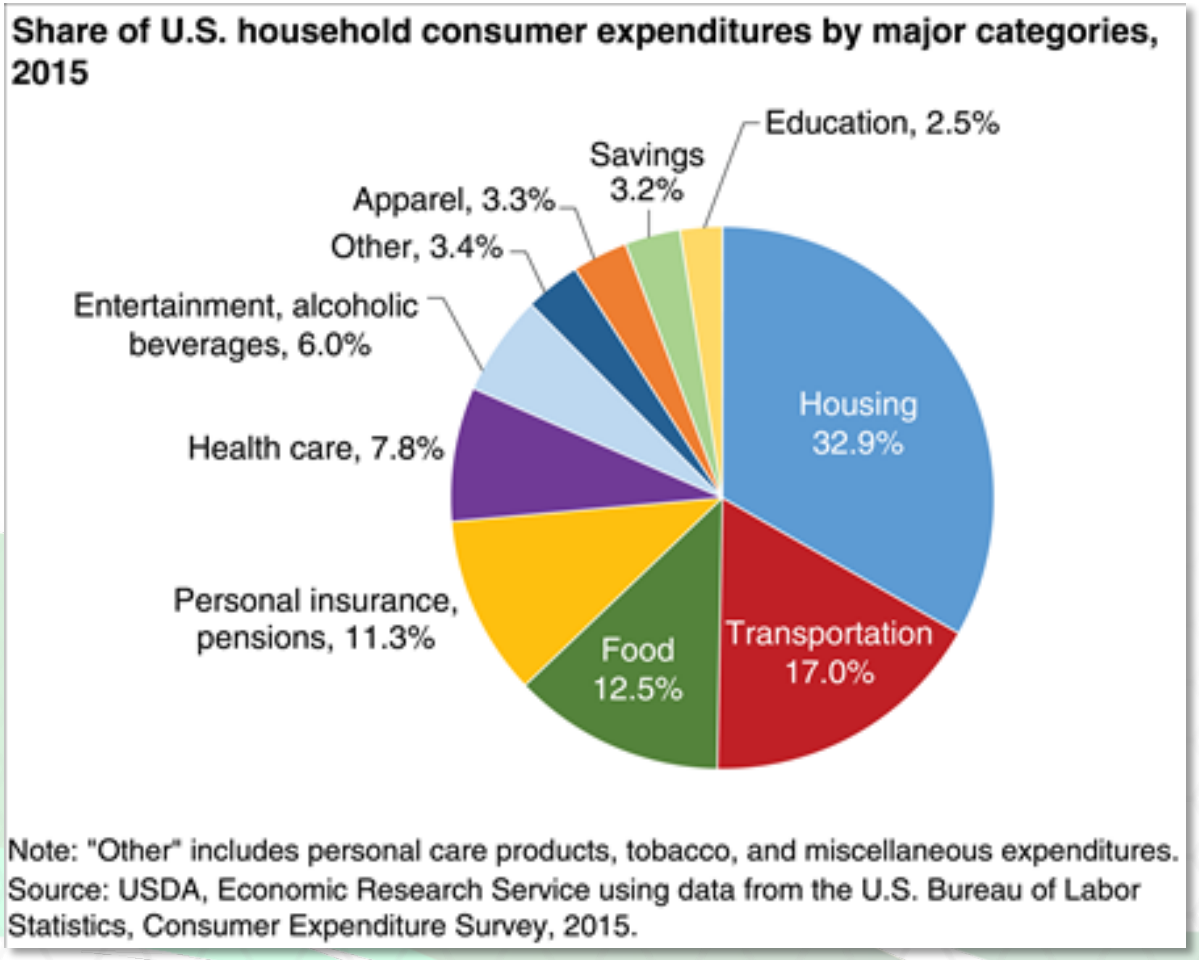
Agriculture Industry – U.S.

United States Food & Agriculture Systems

- Agriculture and agriculture-related industries contributed $992 billion to the U.S. GDP in 2015 (5.5%)
- Includes farms, food service, textiles and manufacturing, food and beverage manufacturing, forestry, fishing, and related activities
- Farms contribute $136.7 billion to this total

Source: USDA Economic Research Service using information from U.S. Department of Commerce, Bureau of Economic Analysis and Value Added by Industry Series

United States Food & Agriculture Systems



Source: USDA Economic Research Service using data from U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2015

United States Food & Agriculture Systems: Employment

- In 2015, 21.0 million full- and part-time jobs were related to agriculture (11% of total U.S. employment)
- In 2015, the U.S. food and beverage manufacturing sector employed about 1.9 million people (1% of total U.S. employment)
- Bureau of Labor Statistics indicates ag jobs are projected to decline 6% from 2014 to 2024

Source: USDA, Economic Resource Service using data from U.S. Department of Commerce, Bureau of Economic Analysis & USDA, Economic Resource Service using data from U.S. Census Bureau

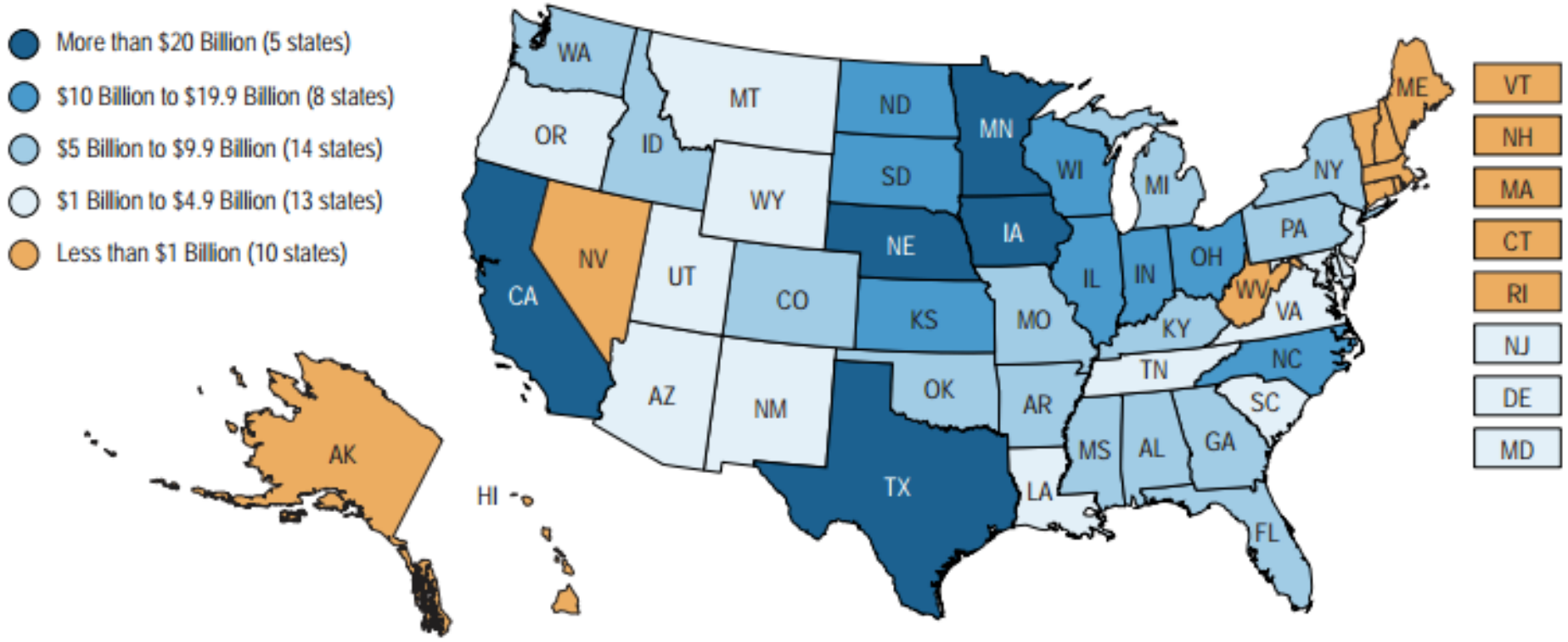
United States Food & Agriculture Systems: America's Farms

- 2.06 million farms in the United States
  - 911 million acres of land in farms
  - Average size farm is 442 acres
  - Farmland comprises 40.5% of U.S. land area
- Today, farmers produce 262% more food with 2% fewer inputs (labor, seed, feed, fertilizer, etc.) compared to 1950

Source: USDA, NASS. 2012 Consensus of Agriculture "Farms and Farmland", "Farms and Land in Farms 2016 Summary", Summary by Size of Farm & American Farm Bureau Federation

U.S. Agriculture Production

Figure 1: Value of Agricultural Production by State, 2012



Source: USDA, 2012 Census of Agriculture

Agriculture Industry – Indiana

Indiana Agriculture's Impact: Rankings in the Nation

- **1st** in commercial duck production
- **2nd** in popcorn production and ice cream production
- **3rd** in egg production, spearmint, and tomato production
- **4th** in soybean production
- **5th** in corn production, hog production, and ethanol

2016 Data: egg production, spearmint, corn production, hog production, ethanol, soybean production
2015 Data: tomatoes for processing
2012 Data: duck production, popcorn production,
2004 data for ice cream production (state level data not available from NASS after 2004)
Sources: USDA NASS, State of Nebraska Website

Indiana Agriculture's Impact: Other Rankings in the Nation

- **2nd** in cropland planted with a cover crop as of 2016
- **14th** in number of farms as of 2016
- **11th** in total ag sales ($) as of 2015

Source: USDA NASS. USDA ERS. National Sustainable Agriculture Coalition.

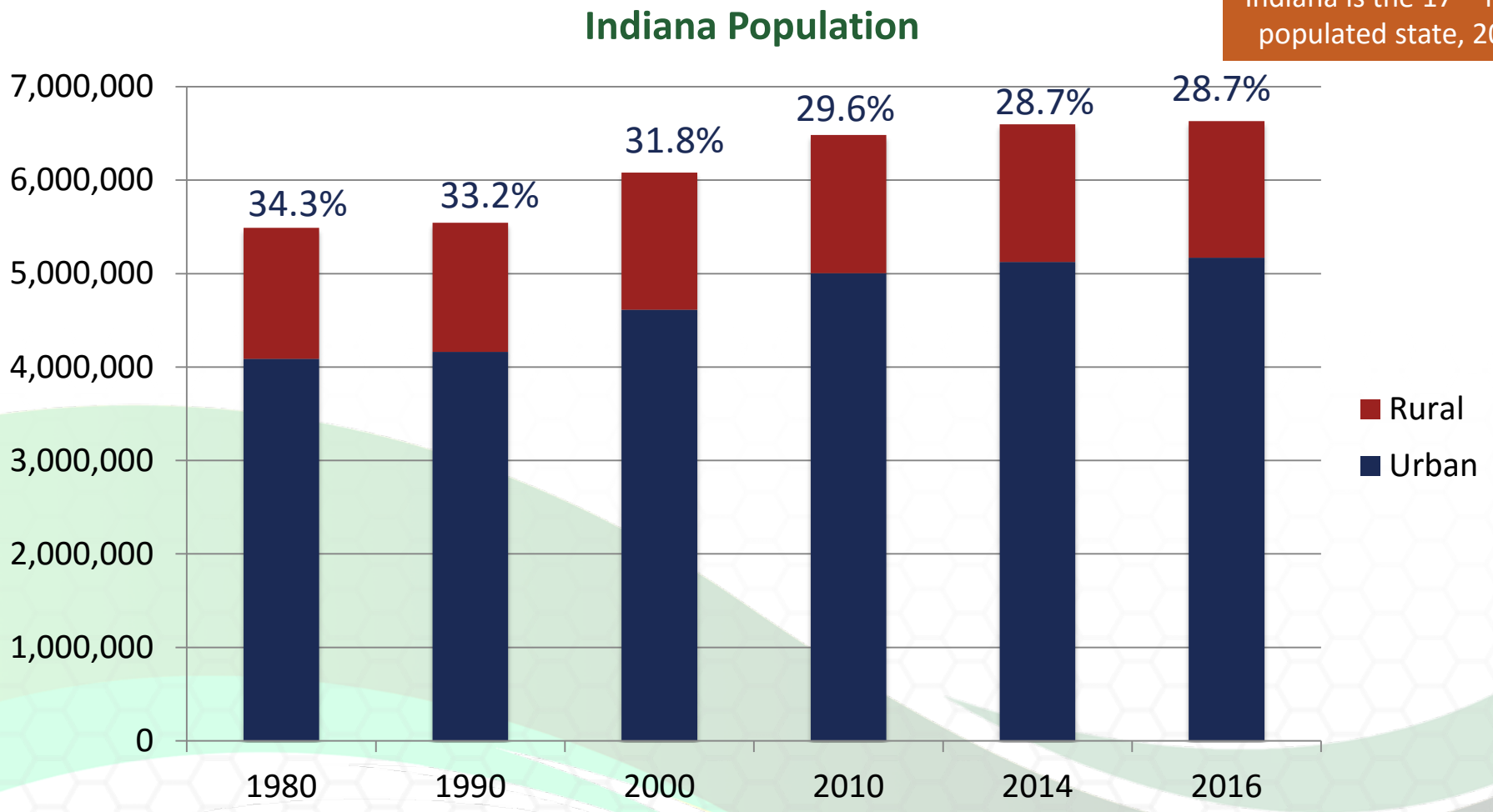
Indiana Agriculture Snapshot in 2012

- Indiana's farms sold $11.2 billion, a 35.5% increase from 2007 to 2012
- Indiana contributed 2.8% ($11.2B) to U.S. total ag sales
- $14.9 billion in value was added to the State GDP in 2012 (nearly 5% of Indiana's $306 billion GDP)
  - Ag contribution to GDP is split between ag production industries ($7.44 billion) and ag-related manufacturing ($7.46 billion)

Source: http://www.incontext.indiana.edu/2014/sept-oct/article2.asp & http://www.ibrc.indiana.edu/studies/BeyondTheFarm.pdf & http://www.ibrc.indiana.edu/studies/AgriculturesBounty.pdf

IN Population Breakdown

Indiana is the 17th most populated state, 2016



Source: USDA Economic Research Service, STATSINDIANA, https://www.extension.purdue.edu/extmedia/EC/EC-767-W.pdf, http://www.unboundedpossibilities.com/library/documents/RUEDI/2014-08-IN-Rural-Economic-Overview---Final.pdf

Federal Emphasis on Rural Economies

- June 9, 2011 – Exec. Order to establish White House Rural Council:
  - Increase capital flow to rural areas and improve job creation and workforce development
  - Enhance telecommunications in rural areas, support renewable energy efforts, and open new markets for rural communities
  - Expand access to health care services, improve education, and housing
  - Promote outdoor recreational opportunities to generate economic growth
- Through this we can assume that additional emphasis will be placed on rural agritourism and agriculture-related industries to support rural economic growth
- Telecommunications improvements continue to support ag technology related industries and advancements

Indiana Ag ECONOMIC IMPACT

IN Agriculture's Economic Impact

Direct Jobs: Agricultural Production and Manufacturing

Crops, livestock and dairy, fruits and vegetables, forestry and other agriculture in 2011

- $25.4 Billion toward Indiana Economy
- 103,000 jobs (vs. U.S. 2.6 million jobs)

Source: Agriculture's Bounty. Indiana Business Research Center, Kelley School of Business, Indiana University

IN Agriculture's Economic Impact

Indirect: Purchased Inputs From Suppliers

Fertilizer, feed, crop insurance, etc. in 2011

- $7.6 Billion toward Indiana Economy
- 43,200 jobs

Induced: Agricultural Employee Spending

Household spending in 2011

- $4.9 Billion toward Indiana Economy
- 42,900 jobs

Source: Agriculture's Bounty. Indiana Business Research Center, Kelley School of Business, Indiana University

Indiana Ag & Rural Infrastructure

AgBiosciences Innovation

AgriNovus INDIANA
Innovation for life. Grown here.

- AgriNovus Indiana is an industry sector initiative formed by the Central Indiana Corporate Partnership (CICP)
- AgriNovus is an organization “funded by businesses, universities, industry associations and state government to pursue activities that will increase R&D, collaboration and technology commercialization in Indiana”
- AgriNovus’ Goal: Indiana nationally recognized as “a leading state for food and agricultural innovation”

Source: AgriNovus Indiana Innovation Action Plans

AgBiosciences Innovation Sectors

- In 2014 AgriNovus worked with Battelle on a whitepaper that define the Indiana biosciences space and identified four key areas of opportunity for enhanced innovation:
  - Agricultural Equipment and Technologies Systems
  - Value-Added Human Food and Nutrition Products
  - Animal Health and Nutrition Products
  - Plant Science and Crop Protection

Source: AgriNovus Indiana Innovation Action Plans

Agricultural Equipment and Technologies Systems

Indiana Assets

- 27 innovative companies identified
- 1,404 persons employed in Indiana
- Moderate patent generation
    - (25 patents from 2009–2013)
- Moderate level of publishing activity
    - (100 publications from 2009–June 2014)

Source: AgriNovus Indiana Innovation Action Plans

Agricultural Equipment and Technologies Systems

Emerging Opportunities & Need for Development

- Harvesting equipment
- Precision agricultural sensing, monitoring, and decision support systems
- Precision application systems for agricultural inputs (variable rate systems)
- Agricultural biosecurity equipment and technologies
- Livestock production equipment and technologies

Source: AgriNovus Indiana Innovation Action Plans

Value-Added Human Food and Nutrition Products

Indiana Assets

- 30 innovative companies identified
- 13,671 persons employed in Indiana
- Moderate patent generation
  - (35 patents from 2009–2013)
- High level of publishing activity
  - (396 publications from 2009–June 2014)

Source: AgriNovus Indiana Innovation Action Plans

Value-Added Human Food and Nutrition Products

Emerging Opportunities & Need for Development

- Reducing food waste
- Modifying human diets and enhancing functional nutrition content
- Food processing equipment technologies
- Specialty ingredients, flavors, extraction, and sensory technologies
- Food safety technologies

Source: AgriNovus Indiana Innovation Action Plans

Animal Health and Nutrition Products

Indiana Assets

- 9 innovative companies identified
- 1,159 persons employed in Indiana
- Moderate patent generation
  - (11 patents from 2009–2013)
- Very high level of publishing activity
  - (662 publications from 2009–June 2014)

Source: AgriNovus Indiana Innovation Action Plans

Animal Health and Nutrition Products

Emerging Opportunities & Need for Development

- Breeding and genetics
- Enhancing nutrition
- Disease prevention, detection and treatment

Source: AgriNovus Indiana Innovation Action Plans

Plant Science and Crop Protection

Indiana Assets

- 19 innovative companies identified
- 3,116 persons employed in Indiana
- Very high patent generation
  - (668 patents from 2009–2013)
- Very high level of publishing activity
  - (804 publications from 2009–June 2014)

Source: AgriNovus Indiana Innovation Action Plans

Plant Science and Crop Protection

Emerging Opportunities & Need for Development

- Tools and Technologies for Plant Science R&D
- Crops with Resistance to Abiotic Stress
- Crops with Resistance to Pests (Biotic Stress)
- Seed Treatments
- Biological (Biotechnological) Crop Protection Agents and Plant Growth Enhancers
- Precision Sensing and Prescription Agricultural Inputs Application Systems
- Plants as Production Systems for Value-Added Chemicals

Source: AgriNovus Indiana Innovation Action Plans

Rural Broadband Access

- In 2014, Lieutenant Governor Sue Ellspermann established a Rural Broadband Working Group (RBWG) to identify issues and challenges in expansion or Rural Indiana broadband access and to identify potential recommendations
- Sufficient broadband access in many rural areas continues to be a significant challenge that hinders the abilities of both local businesses and the lifestyles or rural residents

Source: Rural Broadband Working Group 2014 Final Report

Rural Broadband Access Barriers

- A series of barriers were identified that have hindered the expansion of rural broadband access:
  - Financial Barriers
  - Regulatory Barriers
  - Process Barriers

Source: Rural Broadband Working Group 2014 Final Report

Rural Broadband Access Needs

- Anticipated Needs:
  - Current speed needs are 20 megabits/second for HD video and average 5 megabits/second
  - 16% annual increases in speed needs
  - 40,000% increase in bit traffic over the next five years

Source: Rural Broadband Working Group 2014 Final Report

Rural Broadband Access Challenges

- Critical Challenges that Represent Opportunities:
  1. How might we streamline permits, zoning, and approval processes?
  2. How might we ensure return on investment for build out and maintenance? How might we reduce the cost of investment?
  3. How might we match up service with needs in rural Indiana?
  4. How might we find common access points in rural areas?

Source: Rural Broadband Working Group 2014 Final Report

Rural Broadband Working Group Recommendations

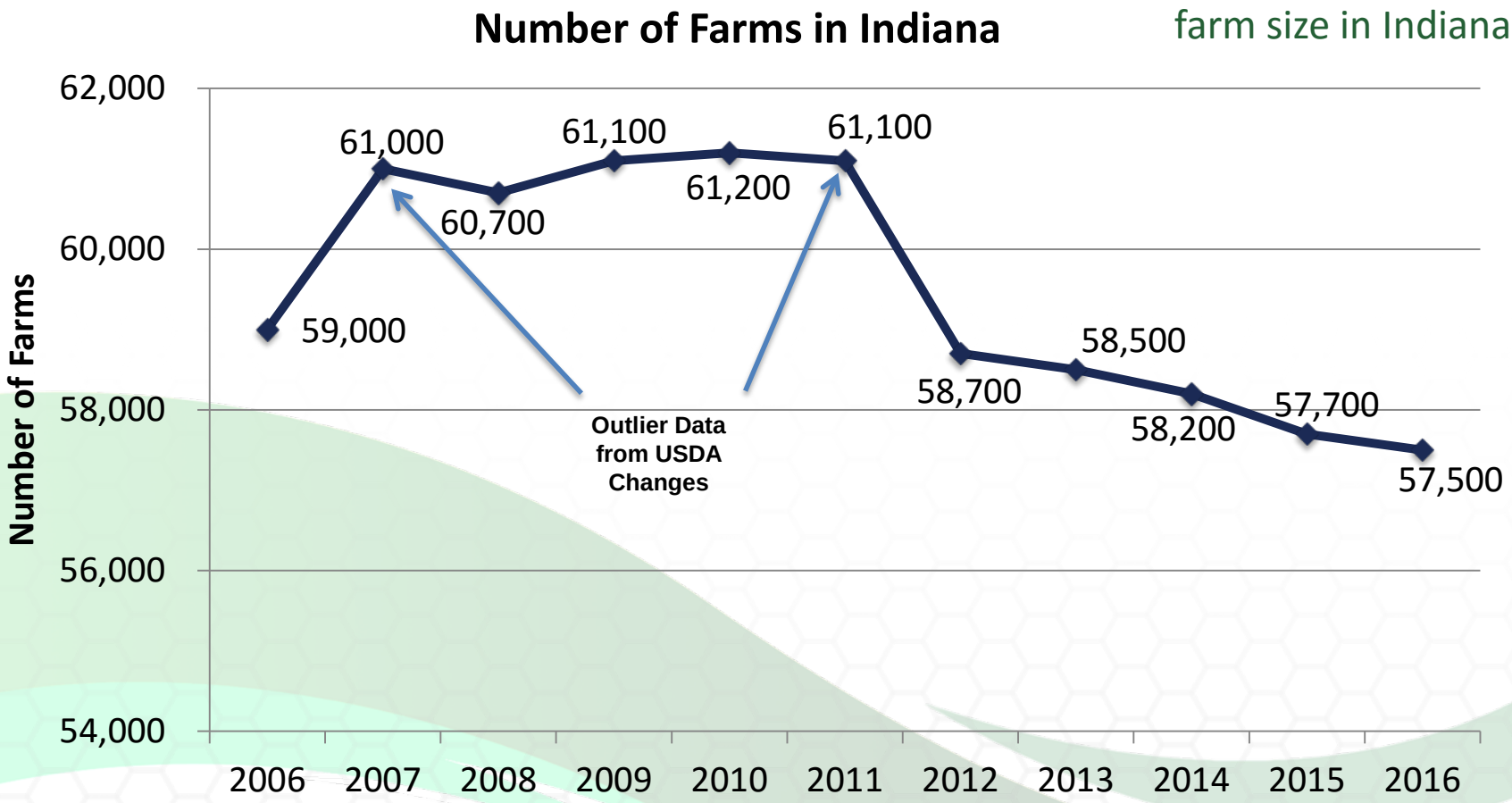
1. Streamline permit, zoning and approval process
2. Increasing rural broadband adoption
3. Return on investment of the last mile
4. Carrier neutral access point approach
5. Rural broadband center

Source: Rural Broadband Working Group 2014 Final Report

Indiana farm demographics

Indiana Farms

256 acres is the average farm size in Indiana



Source: USDA Economic Research Service. "Farms and Land in Farms 2016 Summary" Pg. 9.

