AGRICULTURAL SNAPSHOT

April 9, 2020
Prepared by ACDS, LLC

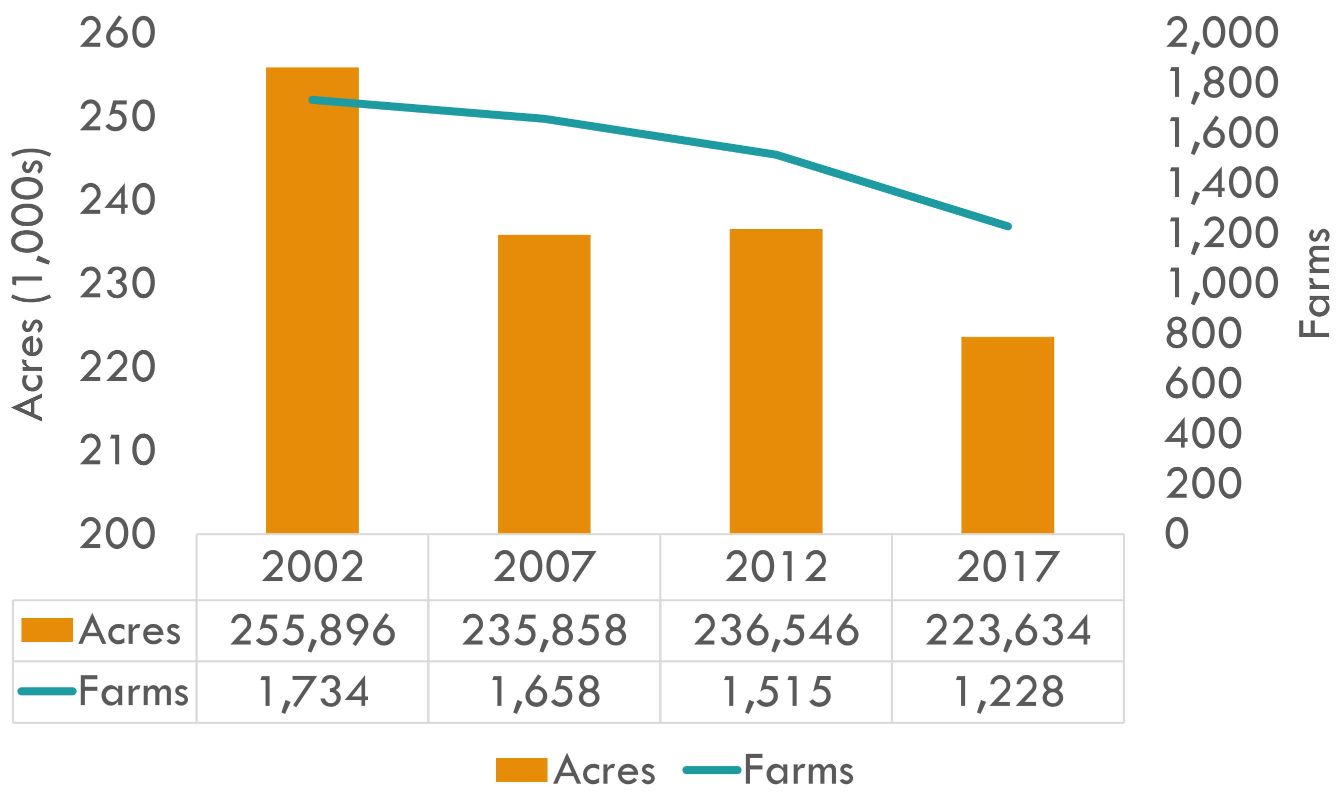
FARM TRENDS

FARMS AND FARMLAND

Declining Land in Farms

- **29% decline** in farms
- **13% decline** in farmland
- Decrease is driven by loss in cropland
- Farmland composition has remained relatively stable
- Average farm size is growing
- Signs of industry concentration