Economic Class of Farms

GFI:	$1,000-$9,999		$10,000-$99,999		$100,000-$249,999		$250,000-$499,999		$500,000-$999,999		$1,000,000 and more	
	% of Farms	% of Acres	% of Farms	% of Acres	% of Farms	% of Acres	% of Farms	% of Acres	% of Farms	% of Acres	% of Farms	% of Acres
2008	51.6	8.9	26.5	14.3	8.6	12.8	6.0	16.2	7.3	47.9	x	x
2009	52.4	8.9	26.4	15.1	8.9	12.7	5.3	15.4	7.0	47.8	x	x
2010	52.9	9.0	25.5	15.3	9.3	13.3	5.5	14.7	6.8	47.7	x	x
2011	51.6	8.4	26.2	13.4	9.0	12.0	6.1	14.1	7.2	52.0	x	x
2012	48.7	9.6	26.4	11.2	9.4	10.4	6.3	13.8	9.2	55.0	x	x
2013	48.2	7.3	26.8	11.7	9.1	10.6	6.7	13.6	4.8	20.1	4.4	36.7
2014	47.9	6.8	26.3	12.2	9.3	10.6	6.9	14.3	5.2	19.3	4.5	36.7
2015	50.1	9.6	30.1	21.0	7.0	14.3	4.7	13.8	4.0	17.1	4.0	24.1
2016	50.1	9.5	30.1	21.1	7.0	14.3	4.8	14.0	4.0	17.2	4.0	24.0

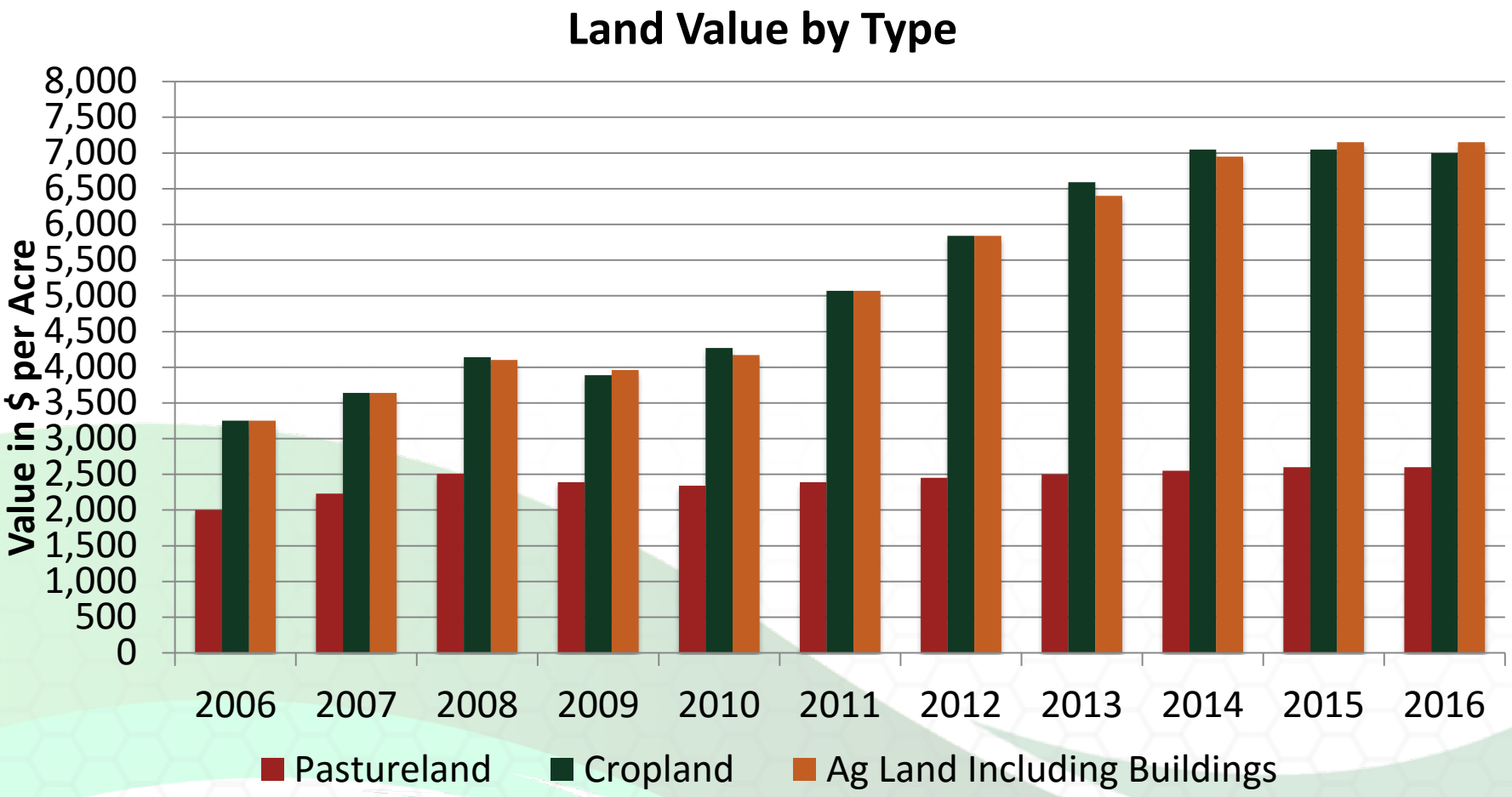
Source: USDA Economic Research Service. “Farms and Land in Farms 2016 Summary” Pgs. 10-15.

Land in Indiana

- In 2012, 58,700 individual farms made-up 65% (or 14.7 million acres) of the state's total land
- Approximately 83 percent of Indiana's acres are devoted to either farms or forests
  - 14.7 million acres in farmland with
  - 4.9 million acres in forestland

Source: USDA, NASS. Census of Agriculture & http://www.ibrc.indiana.edu/studies/BeyondTheFarm.pdf

Land Values in Indiana



Source: USDA, NASS. Census of Agriculture & https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2016/iar1608.pdf

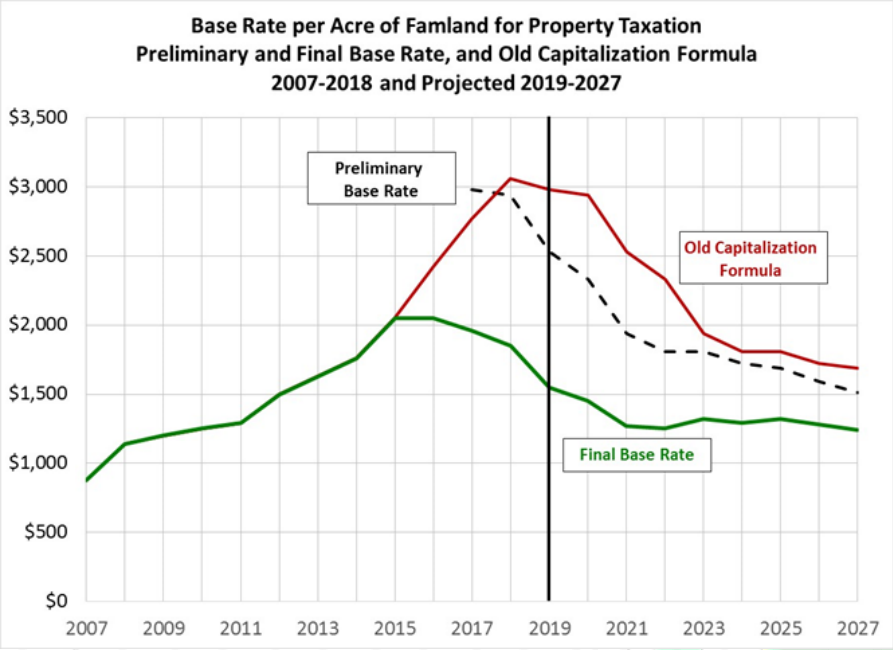
Farmland Property Taxes

- With escalating commodity prices and extremely low interest rates, farmland property taxes had been rising rapidly in Indiana
- In 2016 the Indiana General Assembly changed the capitalization formula used to calculate the base rate for farmland property tax assessment
- More up-to-date price, yield, cost, rent and interest rate data will now be used in the formula, and the capitalization rate will be adjusted to stabilize the base rate. For the next few years, this will mean falling farmland property taxes, instead of continued increases

Source: Larry DeBoer, Purdue University, May 2017

Farmland Property Taxes

- The old capitalization formula would have put the base rate for farmland above $3,000 per acre for taxes in 2018, up from $2,050 in 2015. Instead, the base rate will fall to $1,850 in 2018, and should continue to drop through the early 2020's.

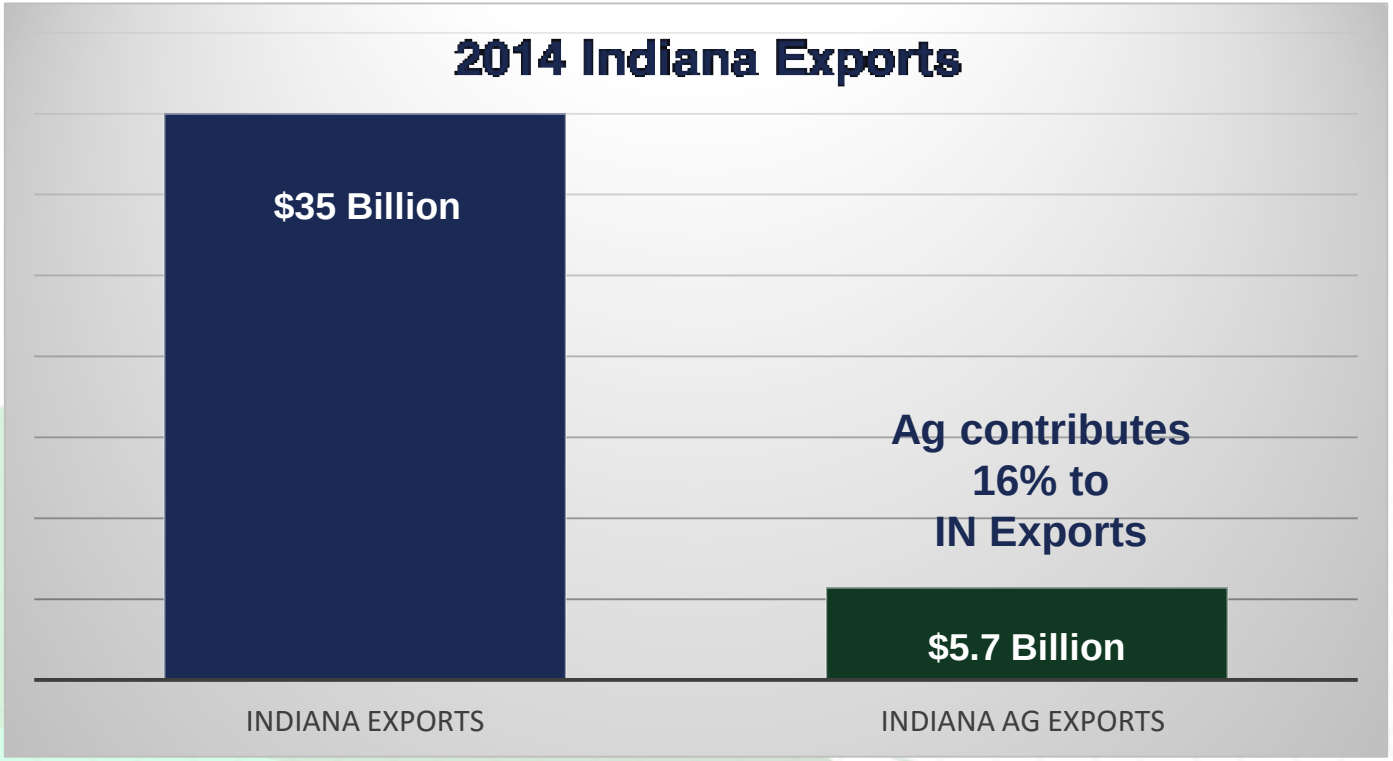


The red line shows projections for the old formula. The dotted line preliminary calculation shows the effect of the up-to-date data. The green line final base rate shows the effect of the adjustments to the capitalization rate. Figures through 2018 are official; figures for 2019-2027 are projections.

Source: Purdue Agriculture – The New Method for Calculating Assessments will Reduce Taxes for Farmland Owners, February 2017.

Indiana agricultural segments & impact

Ag's Impact on State Exports

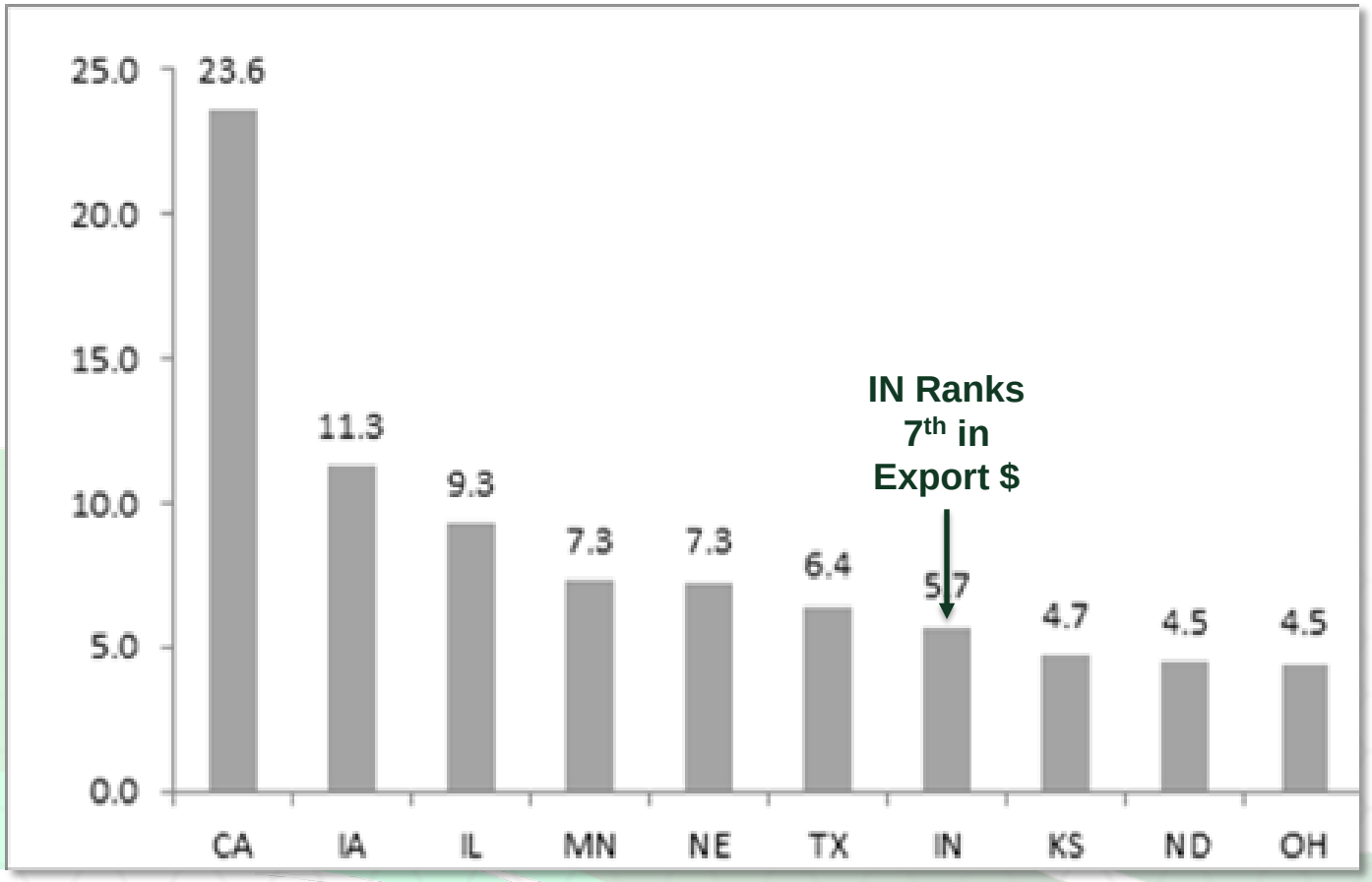


U.S. exports totaled $1.6 Trillion in 2014

Indiana Ag Exports are up from $4.8 B in 2013

Source: https://www.census.gov/foreign-trade/statistics/state/data/in.html

Top State Exporters of Ag Products 2014



In 2012, 25% of U.S. production acreage was devoted to exports

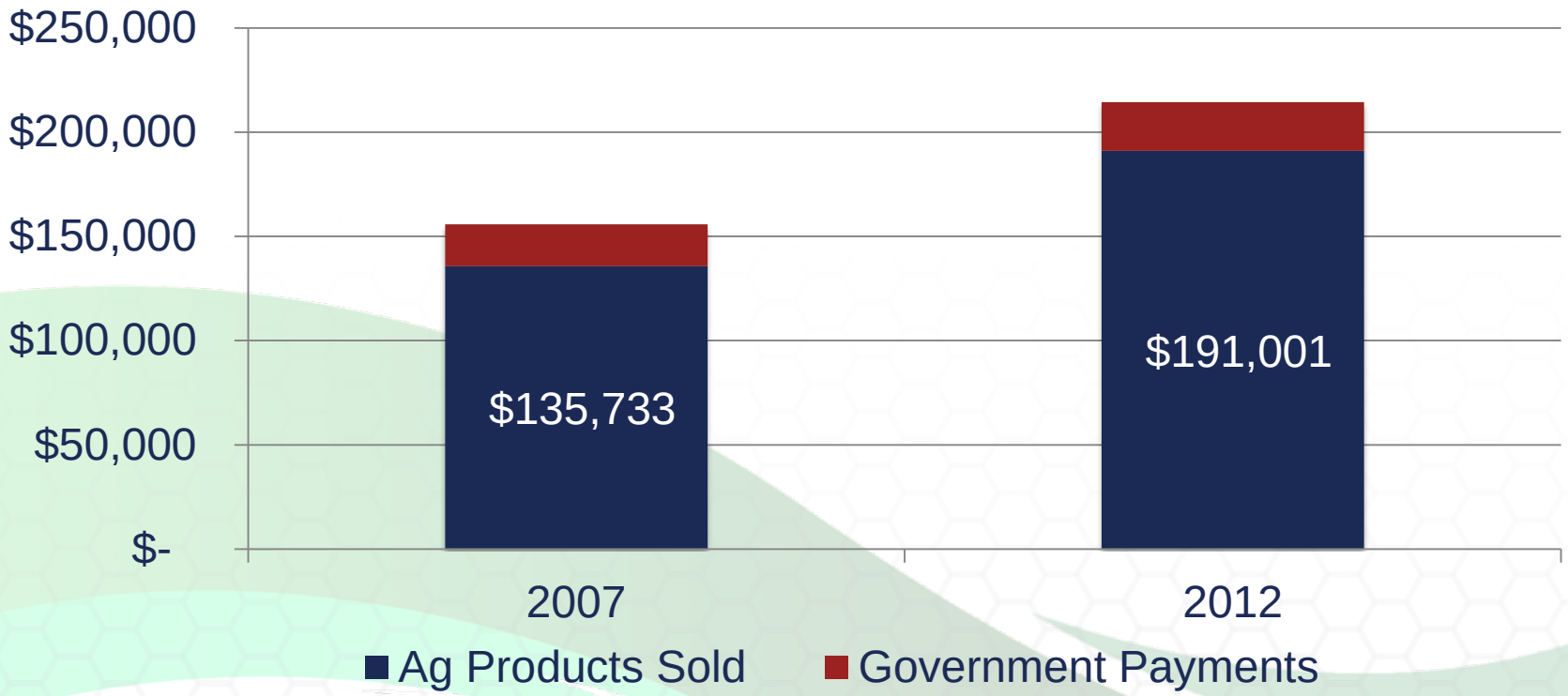
Source: http://www.ers.usda.gov/data-products/state-export-data/documentation.aspx

The Future of Exports in Indiana

- Crossroads of America:
  - Indiana ranks in the top 10 states in more than 100 logistics categories
    - 1st in interstate access with 14 interstate highways
    - 1st in pass-through interstates
    - 13th in interstate highway miles
    - 9th in rail miles with 4,075 miles
    - 5 intermodal rail facilities
  - Host to the 2nd largest FedEx hub in the world
  - 4 of the top 125 cargo airports
  - 3 public ports (1 Lake Michigan; 2 Ohio River)
  - 67 private ports (3 Lake Michigan; 64 Ohio River)

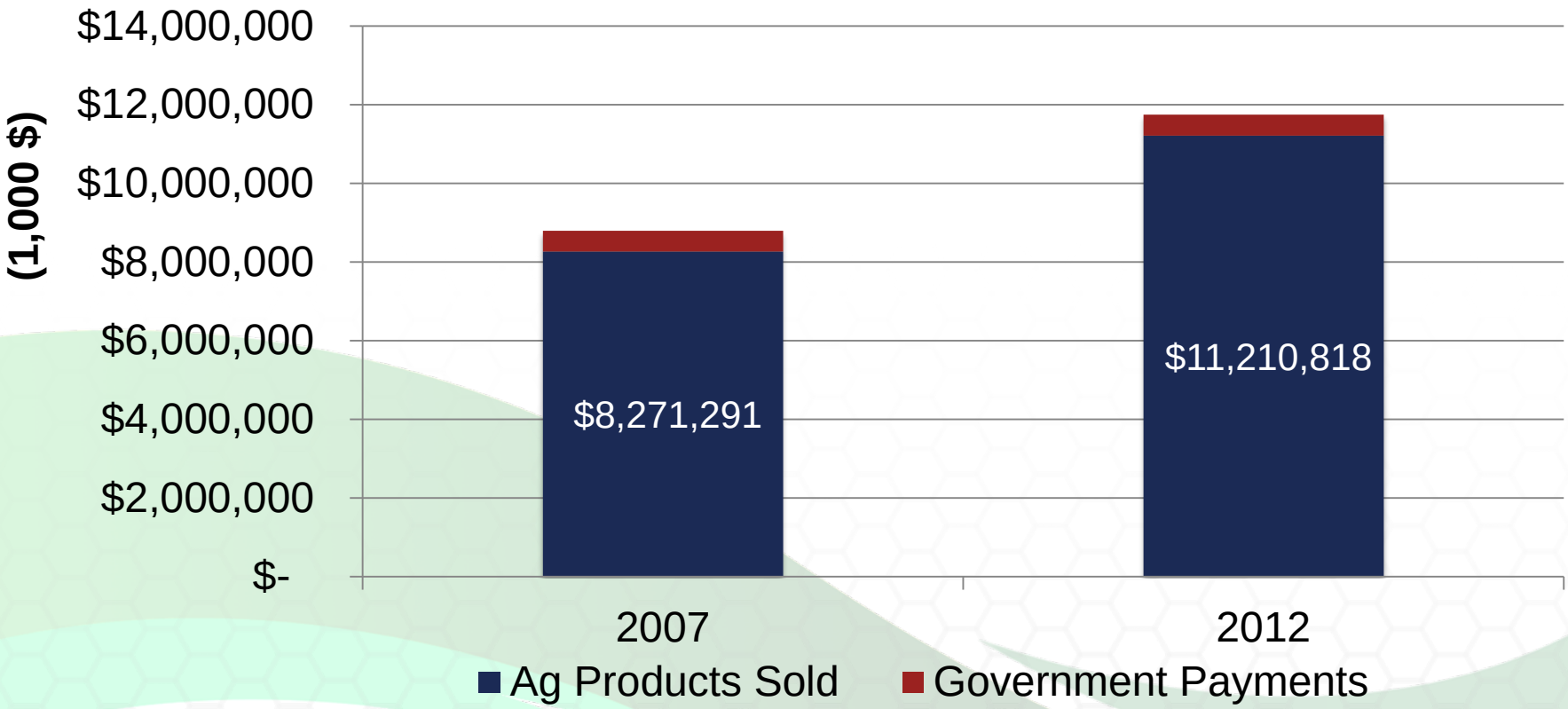
Source: http://www.conexusindiana.com/overview & https://issuu.com/portsofindiana/docs/logistics_2016_for_web_final Pgs. 7-13

Market Value of Ag Products Sold & Gov't Payments
Average Per Indiana Farm



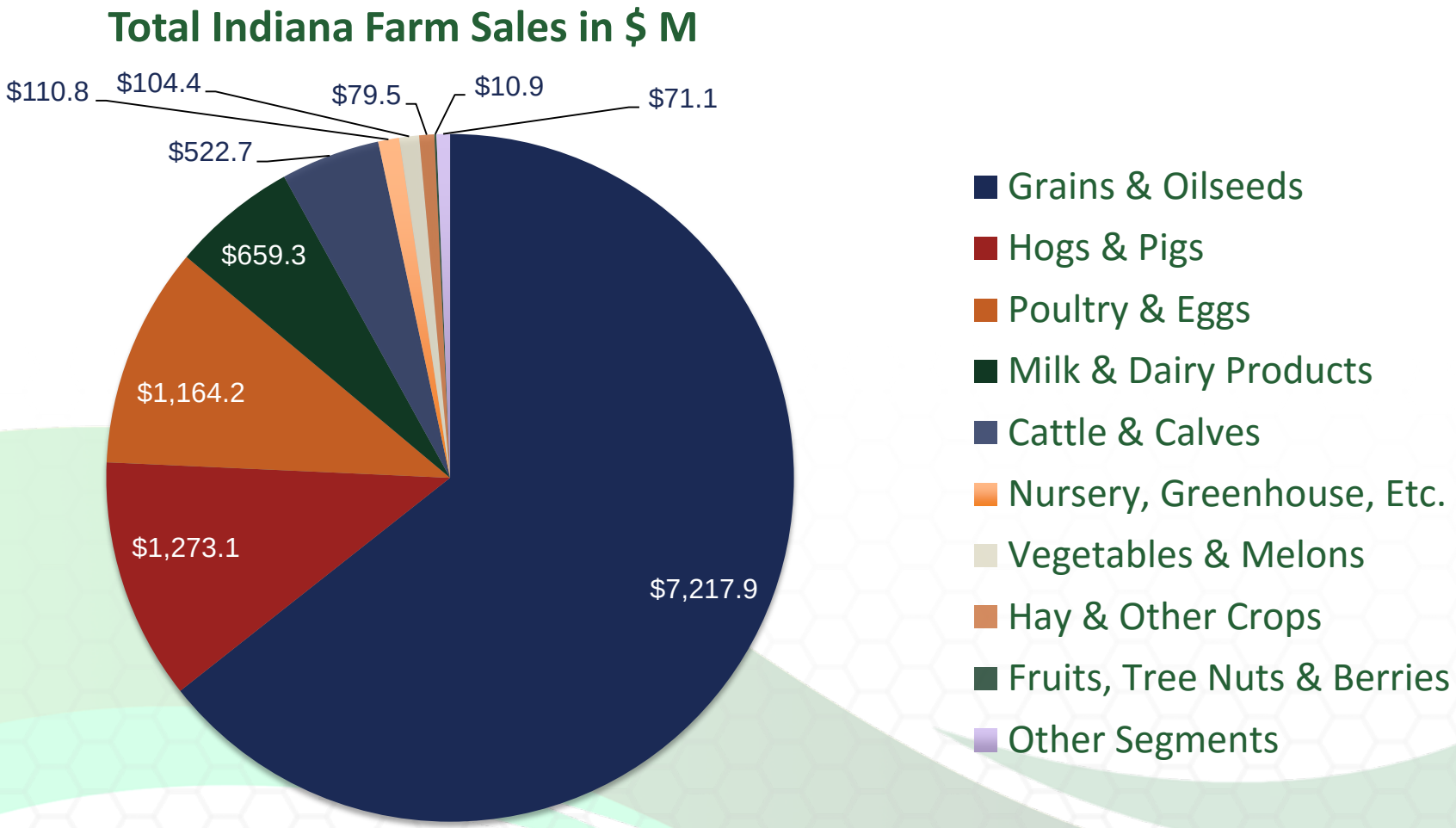
Source: Census of Agriculture

Total Market Value of Ag Products Sold & Government Payments Received by Indiana Farms



Source: USDA Census of Agriculture

Indiana Agriculture Segments 2012



Source: USDA NASS; http://www.in.gov/isda/files/AgFactSheet_-_English.pdf

Indiana Agriculture by Segment

- Hardwoods
- Food Processing
- Dairy Processing
- Grains and oilseeds
- Corn
- Soybeans
- Wheat
- Specialty crops
- Animal agriculture
  - Hogs and Pigs
  - Dairy Cattle and Milk
- Beef Cattle
- Poultry:
  - Chickens
  - Ducks
  - Turkeys
- Aquaculture

Hardwoods

- Indiana has 4.9 Million acres of forestland; 4.7 million acres of which is timberland
  (Just over 20% of the State's total land area)
  - 84.5% is privately owned
  - 97% is available for timber production
  - 97.5% are hardwoods
  - Indiana is 19.4% forested, which is the same percentage as Colorado
  - Indiana has approximately 2 billion trees or
    340 trees for each Indiana citizen

Source: USDA Forest Service, IN.GOV DNR, USDA NRCS, Indiana's Hardwood Industry: Its Economic Impact (2016)- pg. 2

Hardwoods: Economic Impact

- Total Economic Impact of $13.5 Billion $
  - $43 of economic impact for every board foot
  - Total Value of Shipments: $7 Billion
  - 2.4% of Indiana's GSP

Source: USDA Forest Service & USDA NRCS & Indiana's Hardwood Industry: Its Economic Impact (2016)

Hardwoods: Employment

- Total Employment: 30,845 people
- An additional 64,908 jobs were generated in economic sectors supporting or supported by the hardwood industry
  - Annual Wages Paid: $1.3 Billion
  - Generating: $40.3 million in state payroll taxes
    - Generating: $20.1 million in local payroll taxes

Source: USDA Forest Service & USDA NRCS & Indiana's Hardwood Industry: Its Economic Impact (2016)

Hardwoods: Industry

Primary Businesses

- 129 Wood Container and Pallet Manufacturing
- 102 Sawmills
- 77 Logging
- 45 Miscellaneous Manufacturing
- 31 Hardwood Veneer and Plywood Manufacturing
- 7 Wood Preservation

Total: 1090 firms with 9,520 employees earning wages of $267.2 million

Source: USDA Forest Service & USDA NRCS & Indiana's Hardwood Industry: Its Economic Impact (2016)

Hardwoods: Industry

Secondary Businesses

- Include: Household furniture and cabinetry, office furniture and shelving, custom manufacturing and more

Total: 677 businesses with 25,491 employees earning wages of $908 million

Source: USDA NRCS & Indiana's Hardwood Industry: Its Economic Impact (2016)

Hardwoods: Indiana's Current National Rankings

- **1st** in the production of wood office furniture and wood kitchen cabinets
- **2nd** in manufactured homes
- **3rd** in engineered wood products
- **4th** in pre-fabricated wood buildings
- **5th** in upholstered wood furniture

Source: http://www.in.gov/isda/2347.htm, https://www.in.gov/dnr/forestry/files/fo-hardwoodreport2016.pdf (2016)

Food Processing

- Indiana is home to 30 businesses focused on value-added food and nutrition products
- Indiana is favorably positioned to take advantage of growth opportunities in food processing due to:
  - A significant agricultural production capacity
  - A diverse set of species grown in the state
  - Strong research assets
  - and numerous innovative companies

Source: AgriNovus Agbioscience Report – Value Added Food and Nutrition

Jobs in Processing Segments

Sector	Number of Employees	Annual Payroll ($1000)
Food Manufacturing	32,860	$1,379,834
Animal Food Manufacturing	1,699	$81,444
Grain and Oilseed Milling	2,744	$173,859
Fruit/Vegetable Preserving & Manufacturing	3,149	$136,64
Dairy Product Manufacturing	2,962	$147,72
Animal Slaughtering and Processing	9,290	$308,507
Wood Product Manufacturing, Sawmills, Wood Preservation, Paper Manufacturing	34,579	$308,507
Total	**87,283**	**$2,536,519**

Source: http://www.incontext.indiana.edu/2015/may-jun/article1.asp

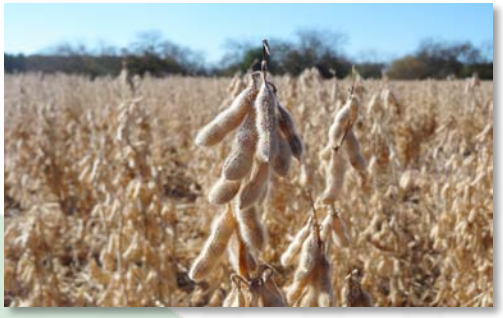
Dairy Processing

- *21 Total Dairy Processing Plants:*
  - 3 Specialty Cheese
  - 8 Ice Cream
  - 7 Fluid Milk Processors
  - 1 Reddi-Whip
  - 1 Condensed milk and milk powder
  - 1 Ice Cream and Fluid Processor
- Home to six of Dairy Food's Top 100 processors with operations

Source: Indiana Dairy Strategy Summary

Grains and Oil Seeds

- Indiana primarily produces corn, soybeans, and wheat with few other small grains and oilseeds
- Grain and oilseeds farming account for over half of Indiana ag jobs


Source: http://www.ibrc.indiana.edu/studies/AgriculturesBounty.pdf

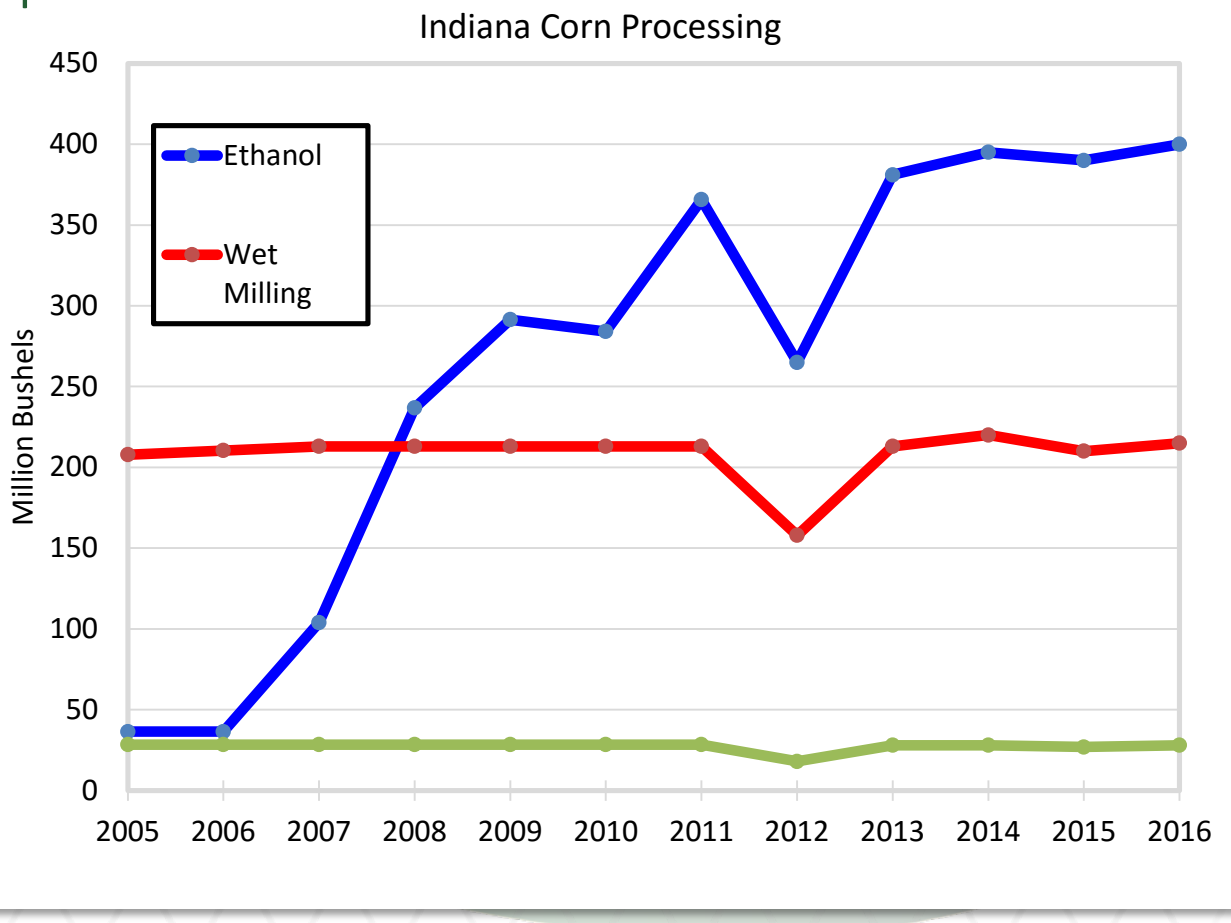
Corn

- Indiana is the 5th largest corn producer in the United States
- Indiana ranked 5th among the states in Ethanol production capacity at 1.17 billion gallons per year, which represents 7% of national capacity at the state's 14 ethanol plants

Source: USDA-NASS (2016), Chris Hurt, Purdue University

Indiana Corn Processing

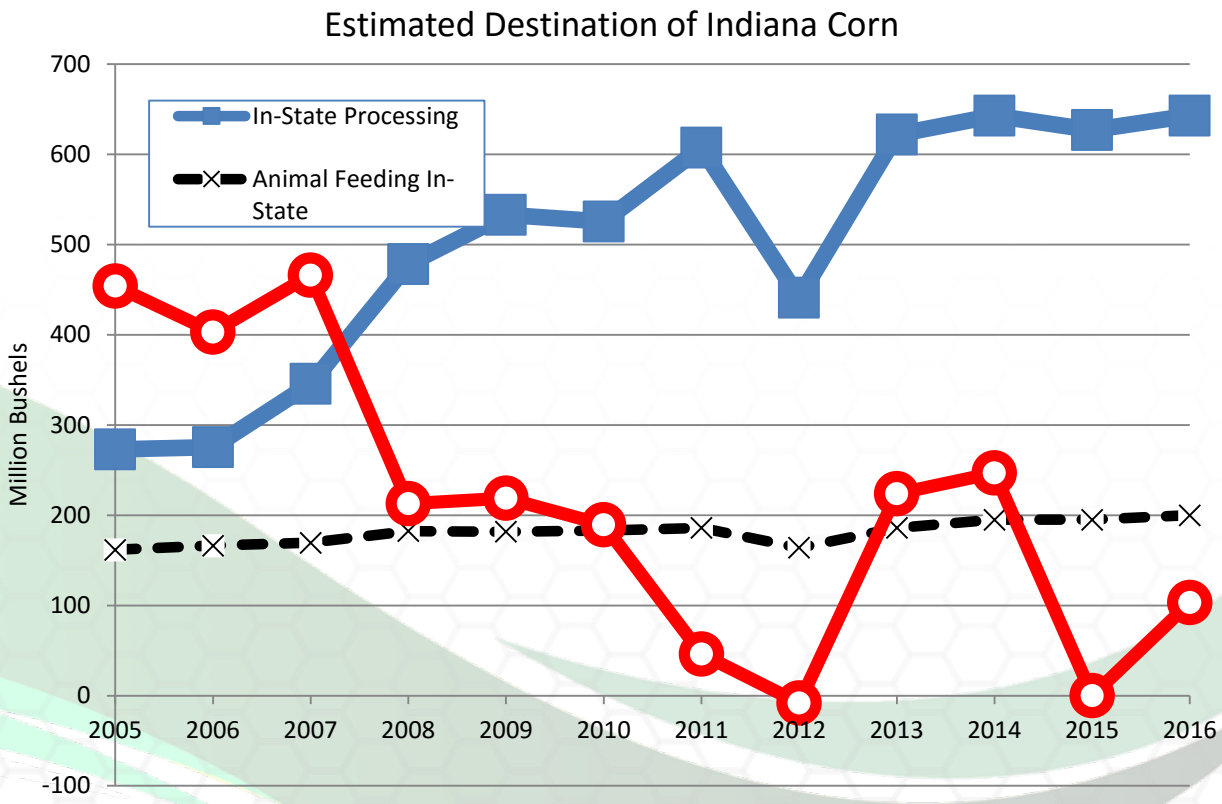
- For the 2016 crop about 68% of the crop was processed in the state
- Of that processed:
  - 62% went to ethanol production
  - 34% to wet milling
  - 4% to dry milling



Source: USDA-NASS & Chris Hurt, Purdue University

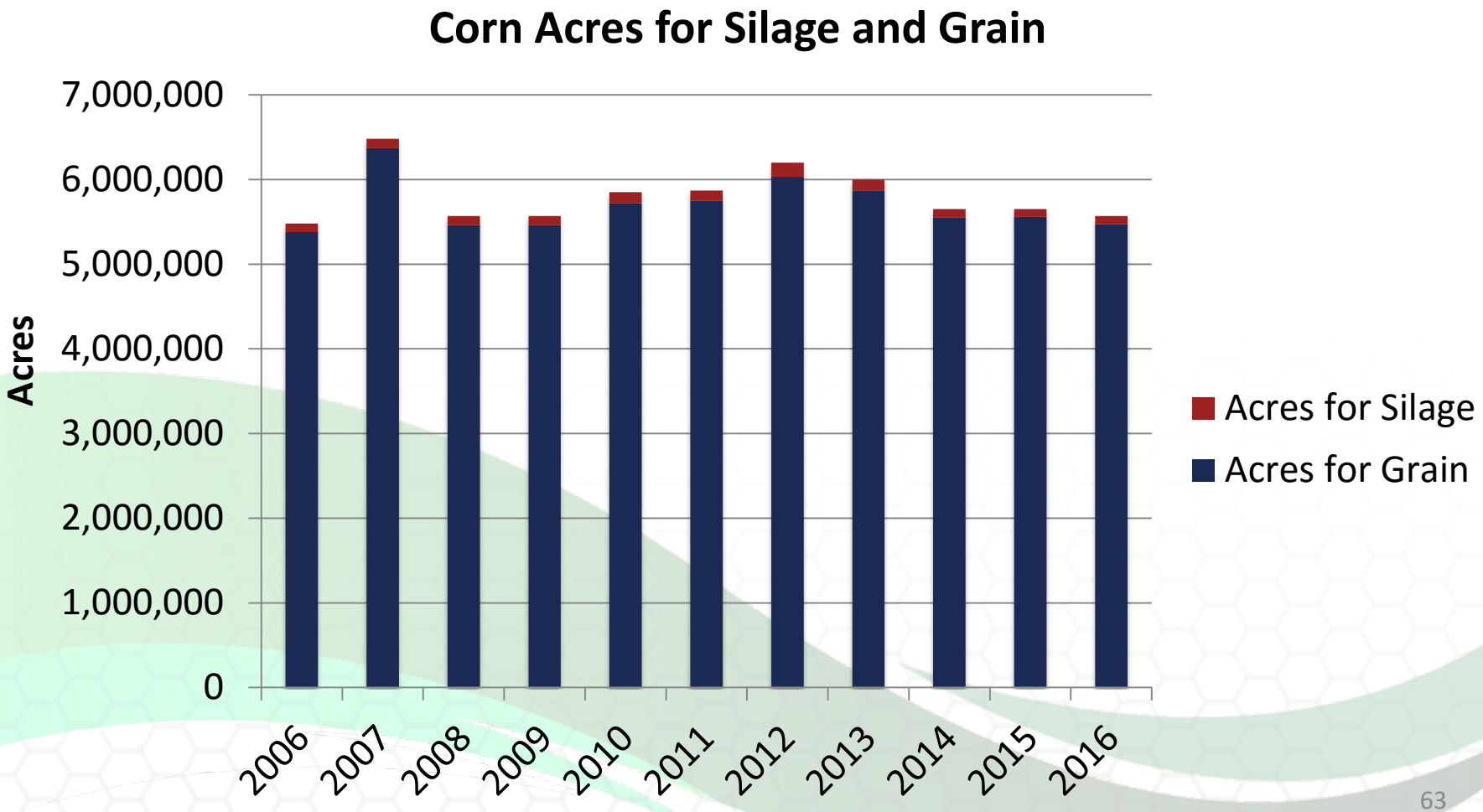
Estimated Destination of Indiana Corn

- From the 2016 Indiana corn crop an estimated 68% (650 million bushels) was processed in the state
- 21% was fed to animals (200 million bushels)
- 11% (100 million bushels) was moved out of state to the southeastern U.S. and to export markets



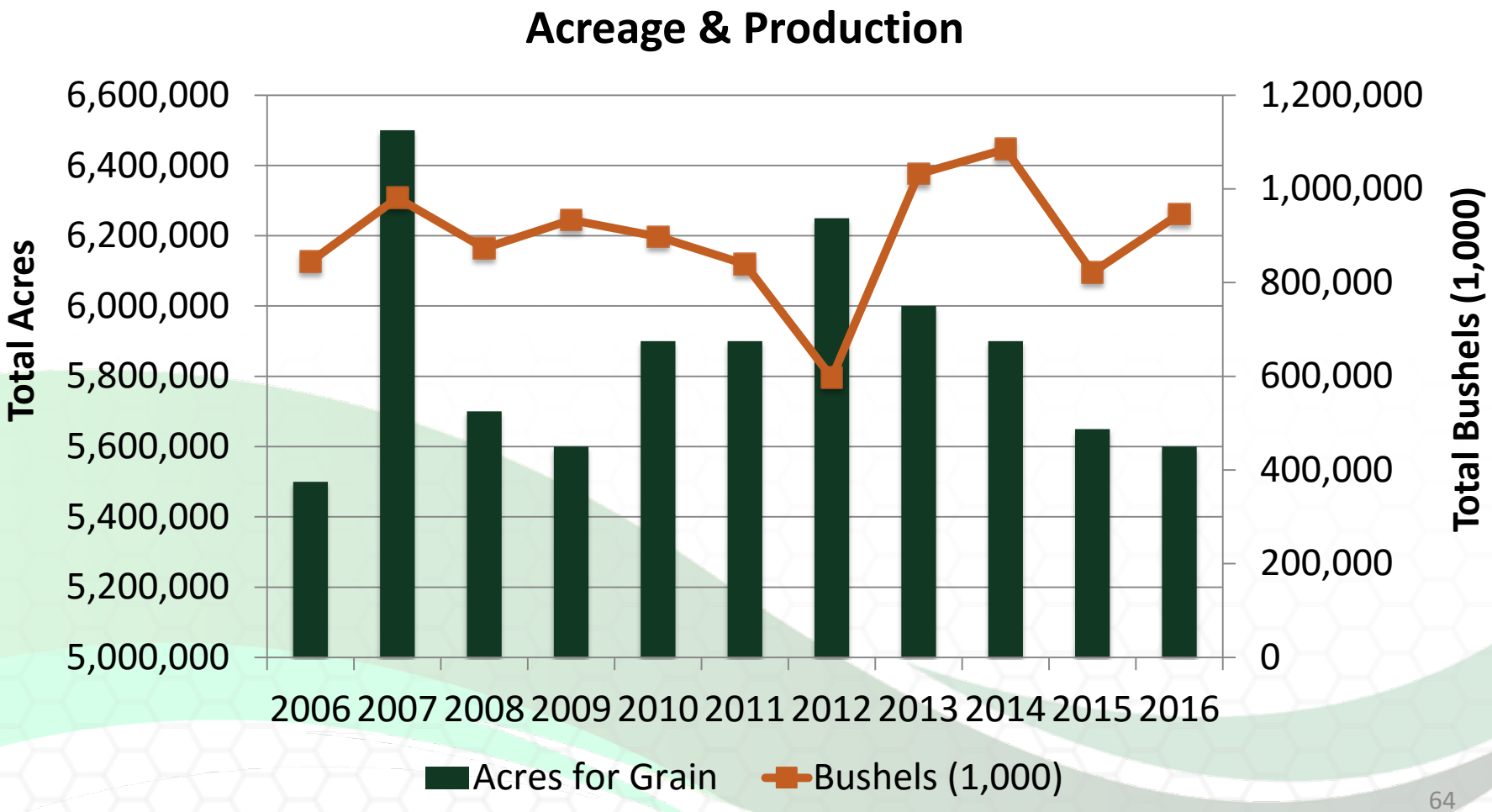
Source: USDA & Chris Hurt, Purdue University