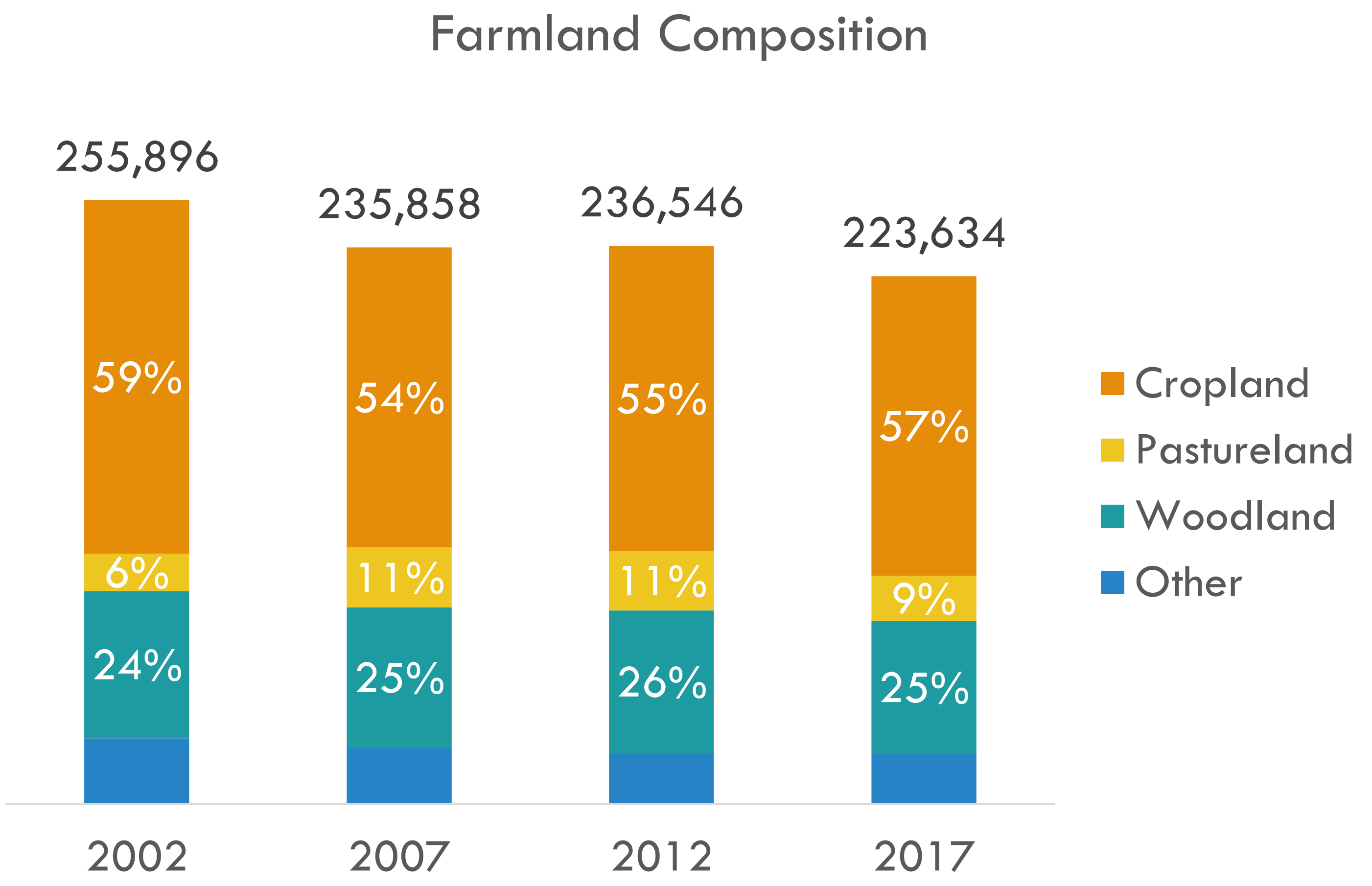
Farms and Farmland



	2002	2007	2012	2017
Acres	255,896	235,858	236,546	223,634
Farms	1,734	1,658	1,515	1,228