Indiana Corn Acreage



Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2015/iar1511.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Corn



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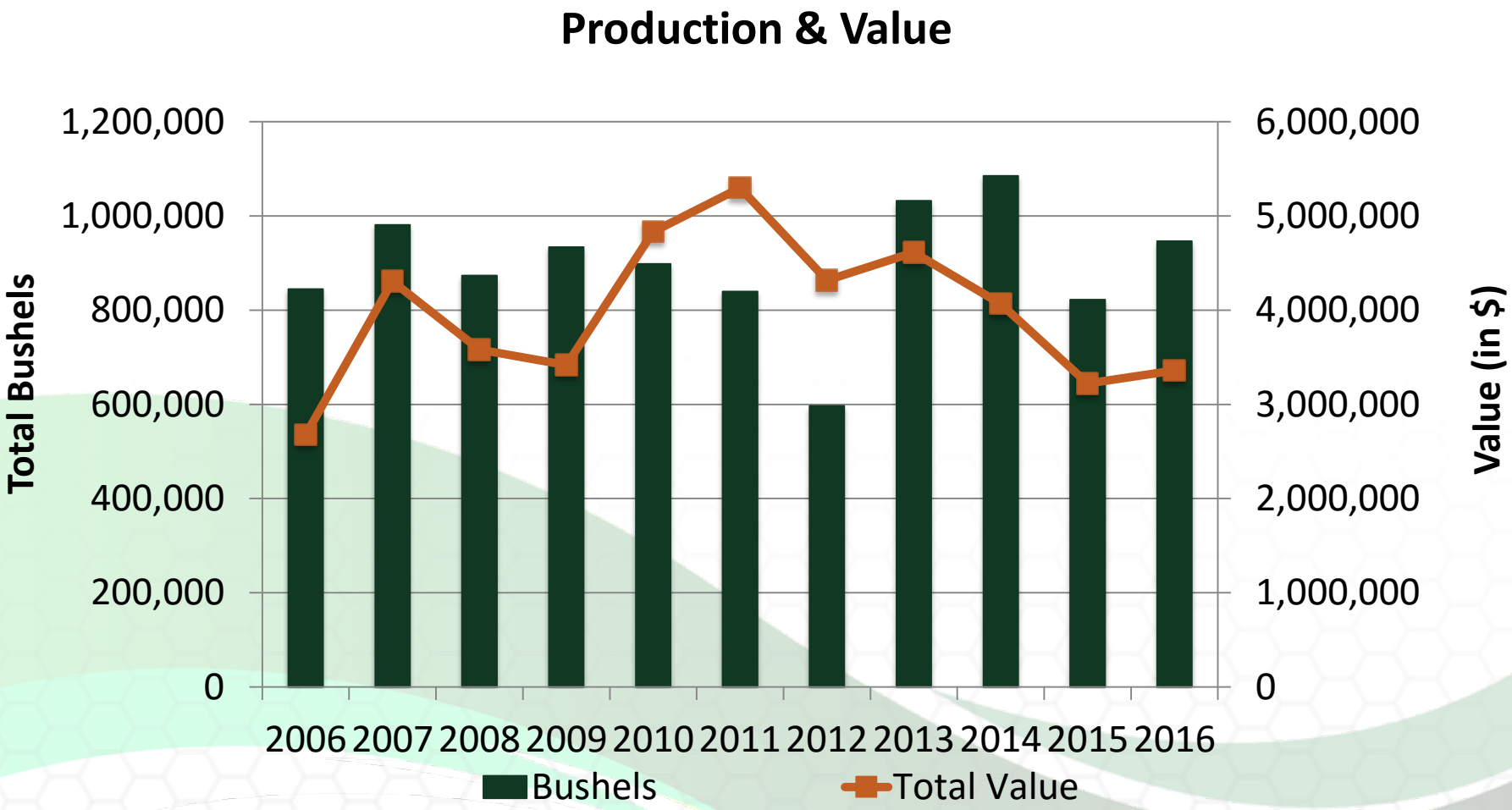
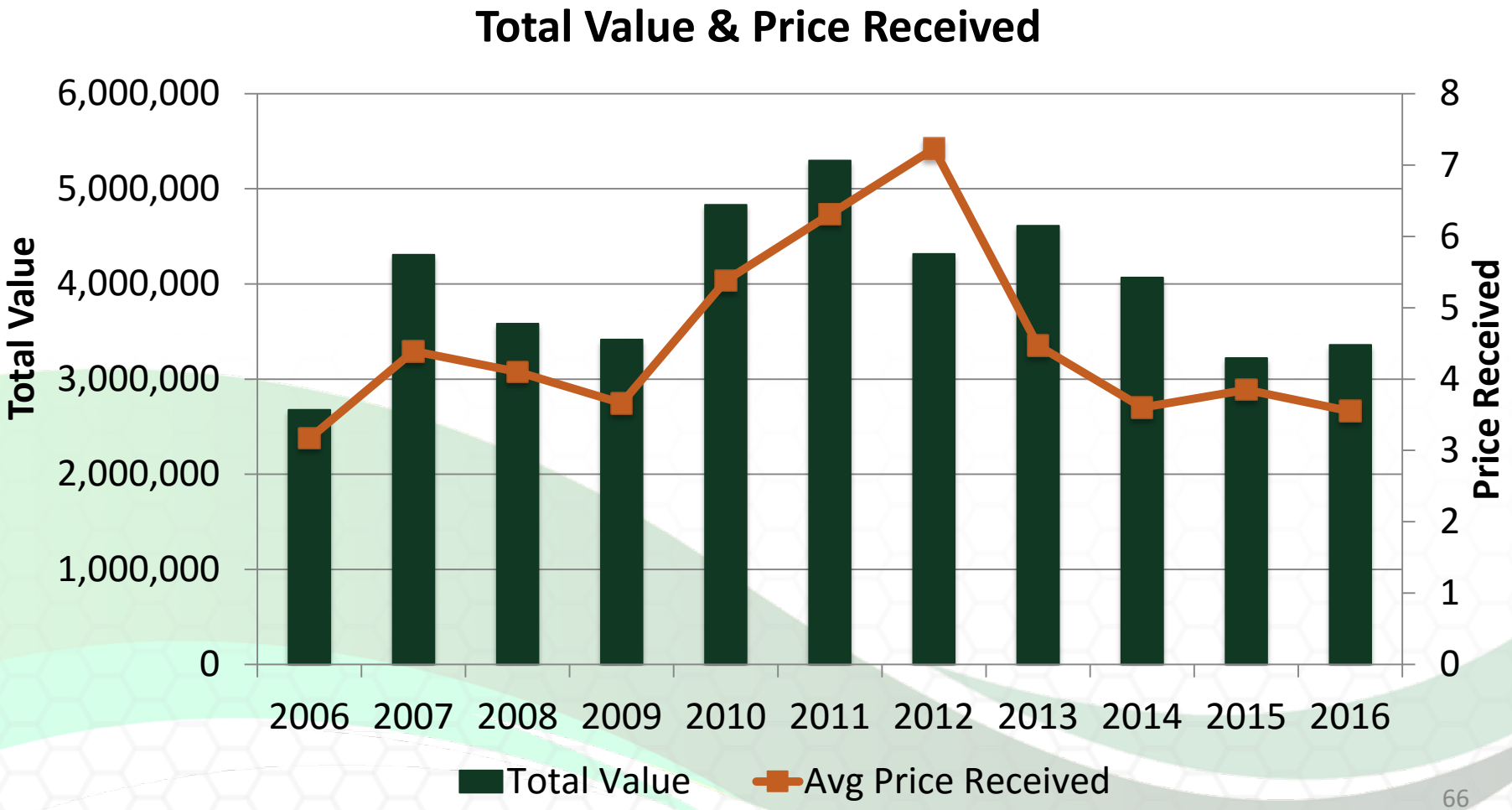
Corn



Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2015/iar1511.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Corn



Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2015/iar1511.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Popcorn

- Indiana produced 4.46 million hundredweight of popcorn in 2016
- Popcorn production increased 45% from 2015
- Indiana's 2016 popcorn crop value was $71.4 Million

Source: USDA-NASS

Soybeans

- Indiana ranked 4th in the nation in soybean production in 2016
- Indiana also ranked 4th in the nation in yield per acre in 2016
- The value of the 2016 crop was $3.1 billion at the farm level

Source: USDA NASS & Chris Hurt, Purdue University

Soybean Transportation

- In 2011, 51 Million bushels of soybeans were shipped out of Indiana
  - 65% transported by rail
  - 34% transported by barge on the Ohio River

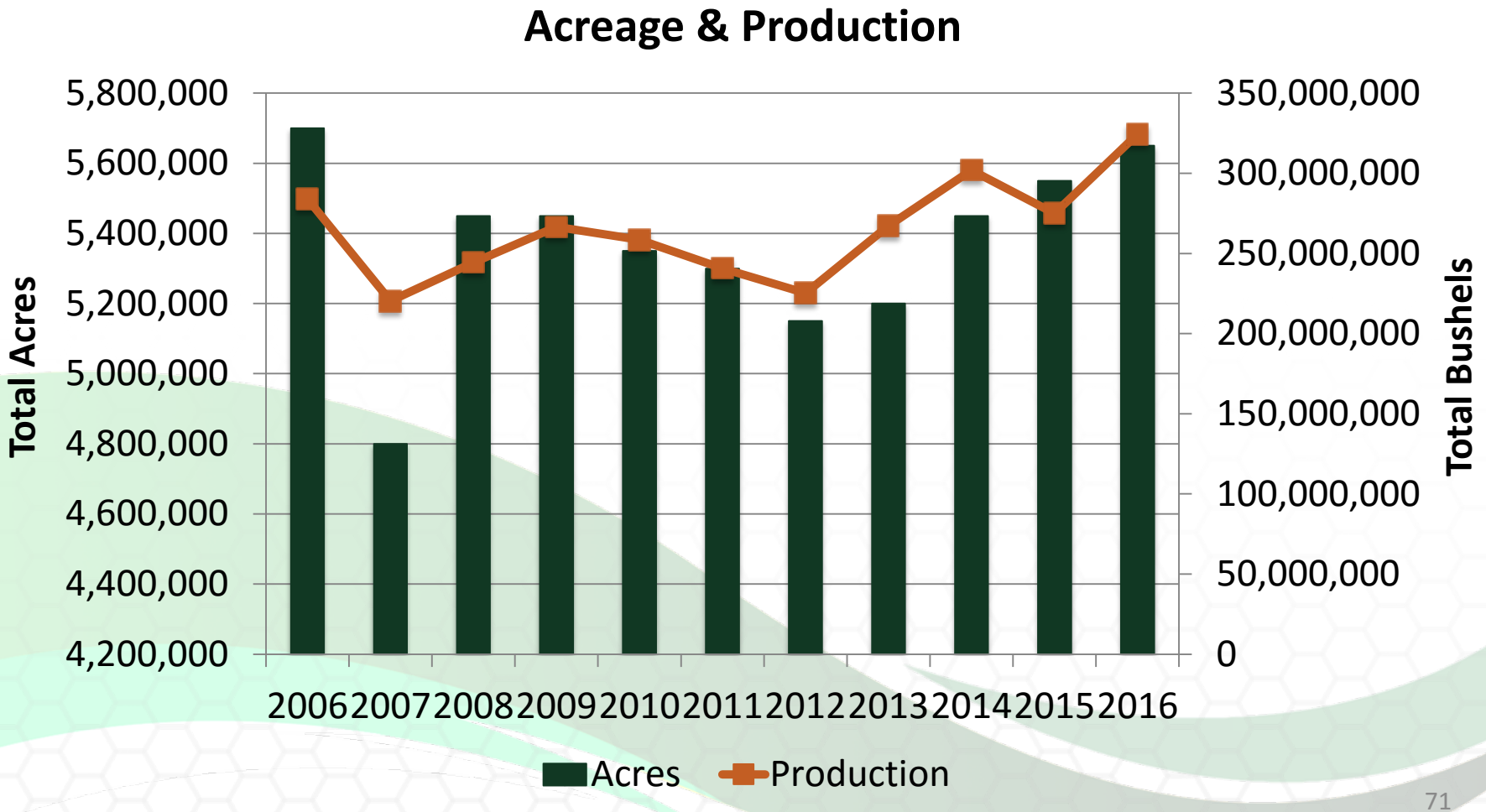
Source: ISA; http://www.indianasoybean.com/strategic-programs/grain-marketing/40-strategic-programs-grain/47-indiana-grain-waterways

Indiana Soybean Uses

- Livestock Feed
  - Pigs, poultry, beef and dairy are largest consumers
  - Livestock in Indiana consumed 990,400 tons of soybean meal during the year of 2014
- Biodiesel and Biofuel

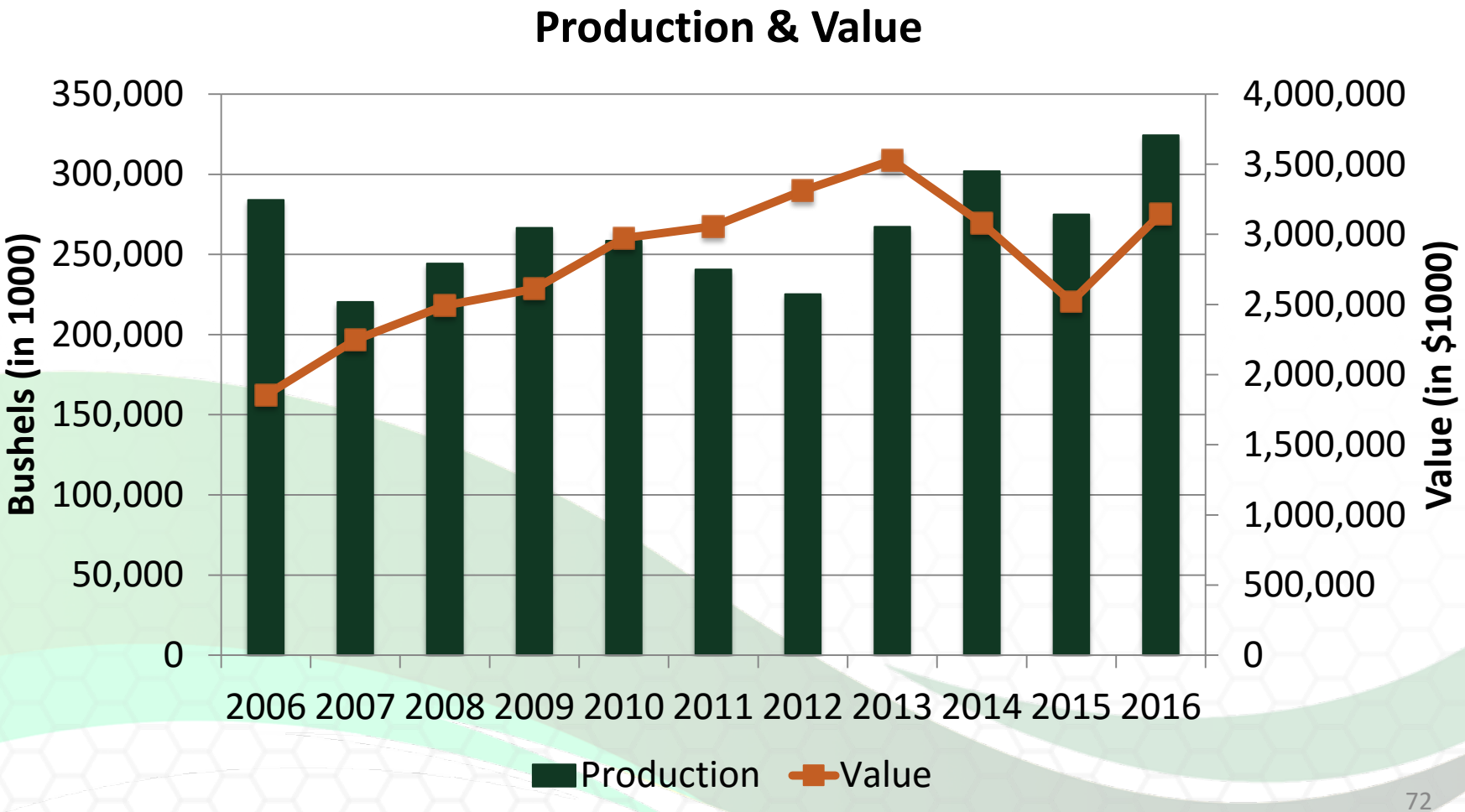
Source: http://www.indianasoybean.com/strategic-programs/grain-marketing/40-strategic-programs-grain/47-indiana-grain-waterways; Informa http://www.indianaprairiefarmer.com/soybean/why-indiana-soybean-farmers-care-about-livestock-producers

Soybeans



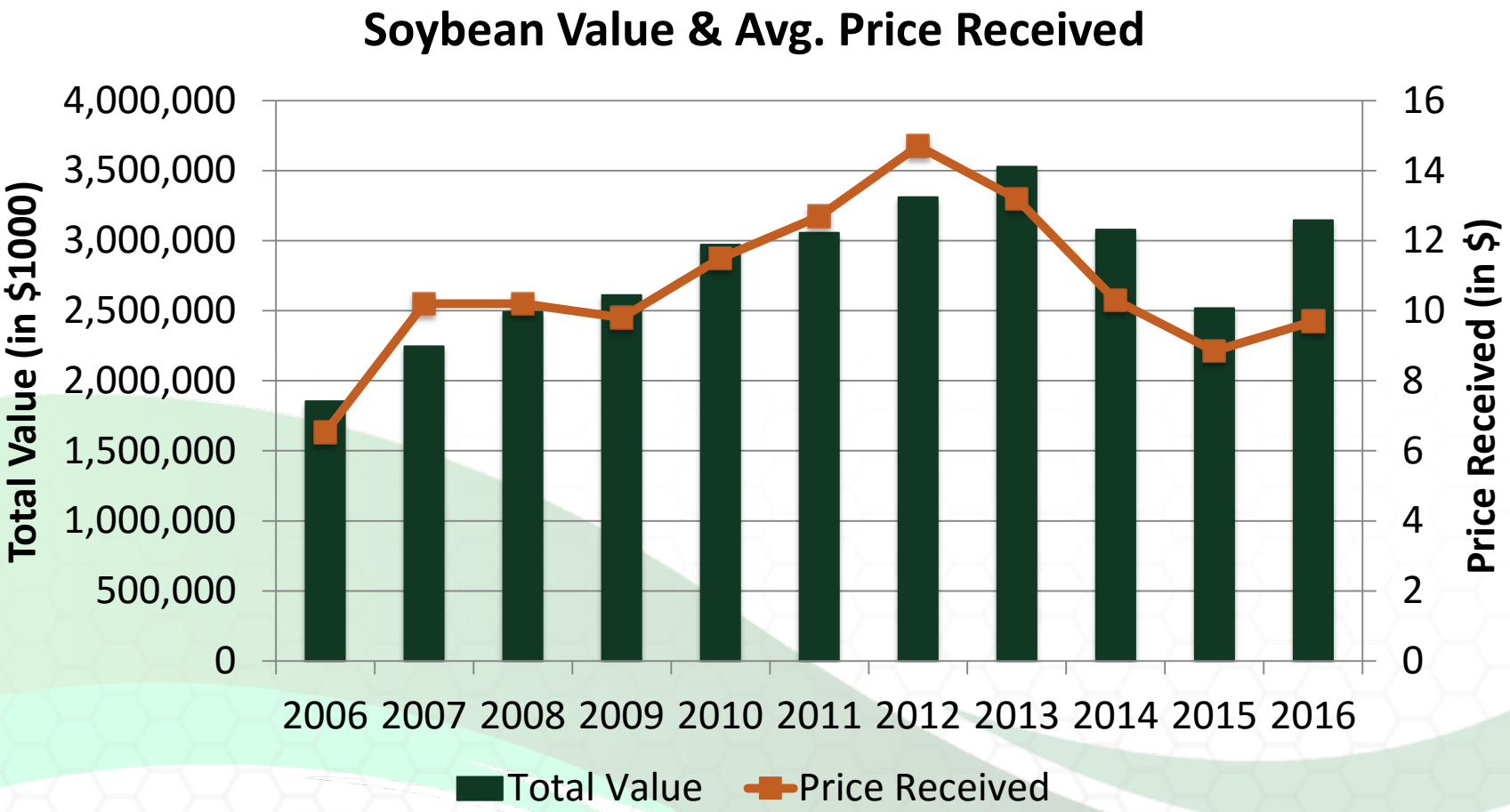
Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2016/iar1603.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Soybeans



Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2016/iar1603.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Soybean Value



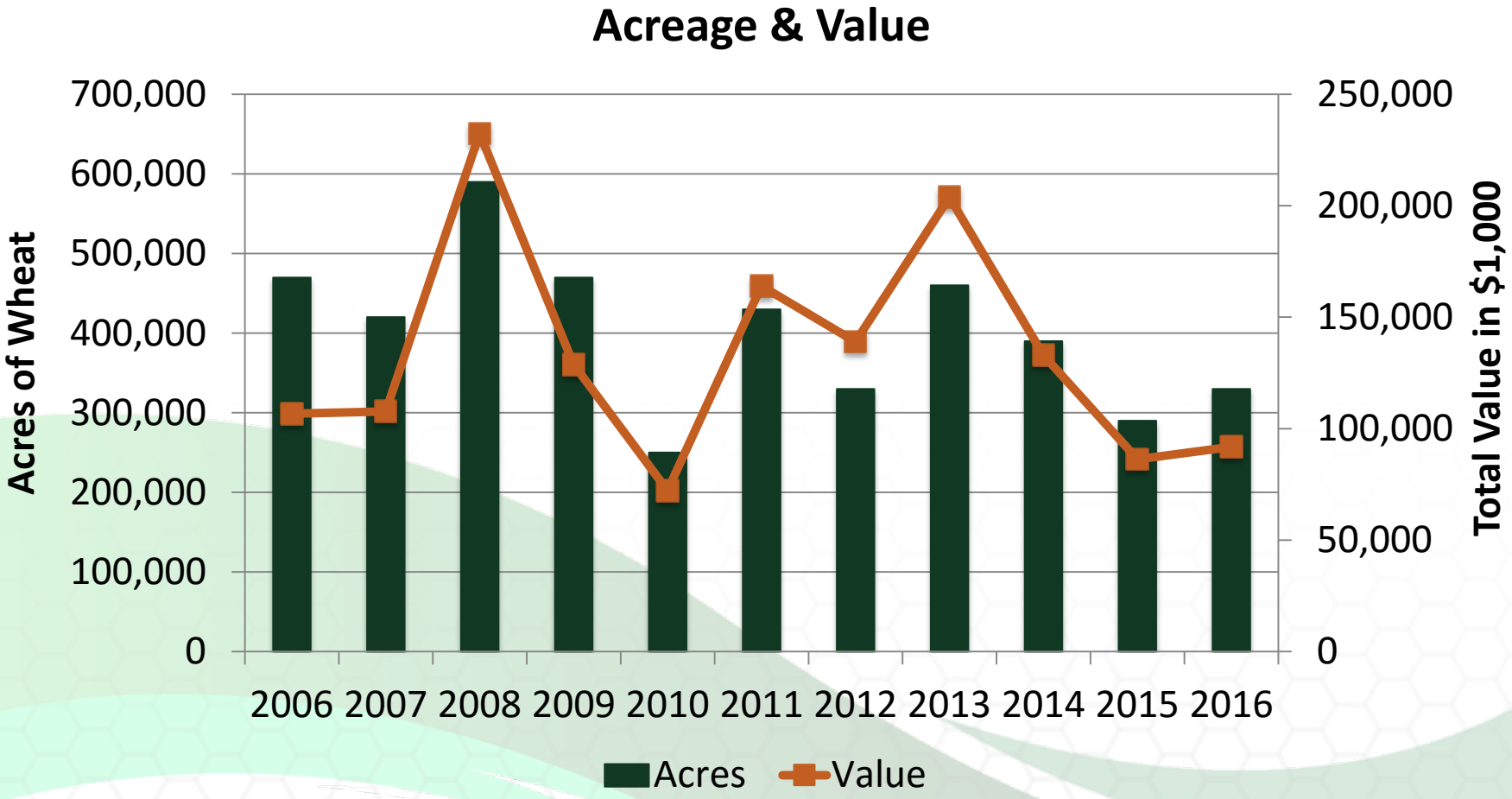
Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2016/iar1603.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