FARMLAND COMPOSITION

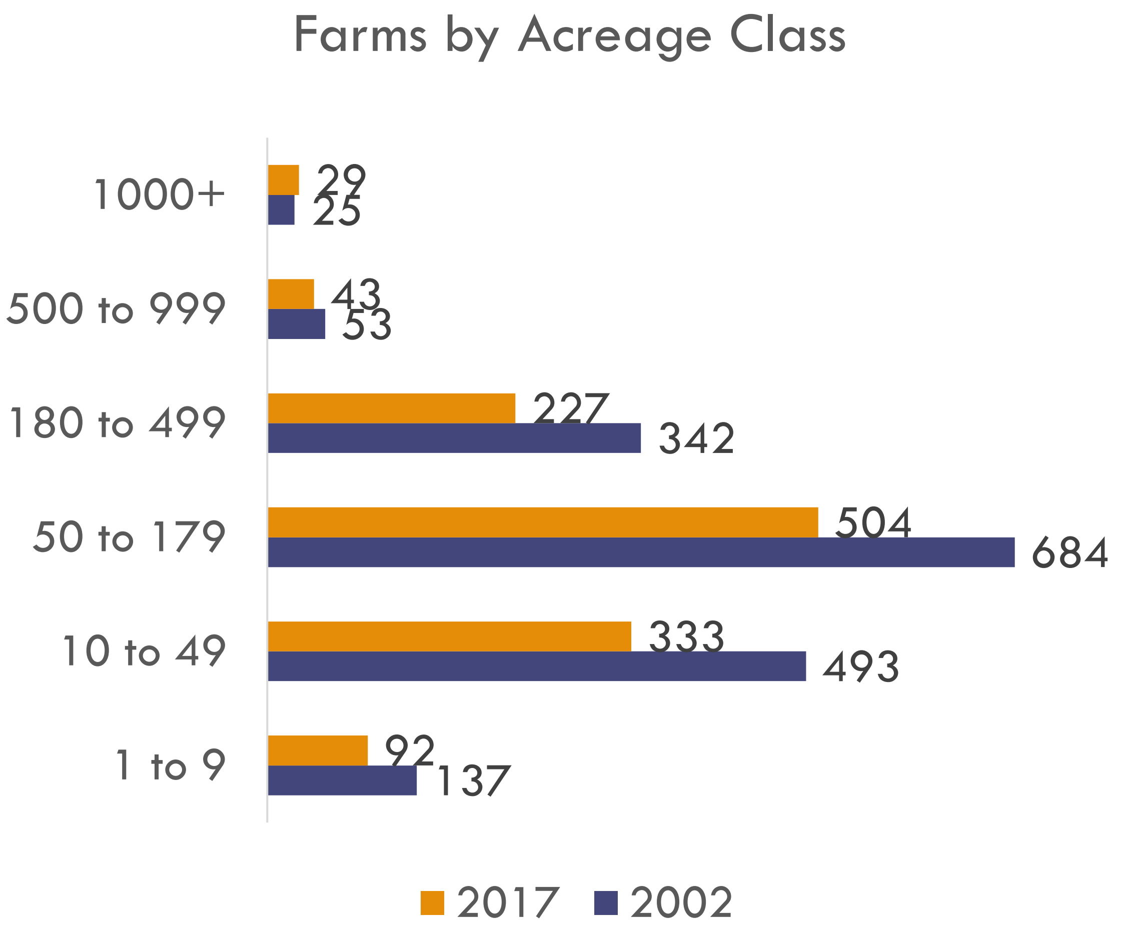
- Recent declines driven by losses in pastureland and woodland
- Total amount and share of pastureland increased
  - Growing number of farms involved in livestock production
  - Interest in grass-fed and pasture-raised products



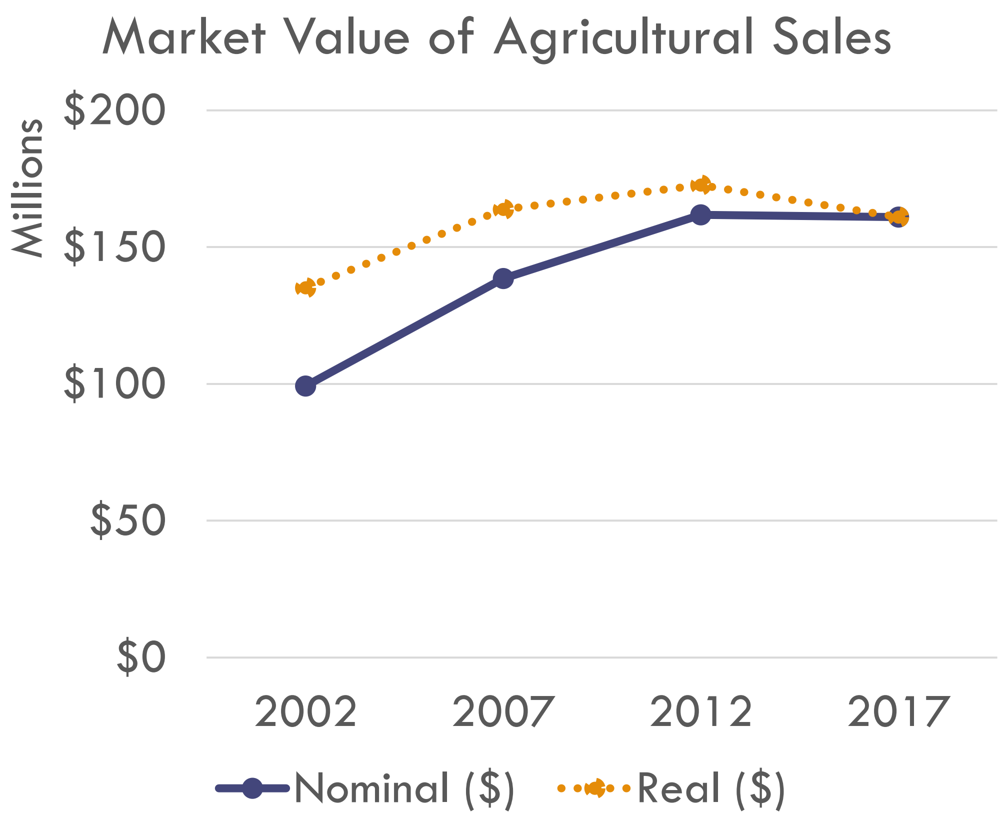
FARM CONSOLIDATION

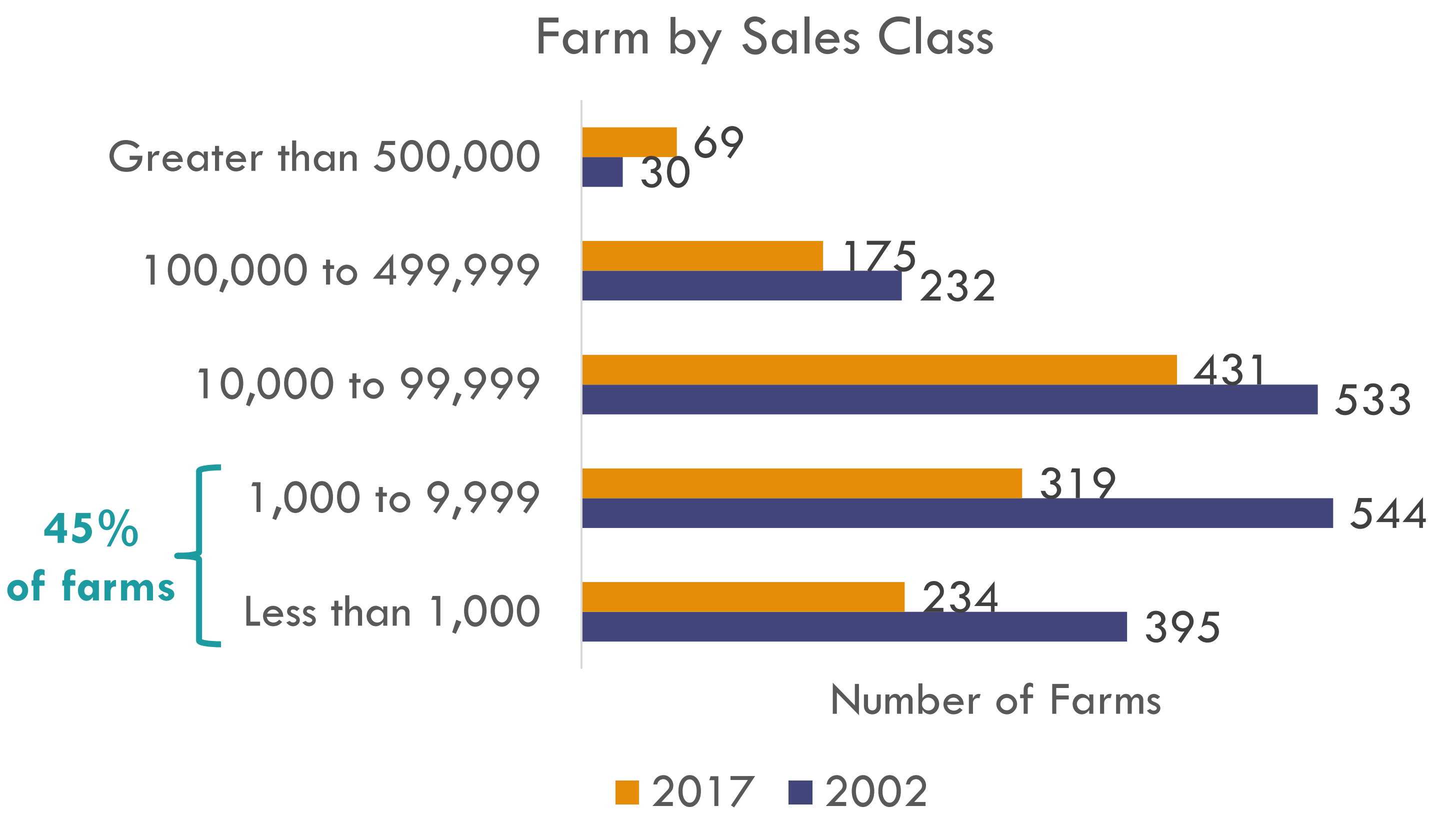
- Farms are getting larger
- Every acreage class experienced a decline in farm numbers since 2002 except for farms with 1000+ acres
- Number of small acreage farms (<50 acres) have **declined 33%** since 2002

	2002	2007	2012	2017	% Change
Average Acreage	148	142	156	182	23%
Median Acreage	82	80	80	85	4%



FARM SALES


Market Value of Agricultural Sales
Millions
$200
$150
$100
$50
$0
2002
2007
2012
2017
Nominal ($)
Real ($)


Farm by Sales Class
Greater than 500,000
100,000 to 499,999
10,000 to 99,999
1,000 to 9,999
Less than 1,000
45%
of farms
69
30
175
232
431
533
319
544
234
395
Number of Farms
2017
2002

FARMS BY INDUSTRY

Grapes

Hay

Industry	2017	% Change from 2002	% of Total Farms
Fruit and tree nut farming	326	-43%	26.5%
All other crop farming	280	1%	22.8%
Beef cattle ranching and farming	163	-11%	13.3%
Dairy cattle and milk production	152	-46%	12.4%
Animal aquaculture / Other animal production	146	-8%	11.9%
Sheep and goat farming	39	144%	3.2%
Oilseed and grain farming	30	-43%	2.4%
Poultry and egg production	25	56%	2.0%
Greenhouse, nursery, and floriculture production	23	-57%	1.9%
Vegetable and melon farming	22	-50%	1.8%
Hog and pig farming	17	-19%	1.4%
Cattle feedlots	5	-92%	0.4%