Wheat

- Indiana has suitable climate and soil conditions to produce high quality soft red winter wheat
  - Milled for general purpose baking flour

Source: https://www.extension.purdue.edu/extmedia/AY/AY-244-W.html

Wheat



Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Ag_Report/2016/iar1603.pdf, https://www.usda.gov/nass/PUBS/TODAYRPT/cropan16.pdf

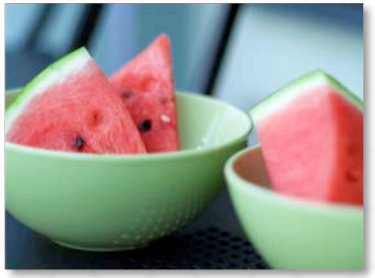
Specialty Crops

- Orchards: 588 farms, 3,385 acres
- Berries: 488 farms, 1,172 acres
- Vegetables and Melons: 1,376 farms, 37,489 acres
- Nursery, greenhouse and floriculture: 911 operations
- Cut Christmas Trees: 202 farms, 2,505 acres
- Maple Syrup: 171 farms, 49,496 taps
- Other (spearmint for example): 27 farms, 5,217 acres

Source: USDA NASS – 2012 Census Data

Specialty Crops

- Fruits and Vegetables
  - Blueberries
  - Tomatoes
  - Melons
  - Apples
- Other Specialty Crops

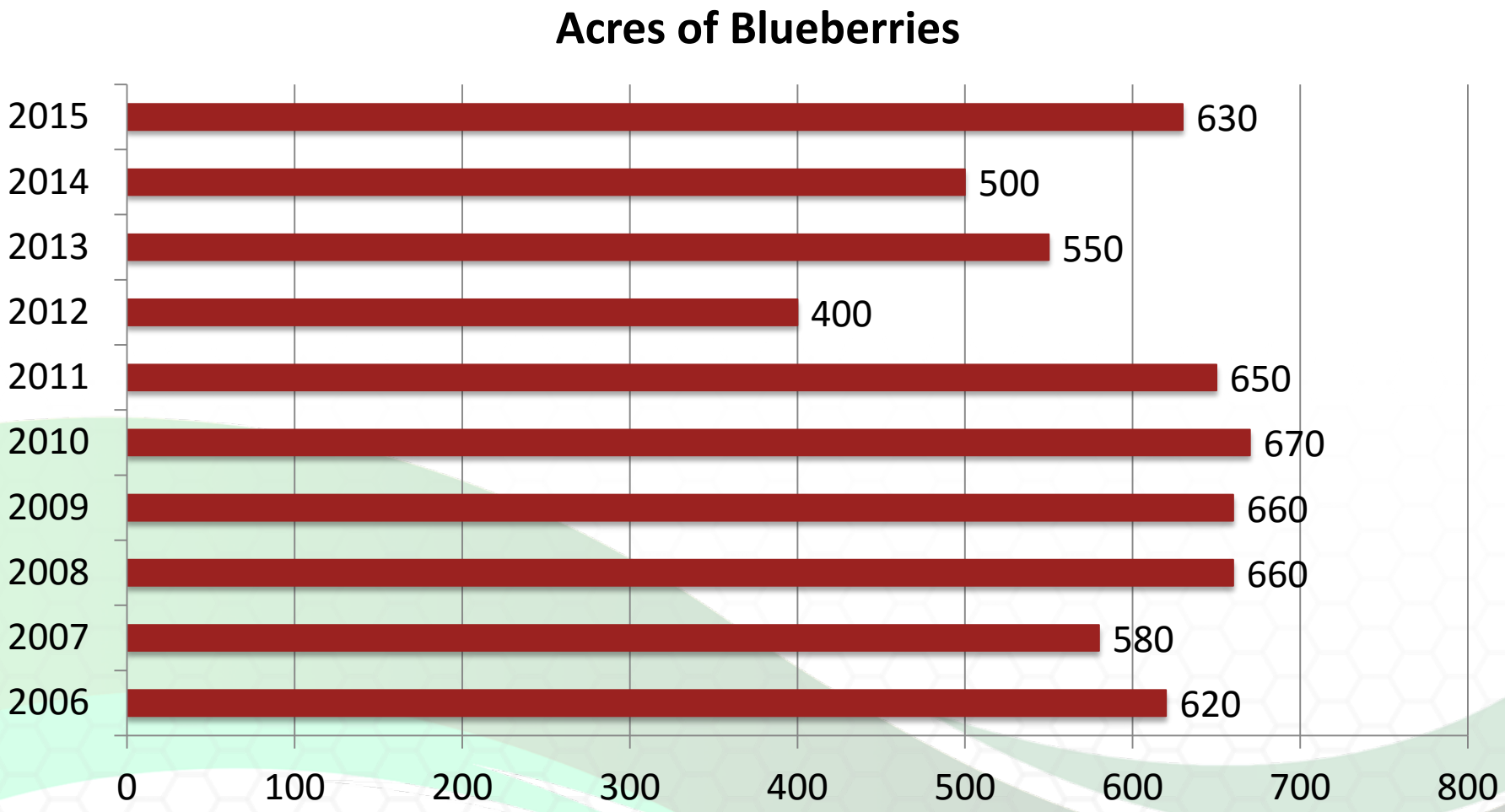


Blueberries

- Indiana ranks 10th in the nation for blueberry production by yield in 2015
- Ranks 11th nationally for total acres allocated to blueberry production in 2015
- Indiana blueberries are sold for fresh and processing markets

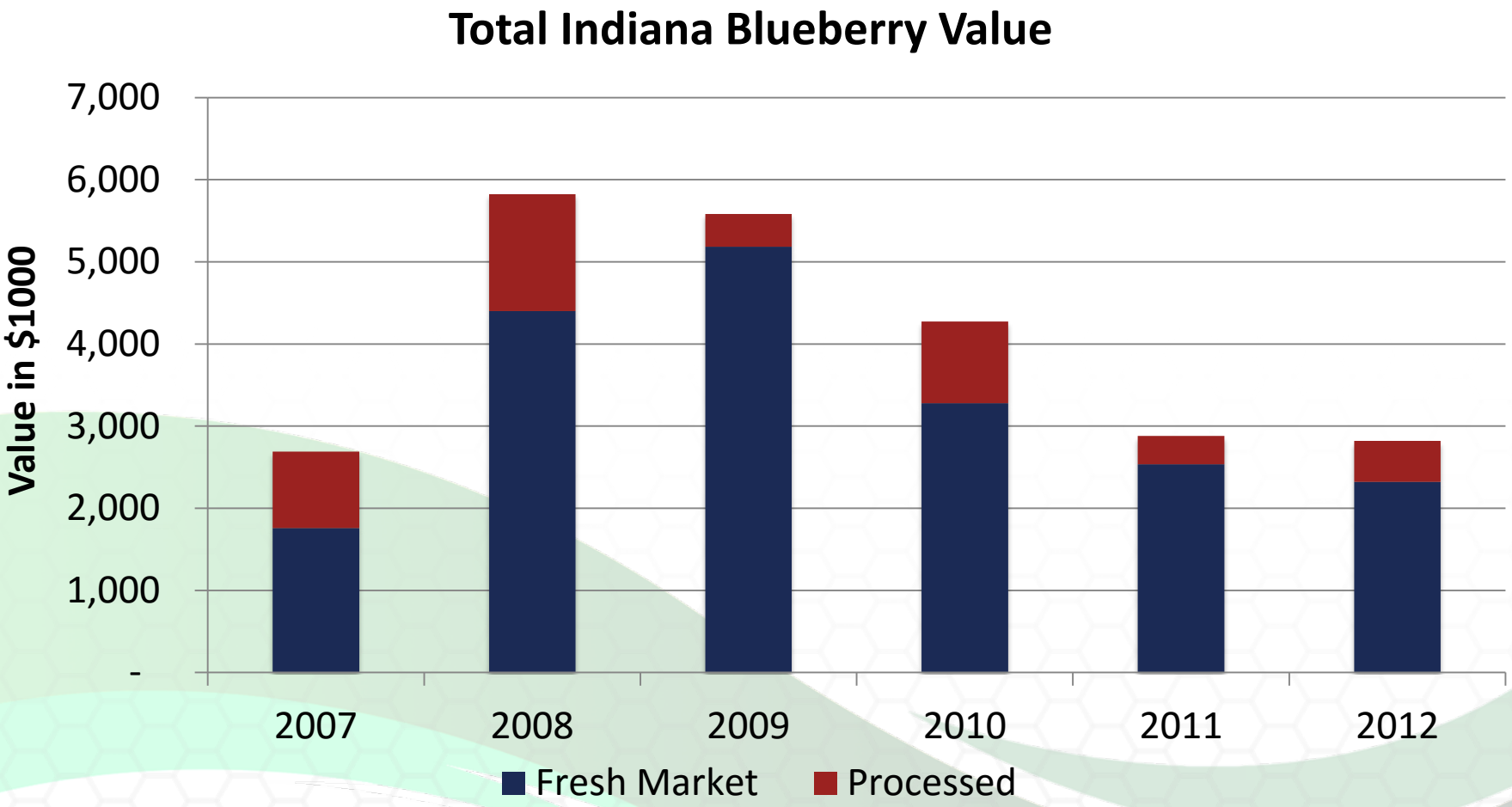
Source: USDA NASS, https://www.nass.usda.gov/Statistics_by_State/New_Jersey/Publications/Blueberry_Statistics/NJ%20Blueberry%20Summary%202015.pdf

Indiana Blueberry Acreage



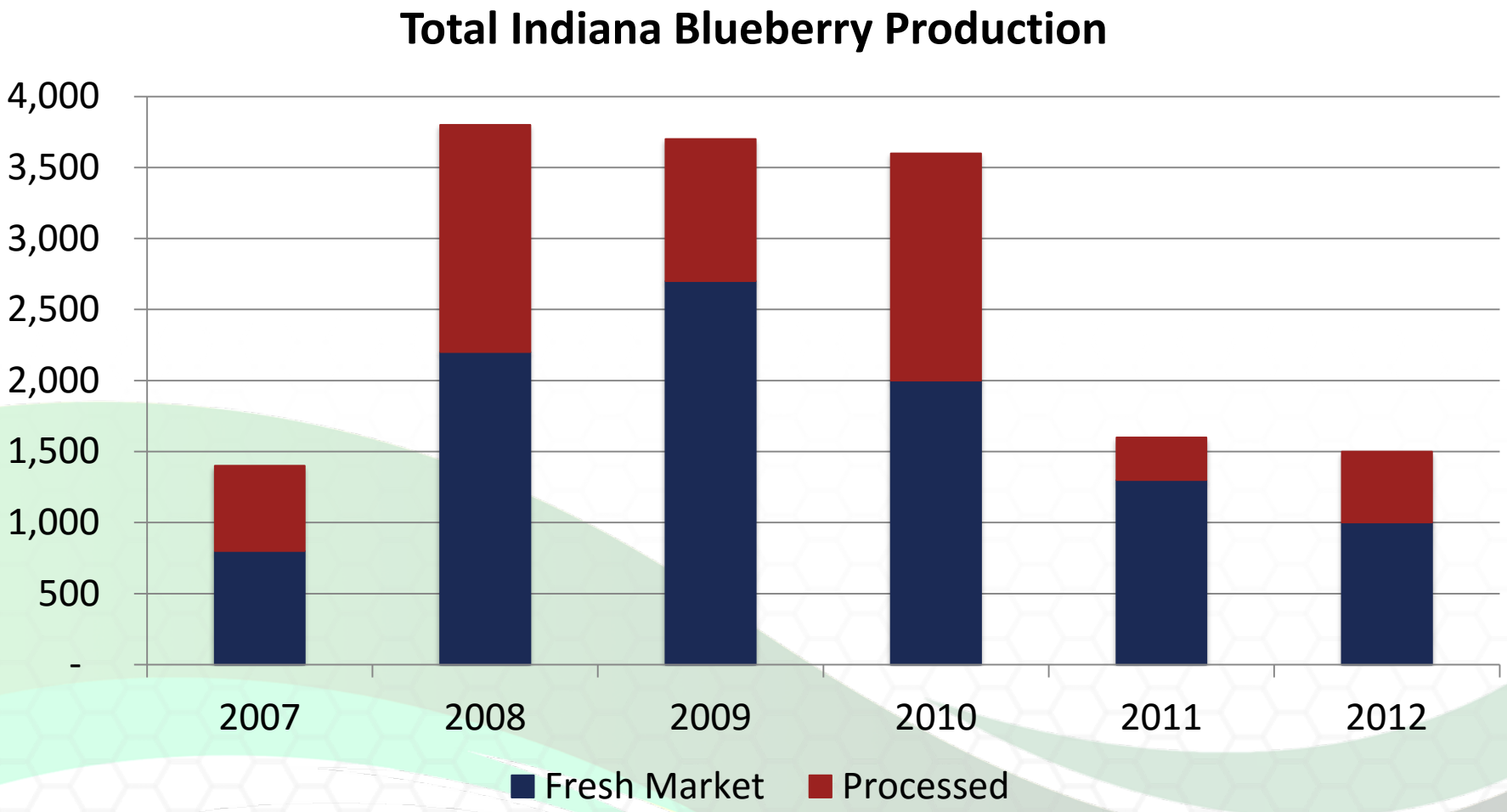
Source: USDA NASS; http://www.nass.usda.gov/Statistics_by_State/New_Jersey/Publications/Blueberry_Statistics/2014%20Blueberry%20Statistics.pdf (2014)

Blueberries



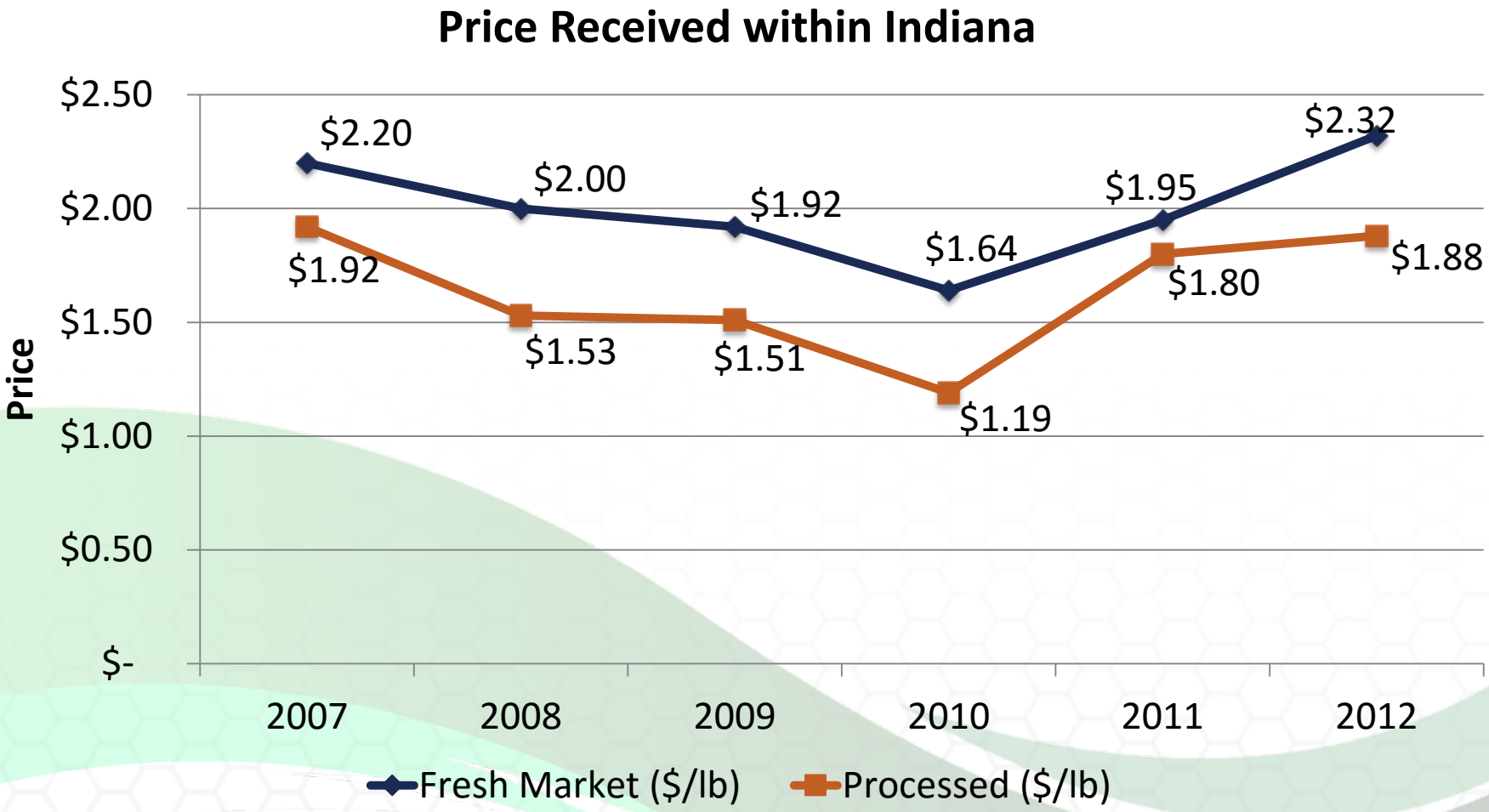
Source: USDA NASS; http://www.nass.usda.gov/Statistics_by_State/New_Jersey/Publications/Blueberry_Statistics/2014%20Blueberry%20Statistics.pdf (2014)

Blueberries



Source: USDA NASS; http://www.nass.usda.gov/Statistics_by_State/New_Jersey/Publications/Blueberry_Statistics/2014%20Blueberry%20Statistics.pdf (2014)

Blueberries



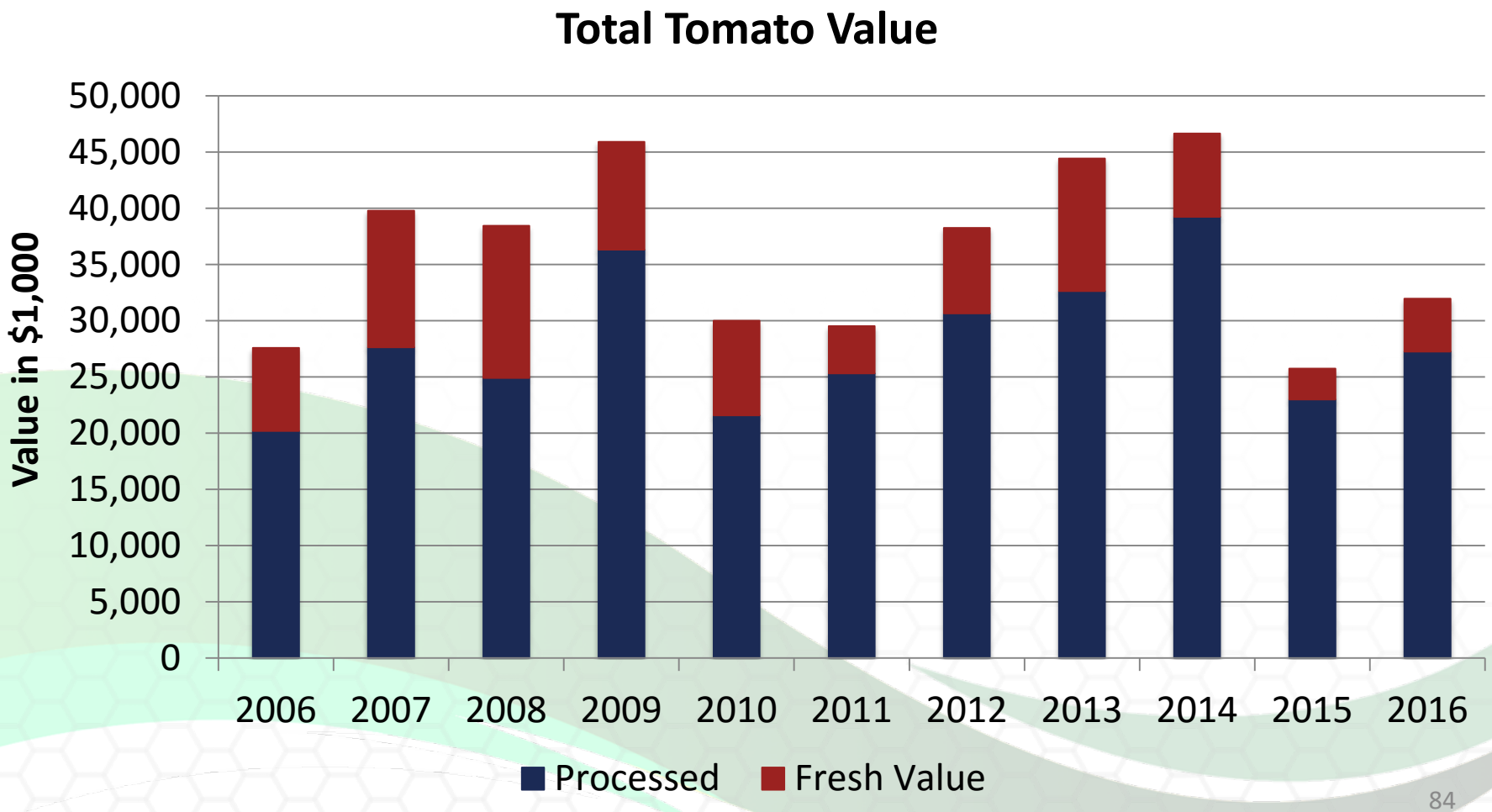
Source: Economic Research Service

Tomatoes

- As of 2016, Indiana ranked 3rd in tomato production

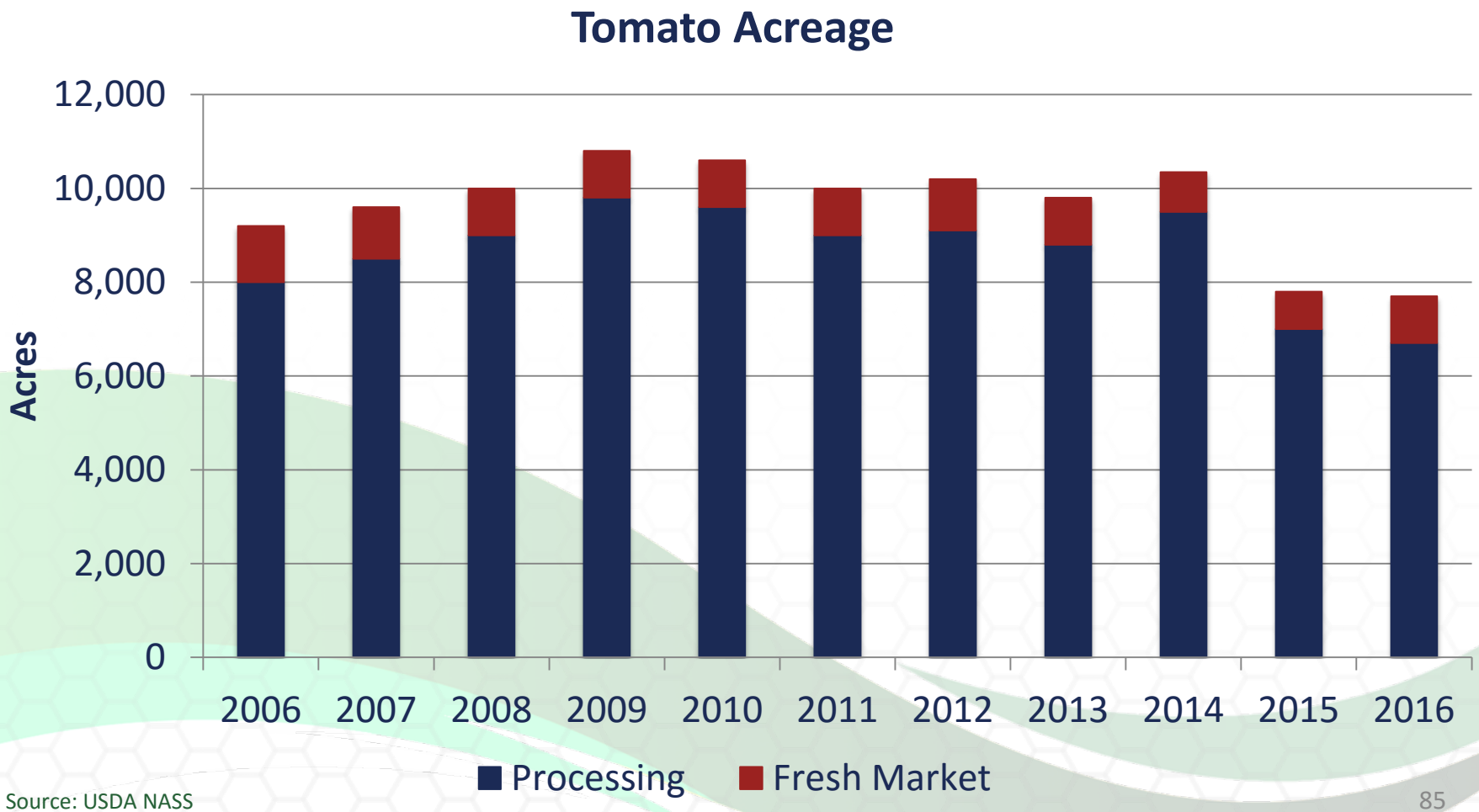
Source: USDA NASS

Tomatoes



Source: Economic Research Service; USDA NASS

Tomatoes



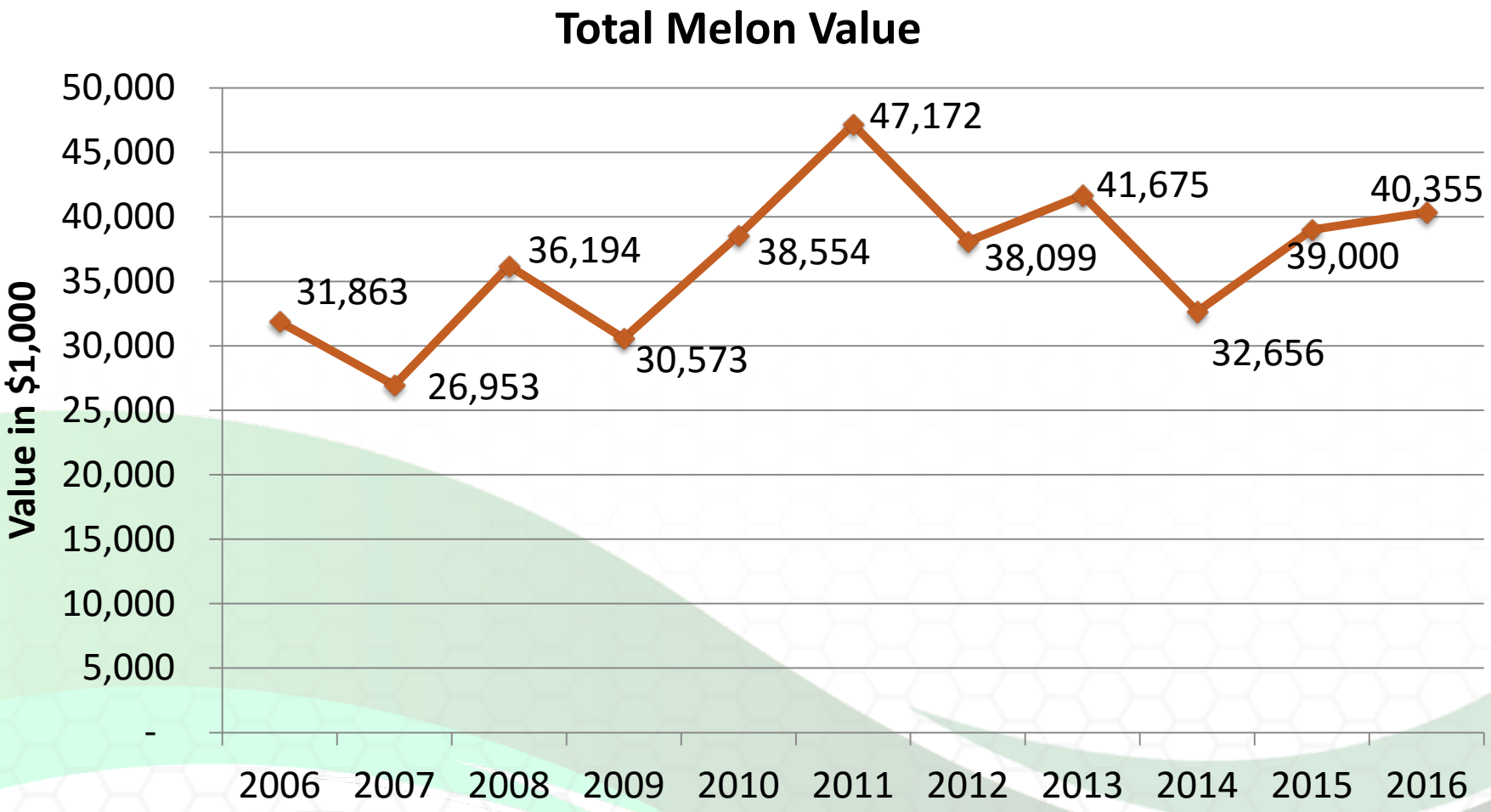
Source: USDA NASS

Melons

- In 2016, Indiana ranked 5th for watermelon production
- Indiana ranked 6th for cantaloupe production in 2016

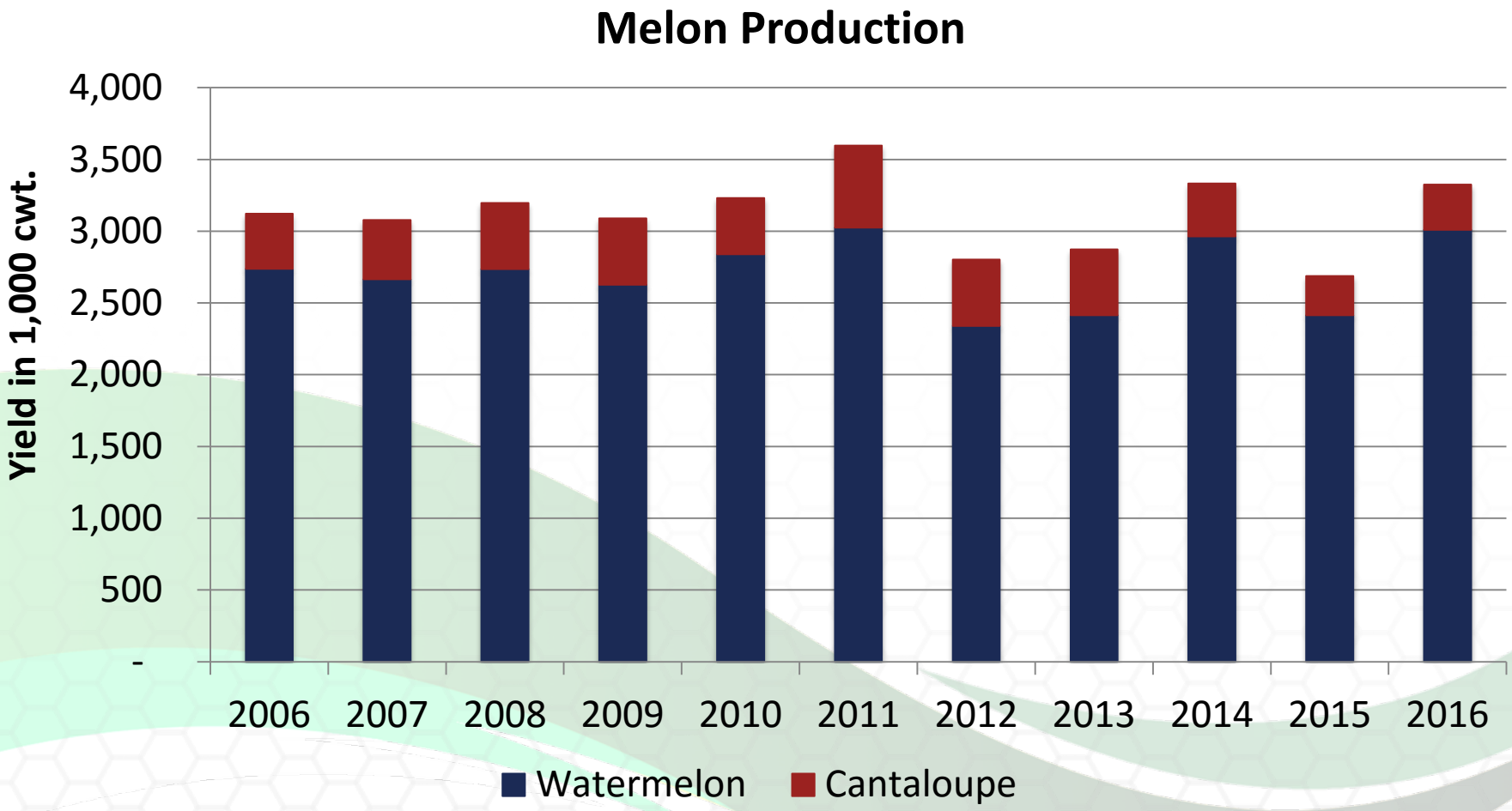
Source: Economic Research Service; USDA NASS

Melons



Source: Economic Research Service; USDA NASS, http://www.my-indiana-home.com/farm/farm-facts-melons/

Melons



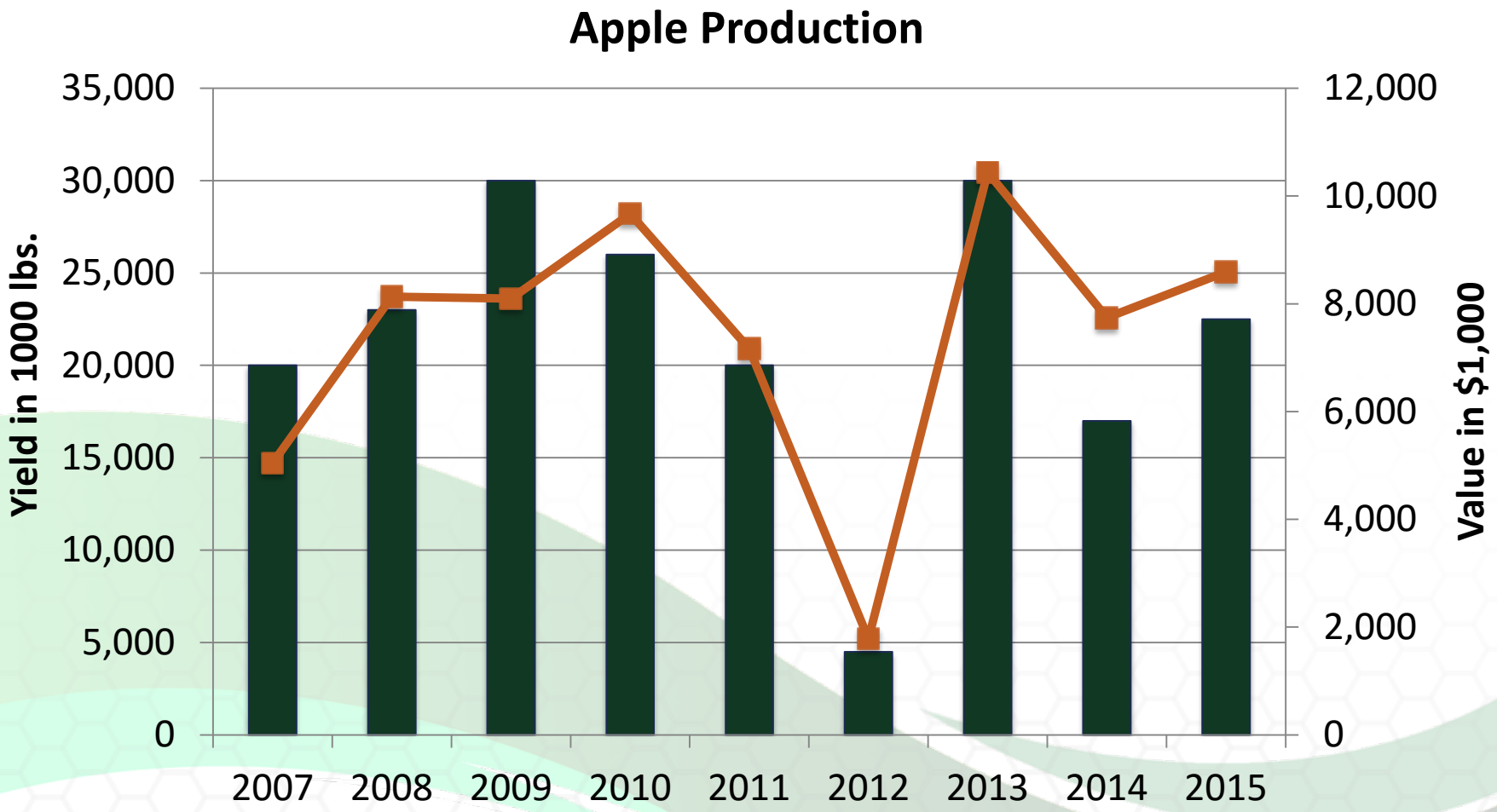
Source: Economic Research Service; USDA NASS

Apples

- Indiana's 2015 apple production ranked 20th in the nation

Source: Economic Research Service; USDA NASS

Apples



Source: Economic Research Service; USDA NASS

Other Specialty Crops

- Hay
- Mint (Peppermint and Spearmint)
- Cucumbers
- Oats
- Snap Beans

Animal Agriculture

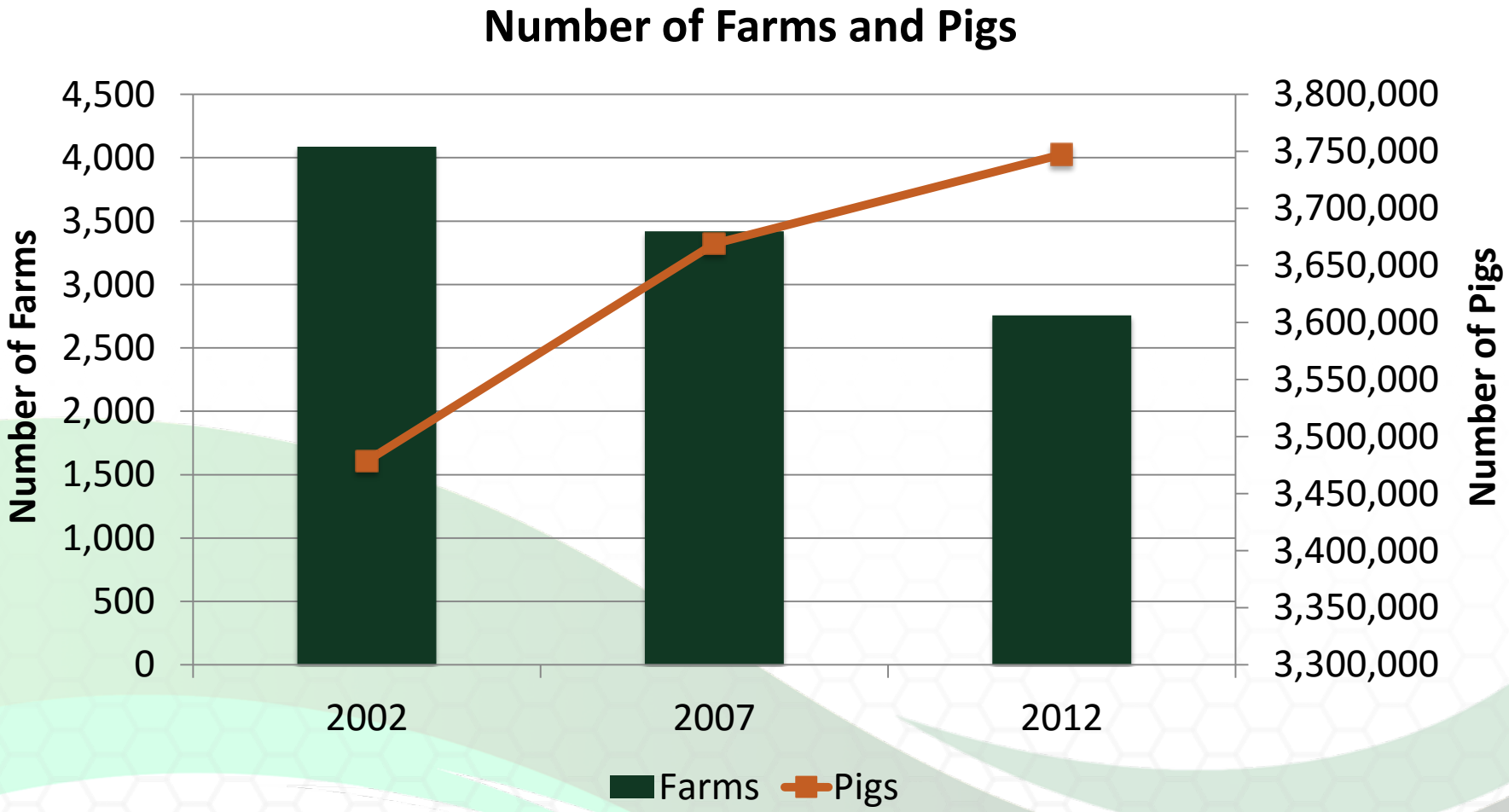
- Hogs and Pigs
- Dairy Cattle and Milk
- Beef Cattle
- Poultry:
  - Chickens
  - Ducks
  - Turkeys
- Aquaculture

Hog & Pig Farms

- Hoosier hog farmers generated nearly $1.3 billion in sales in 2012, the fifth-highest total nationally

Source: USDA, 2012 Census of Agriculture

Pork



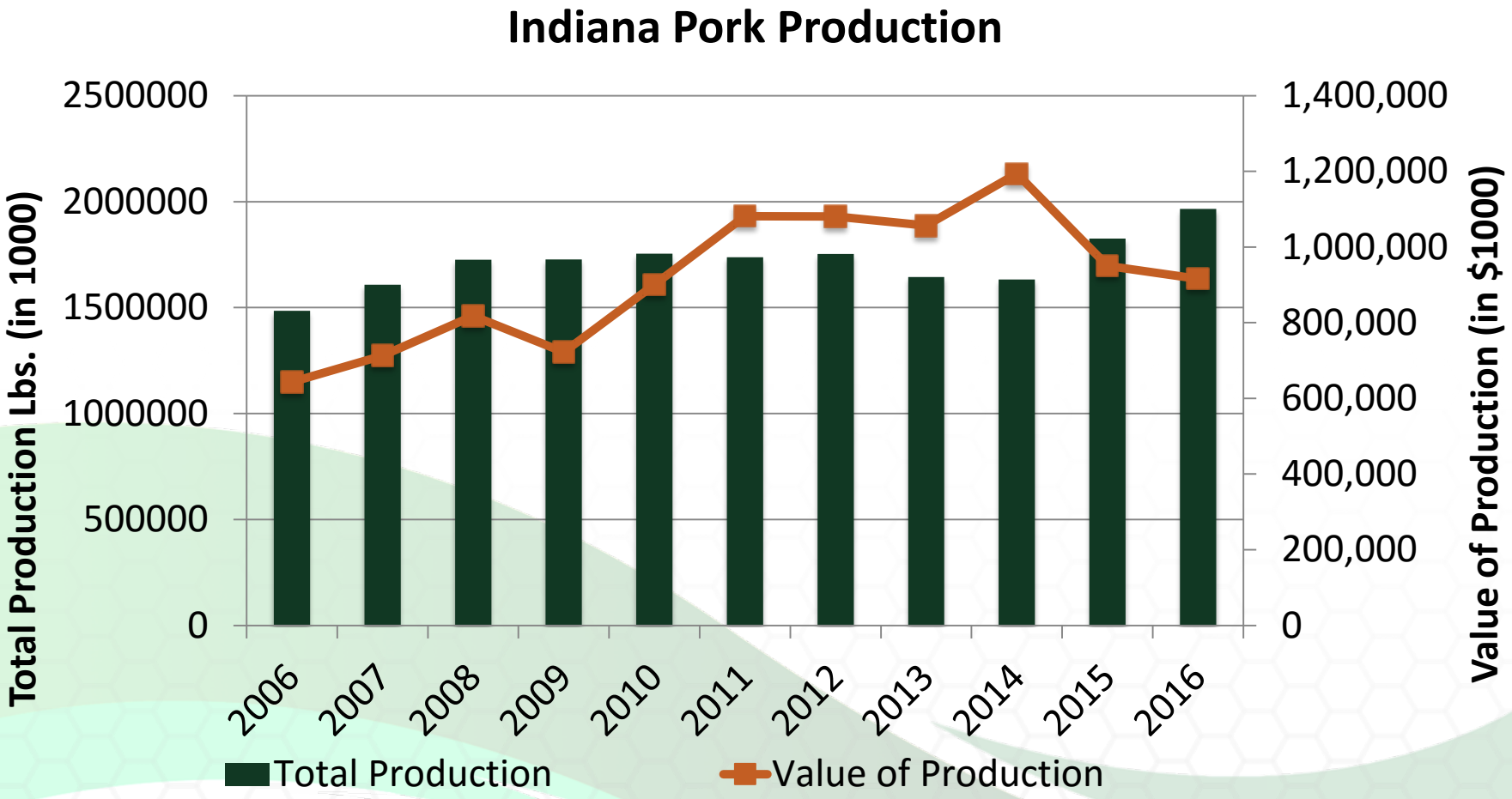
Source: USDA NASS, ERS

Size of Operations

	2002		2007		2012	
Number of Pigs	% Farms	% Pigs	% Farms	% Pigs	% Farms	% Pigs
1 to 25	28.5%	0.3%	41.7%	0.3%	48.7%	0.2%
25 to 49	7.9%	0.3%	6.0%	0.2%	6.1%	0.2%
50 to 99	6.6%	0.6%	6.1%	0.4%	5.0%	0.2%
100 to 199	8.6%	1.4%	4.6%	0.6%	3.7%	0.4%
200 to 499	17.0%	6.5%	10.5%	3.4%	7.0%	1.7%
500 to 999	12.1%	9.9%	9.3%	5.8%	6.5%	3.2%
1,000 to 1,999	9.5%	14.7%	7.5%	9.6%	6.2%	6.1%
2,000 to 4,999	6.4%	22.0%	9.4%	27.9%	9.2%	21.9%
5,000 and more	3.4%	44.5%	5.0%	51.9%	7.5%	66.0%

Source: USDA NASS, ERS

Pork



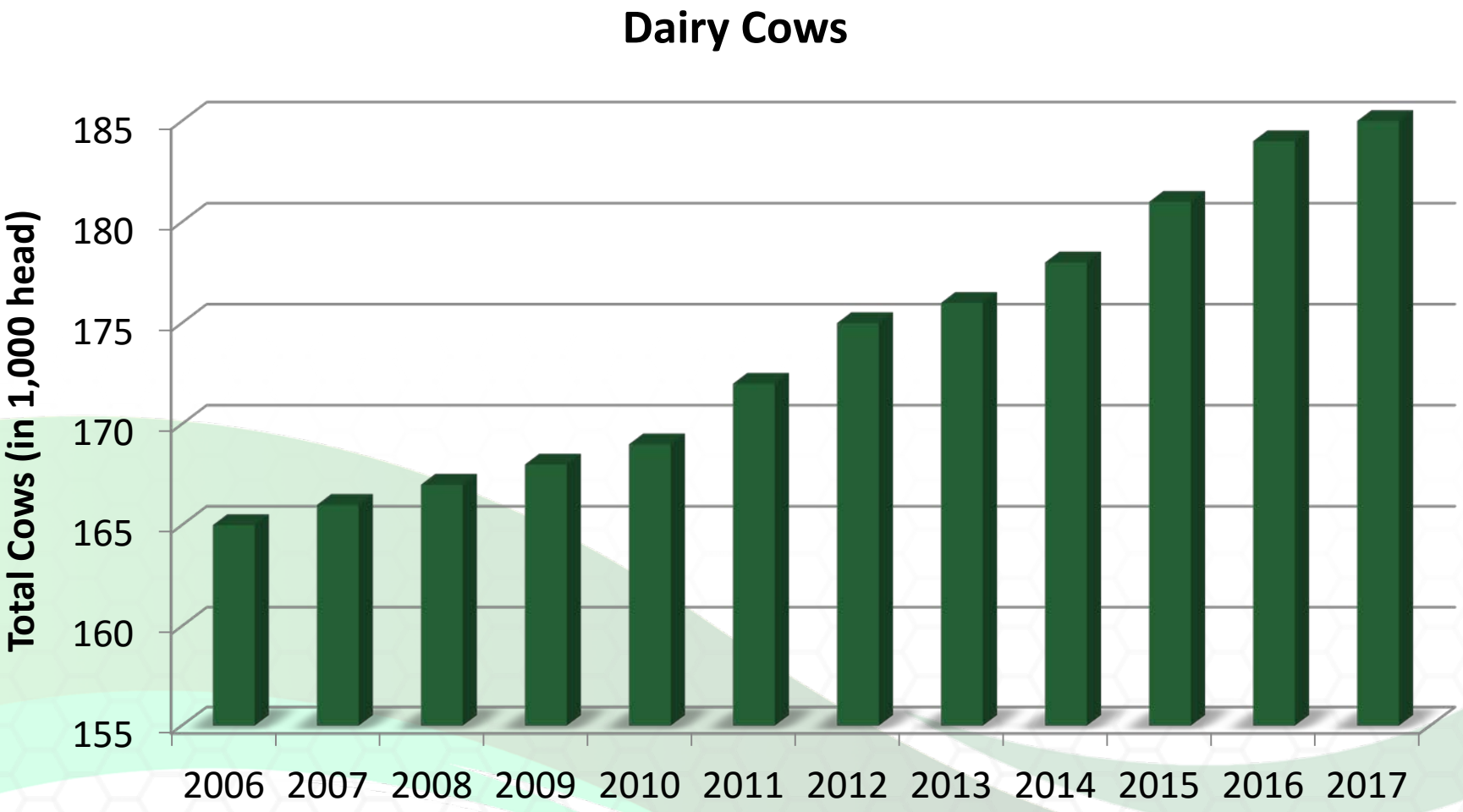
Source: USDA NASS, ERS, & http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1101

Dairy Cattle

- Indiana's dairy herd has been growing at an average annual rate of about 1.5% since 2005 with most of the growth coming in the northern part of the state
- Indiana's dairy herd totaled 184,000 cows on January 1, 2016
- Average herd size in Indiana 2016 was 161 cows
- The current number of licensed dairy herds is 1,145
- The average Indiana milk cow produced 22,560 lbs. of milk in 2016, which ranked 16th state in the U.S.