COMMODITY SALES

Top 10 Commodities by Sales

Commodity	Sales ($1,000)	% Change in Sales from 2012	State Ranking
Milk from cows	74,993	3%	12
Fruits, tree nuts, and berries	42,556	14%	2
Cattle and calves	11,443	-16%	13
Other crops and hay	9,896	15%	11
Corn	9,675	-29%	15
Vegetables	5,760	-8%	18
Horticulture	2,932	n/a	18
Soybeans	1,961	-16%	17
Sheep, goats, wool, mohair, and milk	434	130%	12
Wheat	268	60%	22

PRODUCTION HIGHLIGHTS

Crops and Livestock

Crop (acres)	2017	% Change from 2002
Hay and Haylage	46,042	-33%
Grape	16,953	-18%
Corn Silage	16,113	8%
Corn	14,277	59%
Soybeans	4,639	349%
Vegetable	2,977	22%
Oat	1,099	10%
Wheat	1,061	214%

Livestock (head)	2017	% Change from 2002
Cattle and calves	43,922	-15%
Layers	5,887	184%
Broilers	2,725	251%
Sheep and lambs	1,347	51%
Goats	1,219	48%
Turkeys	665	221%
Hogs	526	-31%
Ducks	130	44%

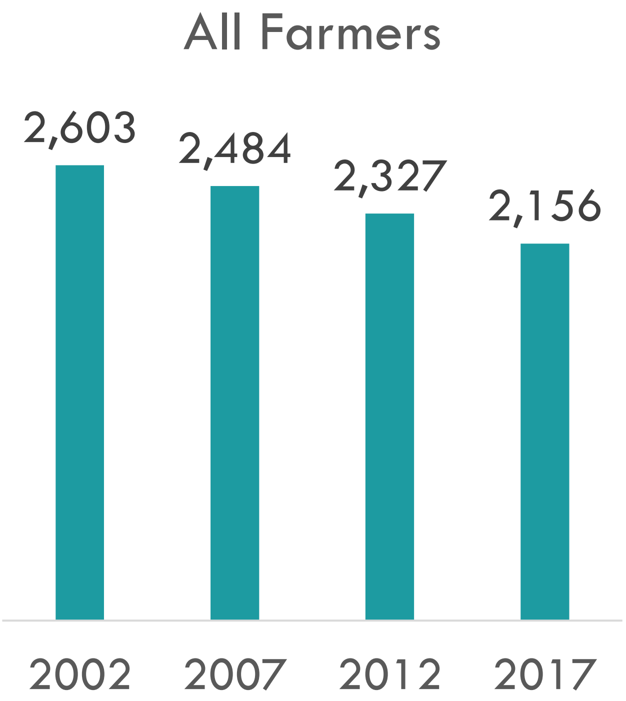
FARM TRANSITION AND FARM LABOR

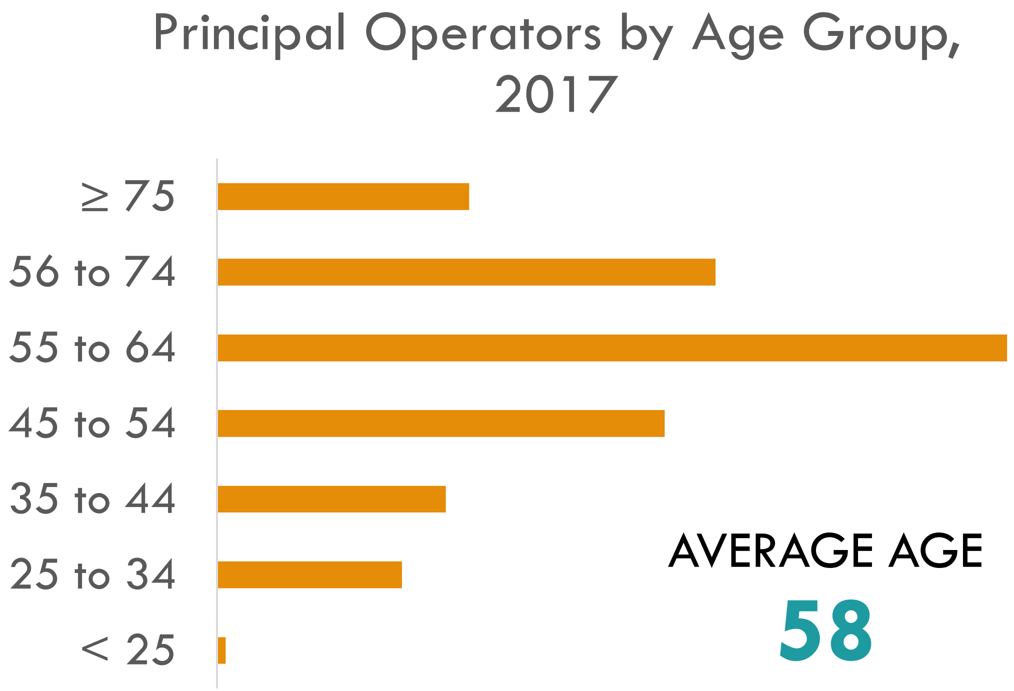
FARM OPERATOR TRENDS

Summary of Trends

- Declining farmer population
- Aging farmer population
- Need for additional income
- Distribution of farmer experience has been stable
- Most farms reported gaining profit
- Net farm income has continued to increase (inflation adjusted)
- Farm expenses have been stable (inflation adjusted)
- Farmland value has continued to increase

FARMER DEMOGRAPHICS





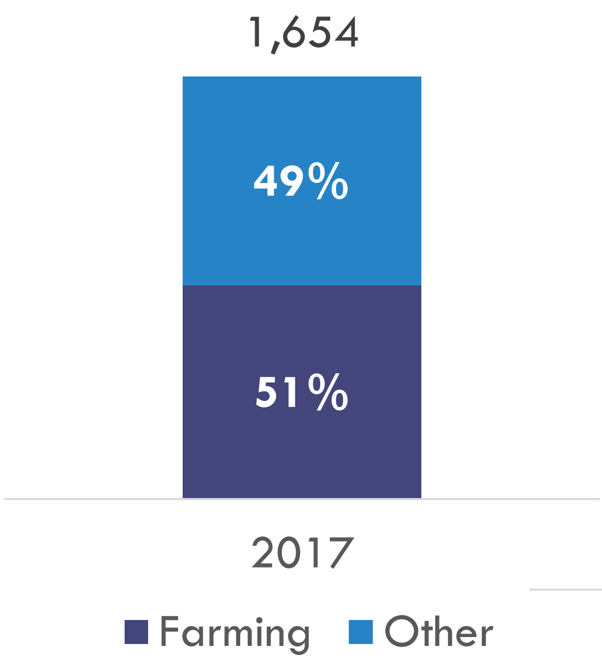
AVERAGE AGE

58

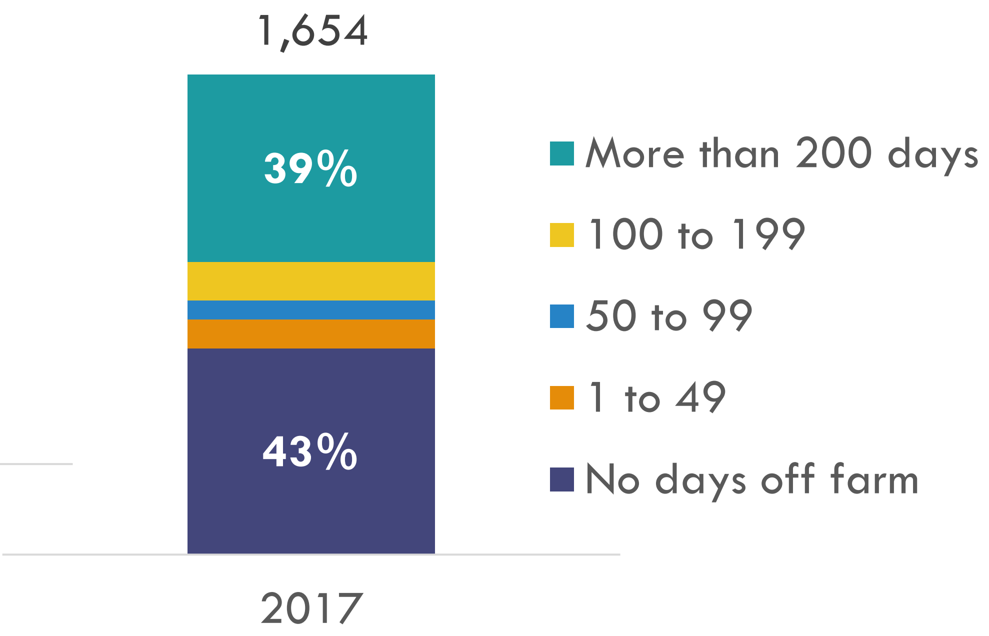
FARMER DEMOGRAPHICS