Source: IN Dairy Strategy Summary; http://www.in.gov/isda/files/Indiana_Dairy_Strategy_Summary_ISDA_16Mar15.pdf; http://newsinfo.iu.edu/news-archive/24202.html ,& https://www.progressivepublish.com/downloads/2017/general/2016-pd-stats-lowres.pdf

Dairy Cattle



Source: USDA NASS, ERS

Dairy Cattle

Cows by Indiana Region 2004 & 2013

Region	2004 Cows	2013 Cows	% Change
North	108,400	130,500	+20%
Central	18,000	20,500	+13%
South	16,000	22,000	+31%

Source: http://www.in.gov/isda/files/Indiana_Dairy_Strategy_Summary_ISDA_16Mar15.pdf; USDA NASS, ERS

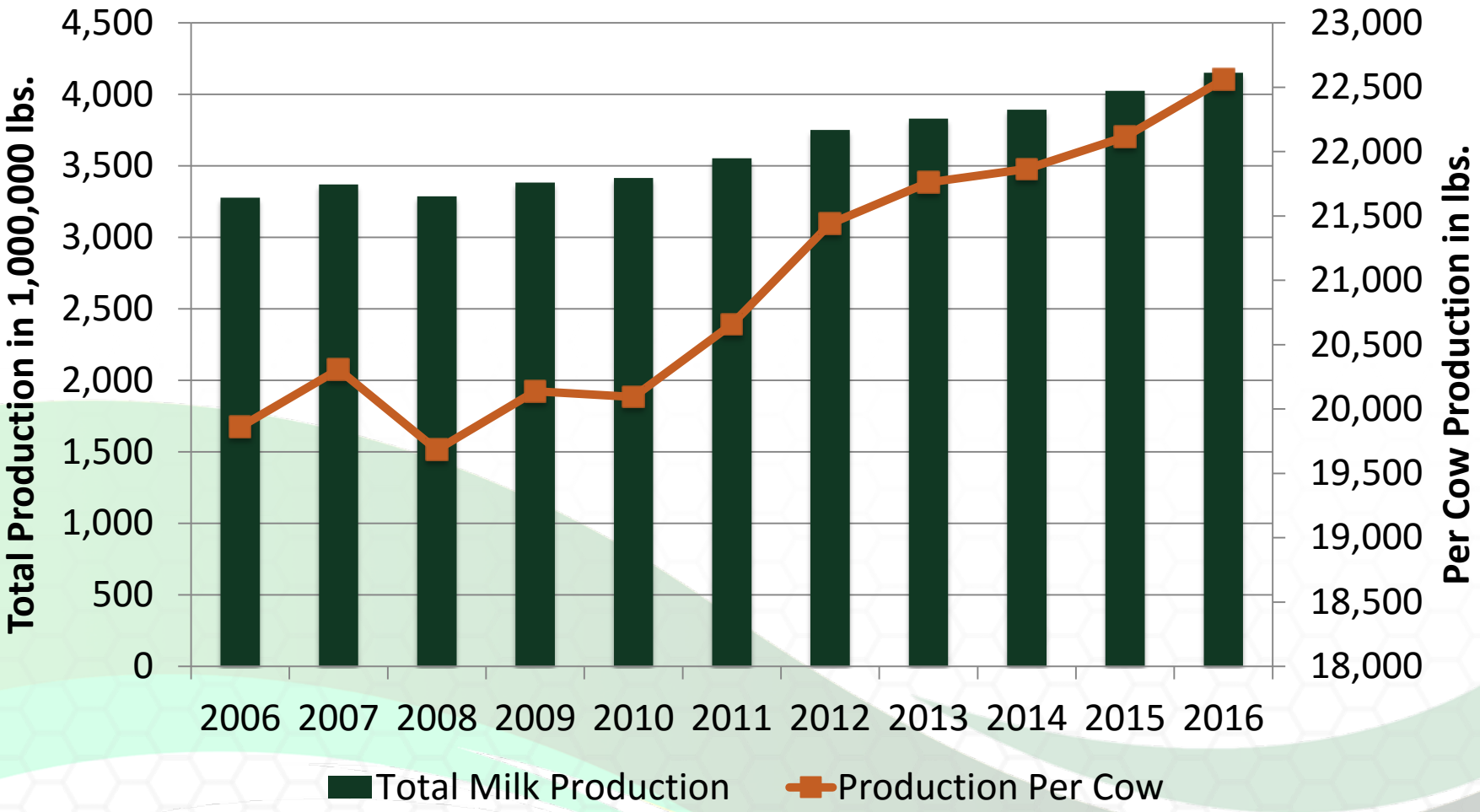
Dairy Cattle

2013 Indiana Dairy Farms by Size

Dairy Size	% Farms	% Revenue
<100	85%	11%
100-199	8%	10%
200-499	4%	10%
500-999	1%	7%
1,000-2,499	1%	14%
>2,499	1%	35%

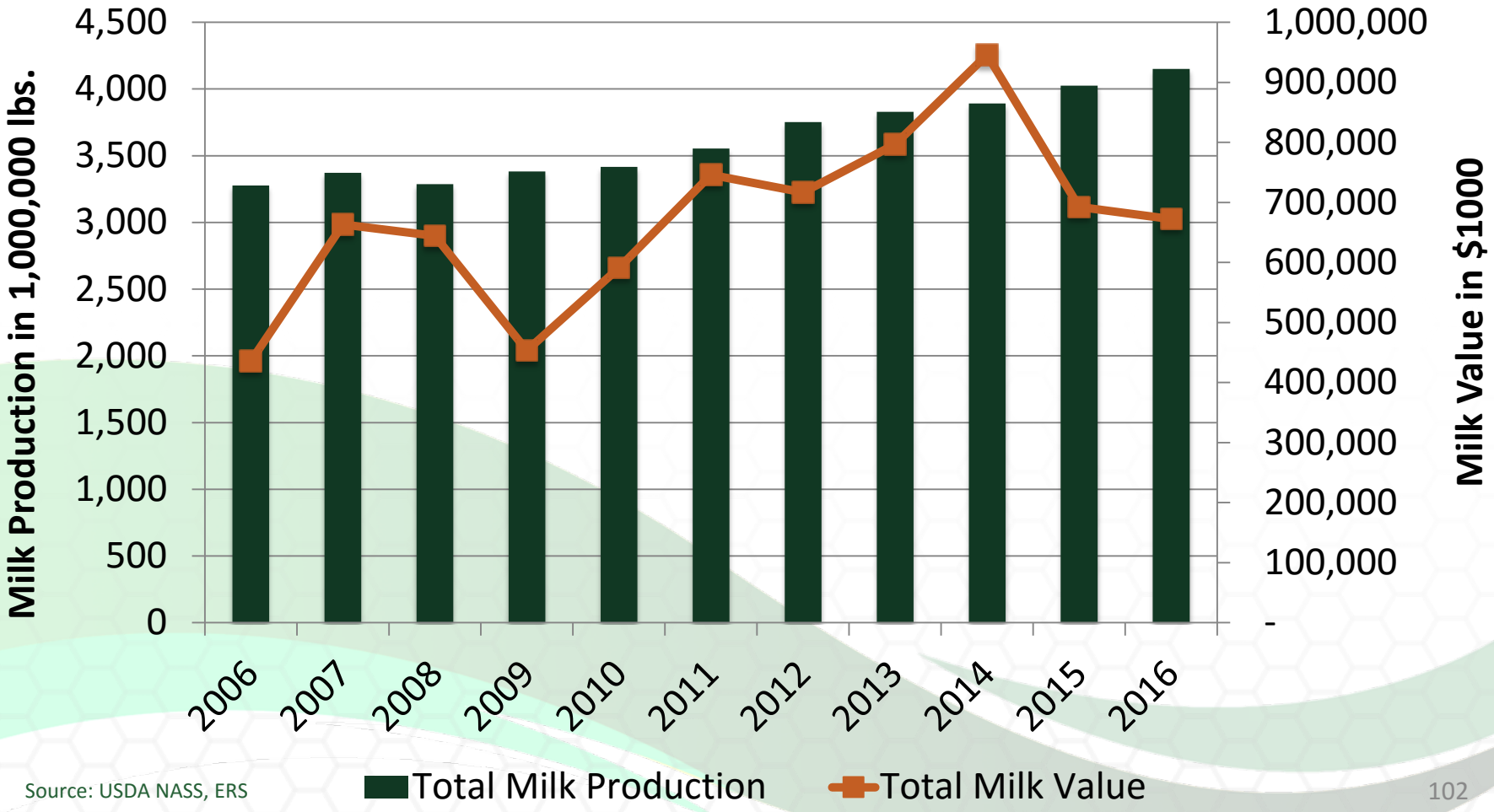
Source: http://www.in.gov/isda/files/Indiana_Dairy_Strategy_Summary_ISDA_16Mar15.pdf; USDA NASS, ERS

Milk Production



Source: http://www.in.gov/isda/files/Indiana_Dairy_Strategy_Summary_ISDA_16Mar15.pdf; USDA NASS, ERS

Milk Production



Source: USDA NASS, ERS

Dairy Industry

- In 2016 Indiana ranked 14th in milk production and accounted for 1.9% of total U.S. milk production
- 2016 milk production was 1,151 billion pounds, up 3.1% from 2015
- Total milk production increased 14.42% between 2006 and 2016
- Newton County and Jasper county IN were ranked 70th and 83rd respectively in a ranking of top 100 milk producing counties in 2016

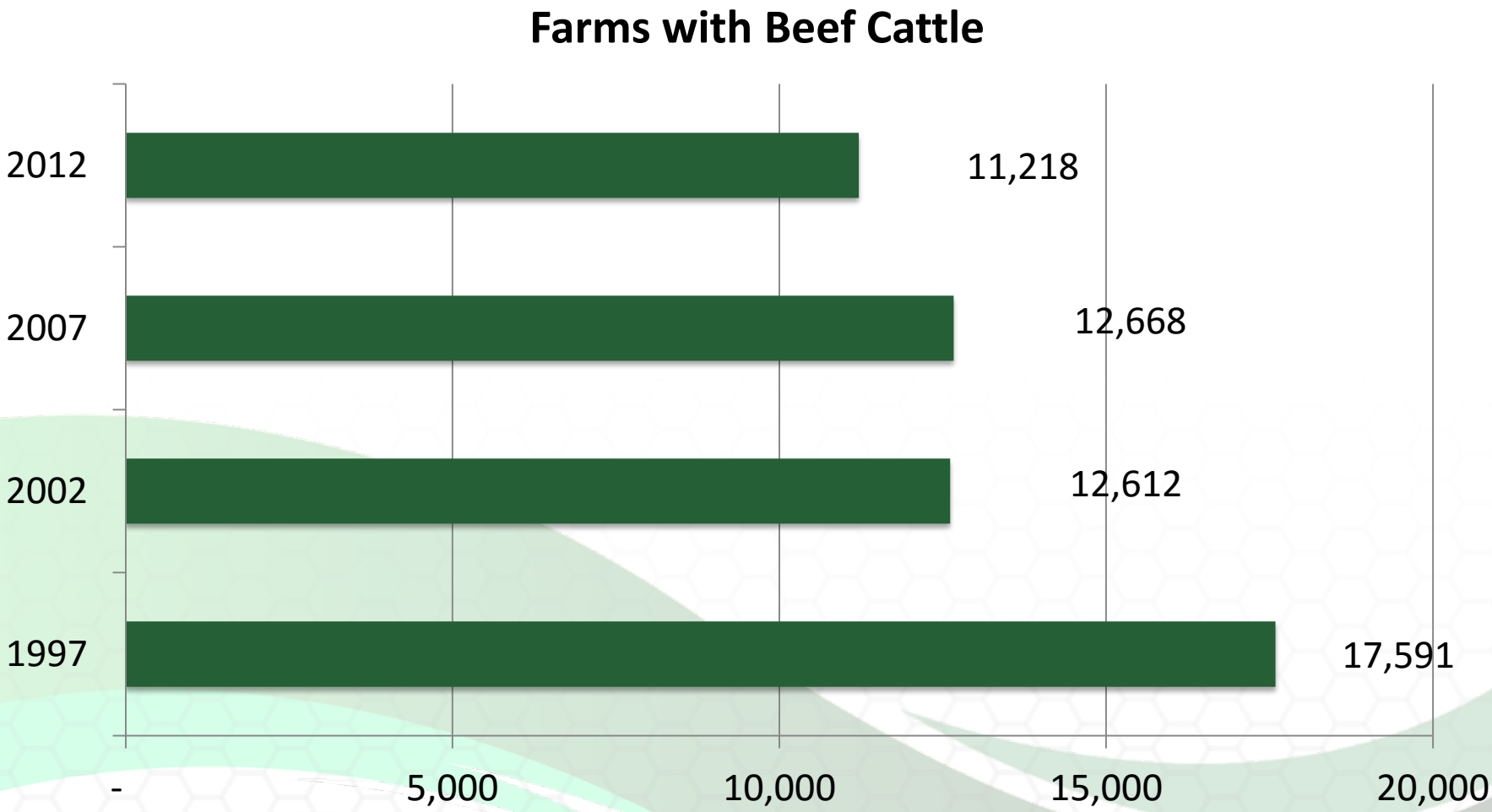
Source: https://www.progressivepublish.com/downloads/2017/general/2016-pd-stats-lowres.pdf

Beef Cattle

- Indiana's beef industry is primarily cow-calf herds rather than finishing operations
- In 2017, Indiana was home to less than 1% of the U.S. beef cow inventory with the 36th largest inventory in the nation

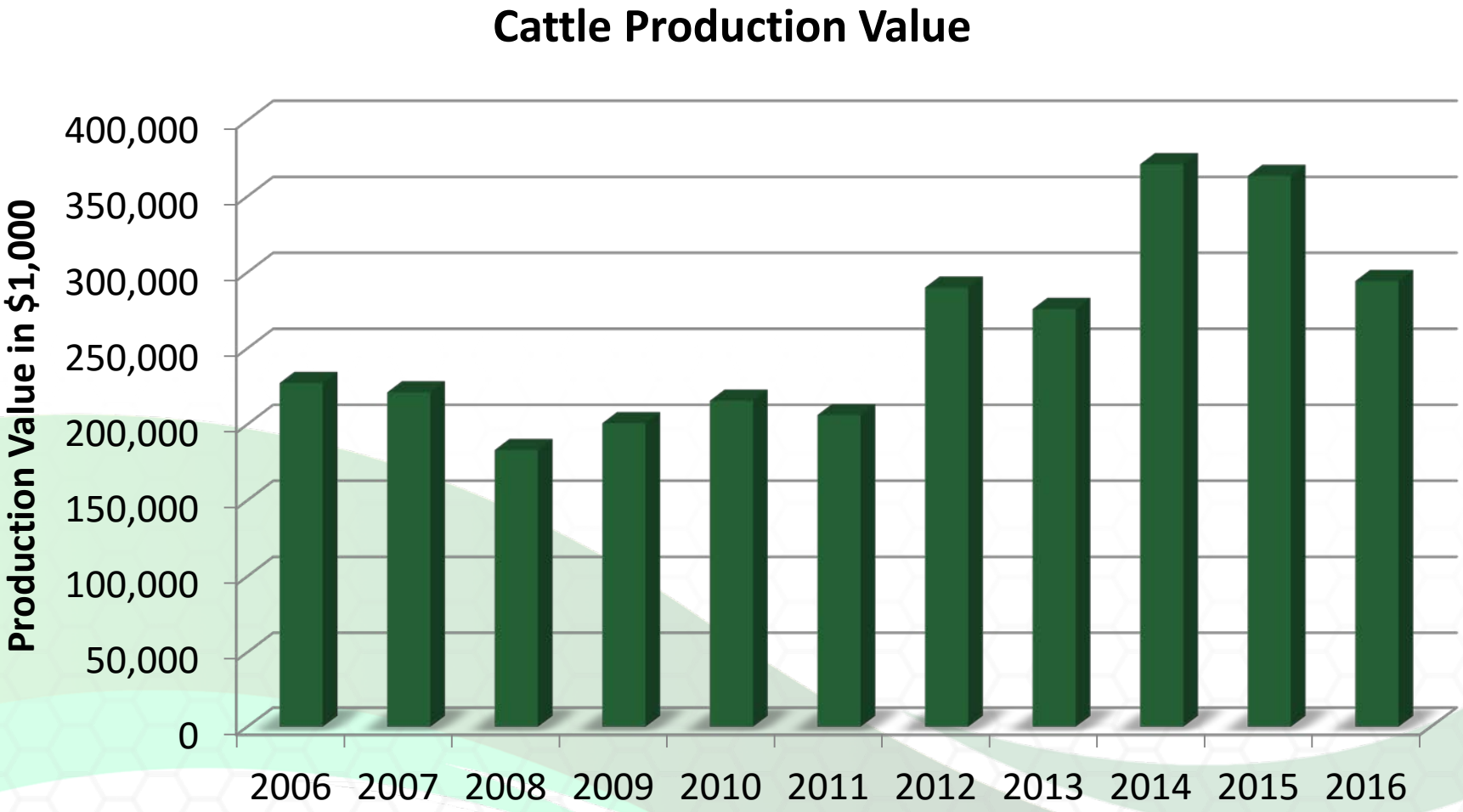
Source: USDA NASS; http://usda.mannlib.cornell.edu/usda/current/Catt/Catt-01-31-2017.pdf

Beef Cattle



Source: USDA NASS

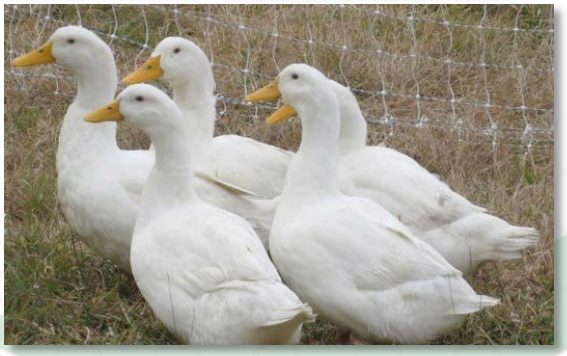
Beef Cattle



Source: USDA NASS;

Poultry

- Indiana poultry primarily includes the production:
  - Broilers
  - Eggs
  - Turkeys
  - Ducks

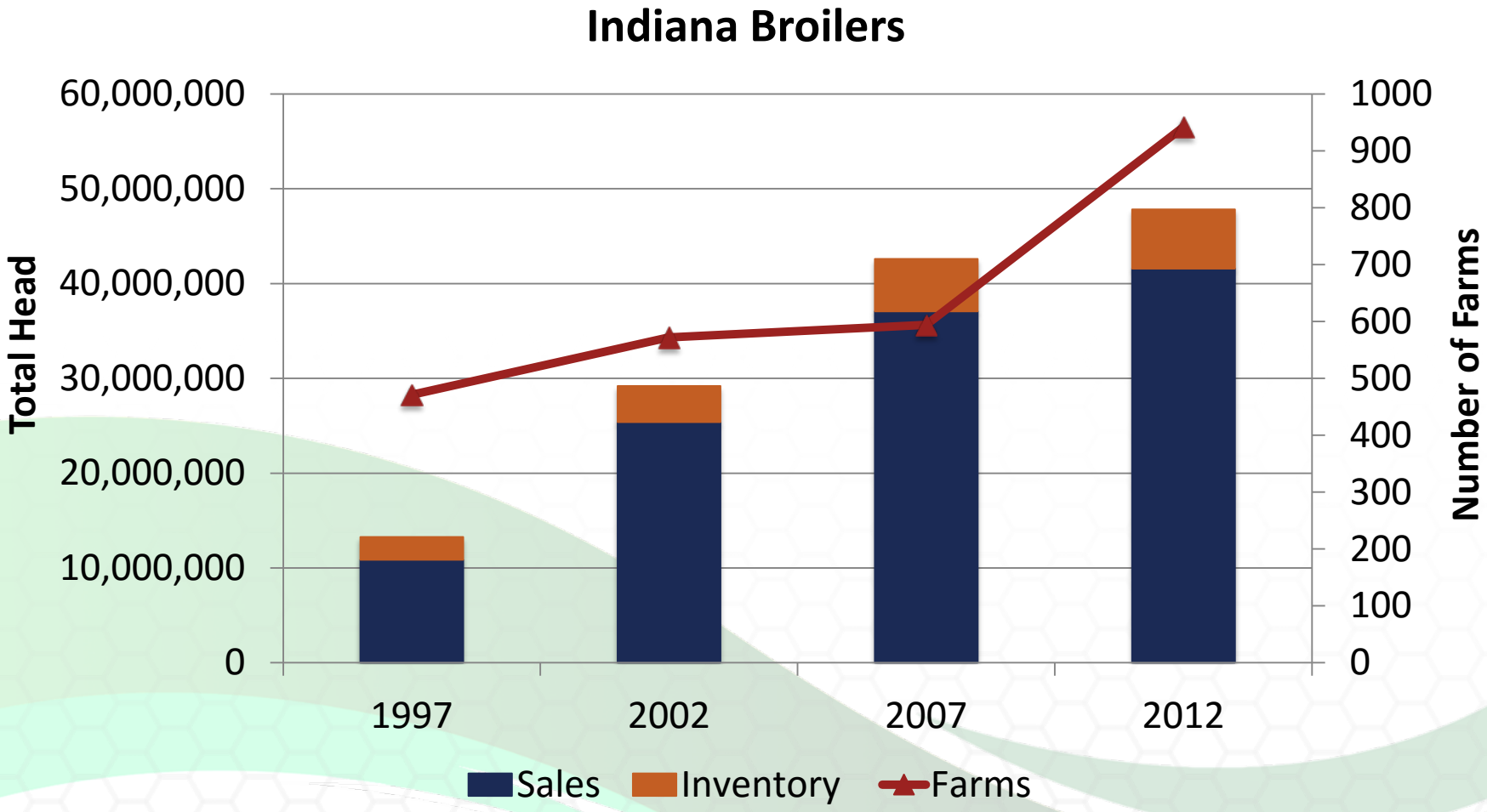


Indiana Poultry

- Poultry and egg production topped $1 billion in sales in 2012
- The nearly $1.3 billion in sales in this industry ranked as 13th-best among the nation in 2012
- In 2016, Indiana ranked 5th for turkey production and 3rd for egg production

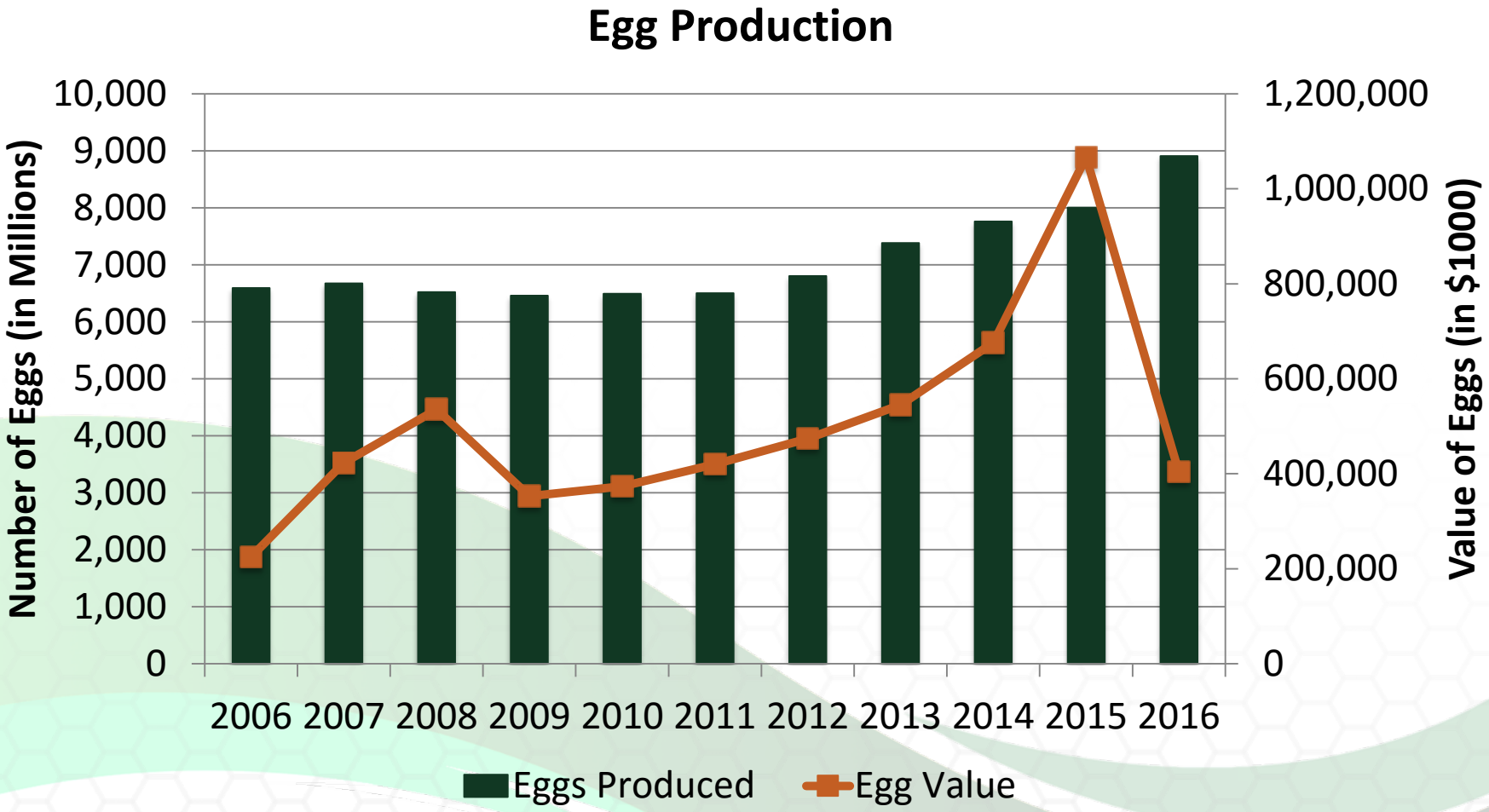
Source: USDA NASS; http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Poultry/Poultry_and_Egg_Production.pdf

Poultry: Broilers



Source: USDA NASS; http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Poultry/Poultry_and_Egg_Production.pdf

Poultry: Eggs



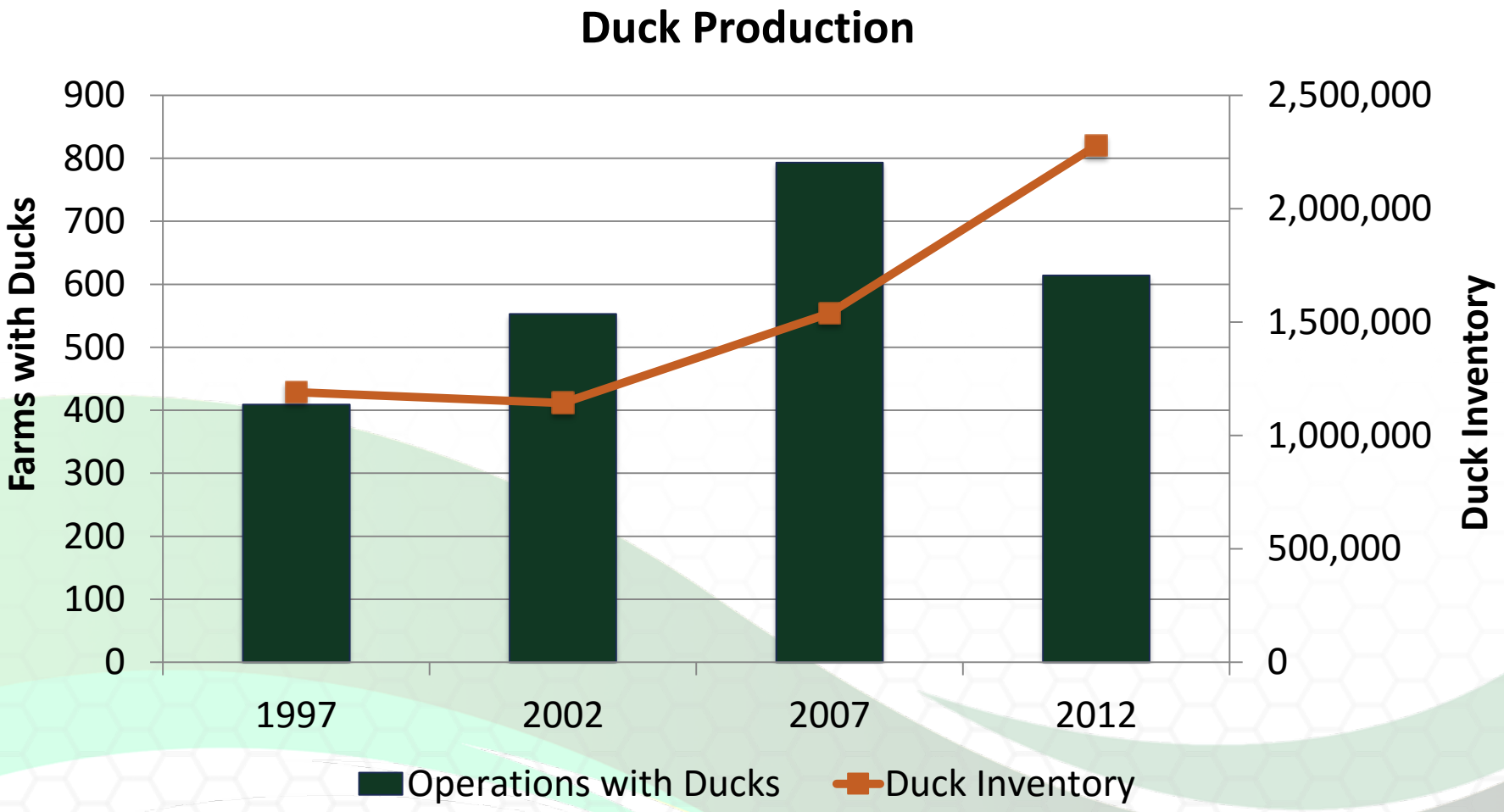
Source: USDA NASS; http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Poultry/Poultry_and_Egg_Production.pdf

Poultry: Ducks

- As of 2012, Indiana is the #1 duck producer in the country
  - Indiana provided 73% of all duck production in the United States
- Opportunities exist to enter Chinese markets where demand is high
- Indiana duck industry offers:
  - A reputation of food safety and high quality
  - Efficient production due to feeding, technology, and breeding

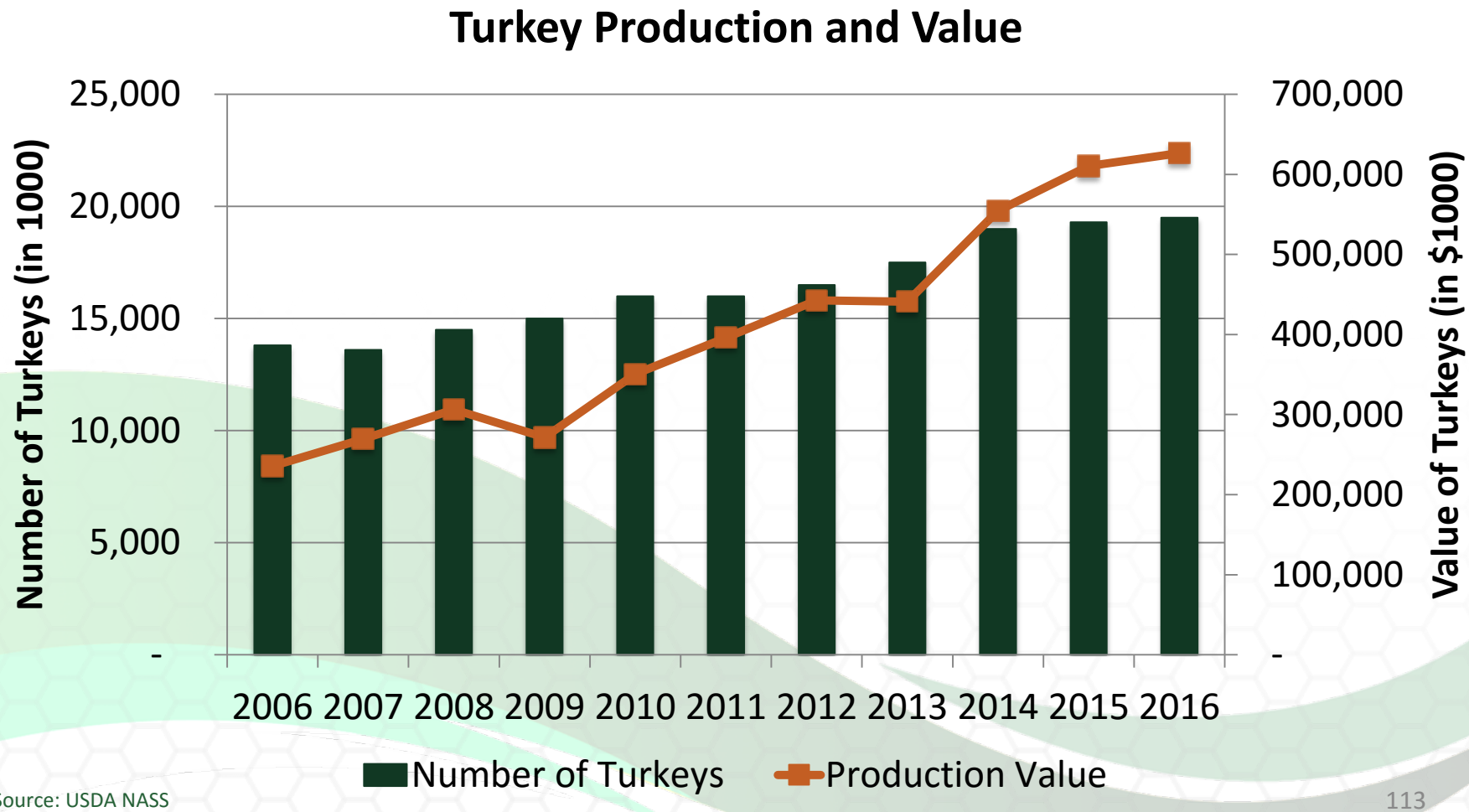
Source: USDA NASS; http://www.in.gov/boah/2715.htm

Poultry: Ducks



Source: USDA NASS

Poultry: Turkeys



Source: USDA NASS

Aquaculture

- Becoming a larger consumer of soybean meal
- Indiana is home to nearly 50 aquaculture farms that had $15 million in sales during 2012.
- Types of fish: tilapia, yellow perch, prawns, shrimp, bait fish, catfish, hybrid striped bass, bluegill and decorative fish

Source: USDA NASS; Indiana Soybean Alliance, https://www.purdue.edu/newsroom/releases/2013/Q3/purdue-report-aquaculture-industry-in-indiana-growing.html

Aquaculture

- Aquaculture generates approximately 280 jobs
  - 169 jobs directly in aquaculture
  - 64 jobs in supply companies in the state
  - 47 jobs from induced effect (household purchases from the former 2)

- $7,541,867 in total labor income

Source: USDA NASS; Indiana Soybean Alliance http://www.indianasoybean.com/strategic-programs/indiana-aquaculture/42-strategic-programs-aquaculture/75-indiana-aquaculture-facts

Aquaculture

Operation locations in Indiana

Source: USDA NASS; Indiana Soybean Alliance

Other Animal Agriculture

- Includes:
  - Horses, ponies, mules, burros, and donkeys
  - Sheep, goats, and their products
  - Other animals and animal products

- $56,295,000 in additional sales

Source: USDA NASS

Agriculture and Renewable Energy

Ethanol

- 14 Ethanol plants in Indiana
- Produced approximately 1.17 Billion gallons in 2016
- 5th largest operating capacity

Biodiesel

- 3 Biodiesel plants in Indiana

Source: RFA Annual Report, January 2017, Biodiesel Magazine & Chris Hurt, Purdue University

Indiana Ethanol Plants

- South Bend
- Rensselaer
- North Manchester
- Bluffton
- Clymers
- Marion
- Washington
- Alexandria
- Linden
- Cloverdale
- Portland
- Mt. Vernon (2)
- Union City

http://www.ethanolrfa.org/resources/biorefinery-locations/

Biodiesel Plants in Indiana

- Indianapolis
- Claypool
- Morristown

http://www.biodieselmagazine.com/plants/map/

Agriculture and Renewable Energy

Ethanol and Biodiesel Industry

- Provide 620 jobs to Indiana workers
- Put at least $29.5 million into local farmer pockets
- Invest more than $2 billion in capital expenses

Source: Indiana Office of Energy Development

Agriculture and Renewable Energy

Biofuel Co-Products

- Distillers Grains
  - Dried Distillers Grains
  - Wet Distillers Grains
- Fed to poultry, swine and cattle in Indiana

Source: Purdue Extension; Indiana Office of Energy Development

AgriTourism in Indiana

- State Parks with Agriculture Focus
- Wineries and Vineyards
- Orchards and other Pick-Your-Own Fruits
- Festivals and celebrations
- Edutainment (Fair Oaks)
- Farmers' Markets
- Christmas Tree Farms
- County Fairs and State Fair
- Greenhouses

ISDA Listening session data

Constituent Listening Sessions

- ISDA conducted 22 listening sessions to-date with representatives from various areas of Indiana agriculture
- Participants were asked:
  - What do you believe are the key strengths of the Indiana agriculture industry?
  - What key improvement areas are required to drive growth and enhance the success of Indiana's agriculture industry?
  - In your opinion, what are the top barriers to the growth and success of the agriculture industry in total or your organization's sector?
  - If you were writing the Indiana agriculture strategic plan, what is one big idea that if acted upon would drive industry success?

Listening Sessions To-date – Positive or Continued Effort Themes that Emerged

- Commodity Pricing / Business Climate
- Agritourism / Interest in Locally Grown / Indiana Grown
- State Government Relationships and Support
- Conservation Efforts / Water Quality Initiatives
- Association Management
- Growing Season
- Youth Development Programs

Source: ISDA 2015 Listening Sessions. At least 2 mentions.

Listening Sessions To-date – Improvement Themes that Emerged

- Federal Government Support / Regulatory Environment
- Infrastructure / Road Weight Limits
- Zoning
- Research / Funding
- Talent / Labor Access (non-youth)
- Need for more BOAH capacity
- Product Education
- Processing Capacity
- Water Quality / Soil Conservation
- Market Access
- Property Taxes
- Communications

Source: ISDA 2015 Listening Sessions. At least 2 mentions.

Big Ideas from Listening Sessions To-date – Themes from Sessions

- Zoning for agriculture; Defusing urban vs. rural conflict in terms of taxes, infrastructure and regulations is inevitable but manageable
- Road weight limits
- 8:1 local to state roads; How lower farmland/property tax and improve roads
- Access, recruiting, licensing and development for non-youth talent
- Communication / promotion of efforts and regulations
- One voice to promote IN agriculture – continue Indiana Grown
- Local government education and improved support
- Youth and talent development outside 4-H and FFA
- Water quality State and Federal issues
- Agritourism improvements and associated zoning issues

Source: ISDA 2015 Listening Sessions

Big Ideas from Listening Sessions To-date – Industry Specific or One-Mention Noteworthy Ideas

- Municipal water issues impacts production / processing capacities
- Emphasis on solar over wind energy
- Gas tax for road funding
- Education on renewables (E-15 and E-30)
- CCA spinoff program for private sector
- Anaerobic digester emphasis
- Non-government sponsored land stewardship programs
- Recruit meat inspectors and food safety support with local, 3rd party auditors
- Keep livestock/milk in state
- Processing capacity required to support local economic environment (e.g., need for more beef processing)
- FSMA regulations require corrections (e.g., animals cannot be fed “waste” byproduct from manufacturing/processing)

Source: ISDA 2015 Listening Sessions

Online listening survey results

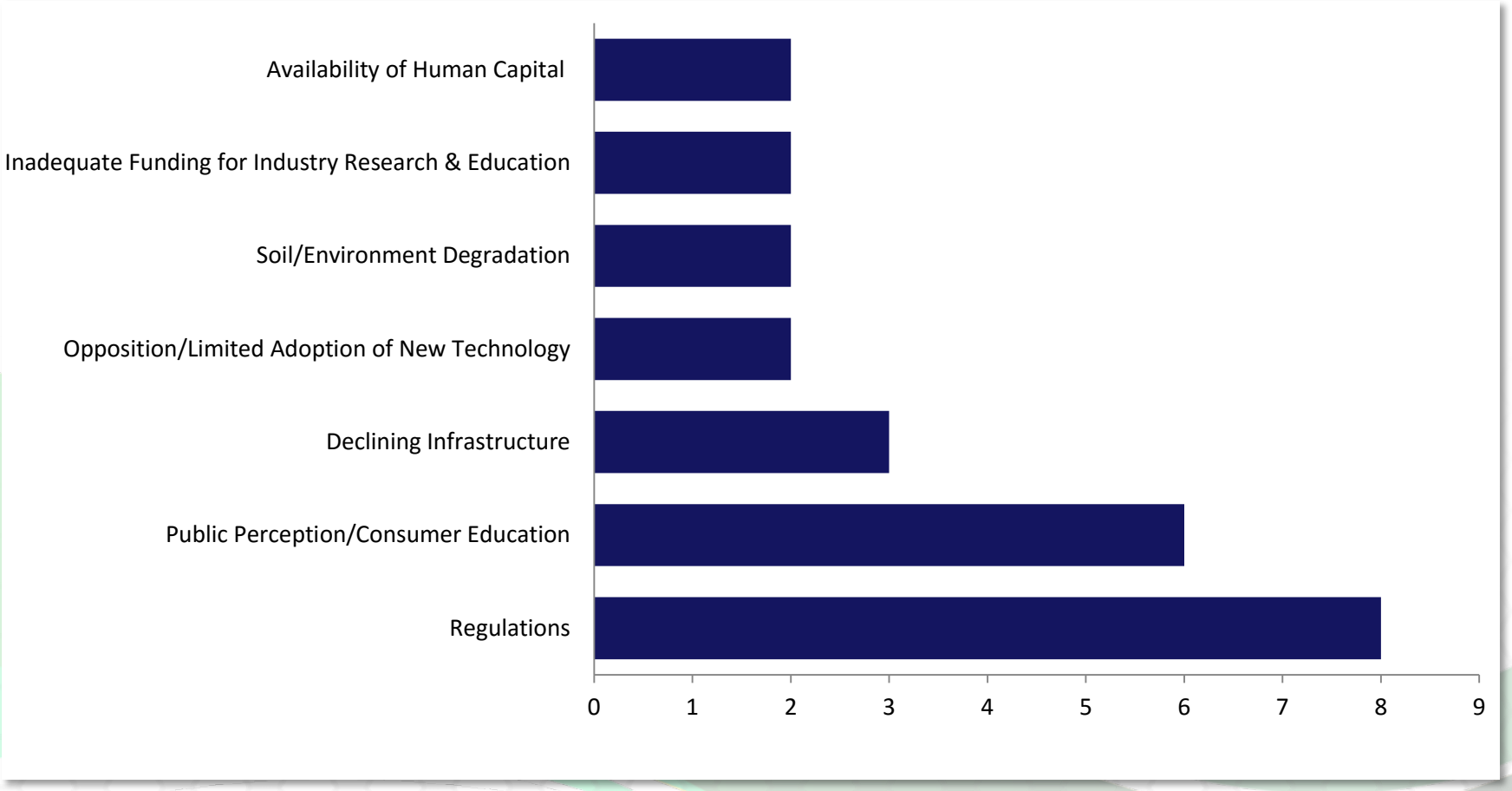
Survey Overview

- 25 Responders
- 14 Unique Companies Represented
- 9 Different Business/Organization Types
- 4 Strategic Questions Asked:
  - What do you believe are the key strengths of the Indiana agriculture industry?
  - What key improvement areas are required to enhance the success of Indiana's agriculture industry?
  - From your viewpoint, what are the top two barriers to the success of the agriculture industry in total or within your organization's sector?
  - If you were writing the Indiana agriculture strategic plan, what is one big idea if acted upon would drive industry success?

What do you believe are the key strengths of the Indiana agriculture industry?

What key improvement areas are required to enhance the success of Indiana's agriculture industry?

From your viewpoint, what are the top barriers to the success of the agriculture industry in total or within your organization's sector?



If you were writing the Indiana agriculture strategic plan, what is one big idea that if acted upon would drive industry success?

- Improving state infrastructure
  - "Improved infrastructure - roads / bridges / river ports…"
- Promoting agriculture businesses to build Indiana's "ag brand"
  - "Branding Indiana products to the point where the consumers immediately identify them with Indiana…"
  - "Work with all agriculture and public to promote agriculture businesses."
  - "Build the brand, promote and educate so the public is interested and not afraid of our products."
- Increasing agriculture outreach and education
  - "Education … to have some basic ag knowledge and skills."
  - "Educational outreach to the general population…"

If you were writing the Indiana agriculture strategic plan, what is one big idea that if acted upon would drive industry success?

- Supporting locally grown food and Indiana agriculture products
  - "All state-supported institutions should have a local food or Indiana Grown purchasing budget…"
- Enhancing coordination and communication between government agencies, agricultural entities and industry sectors
  - "To have much better agency coordination involving agriculture…"
  - "Open, clear and transparent communication…"
- Balanced government regulations which promote sustainability without hindering agriculture production
  - "Lower regulatory burden to Indiana Agricultural business."
  - "Government regulations that are pro agriculture while being environmentally friendly."