Principal Operators

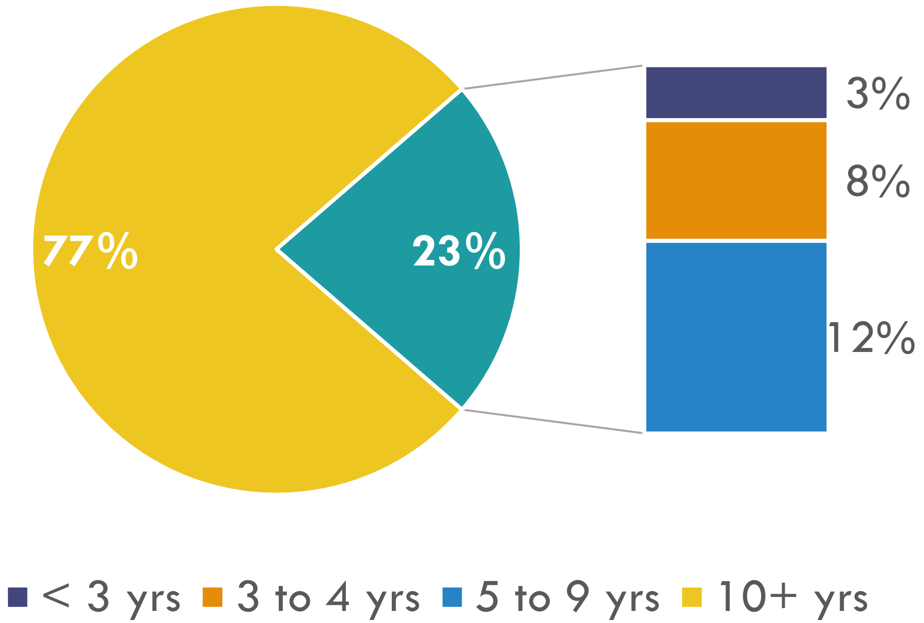
Primary Occupation



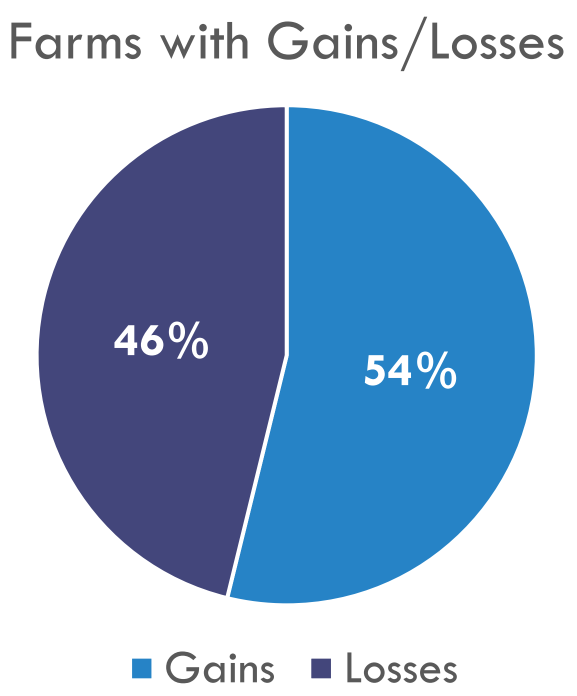
Days Worked Off-Farm

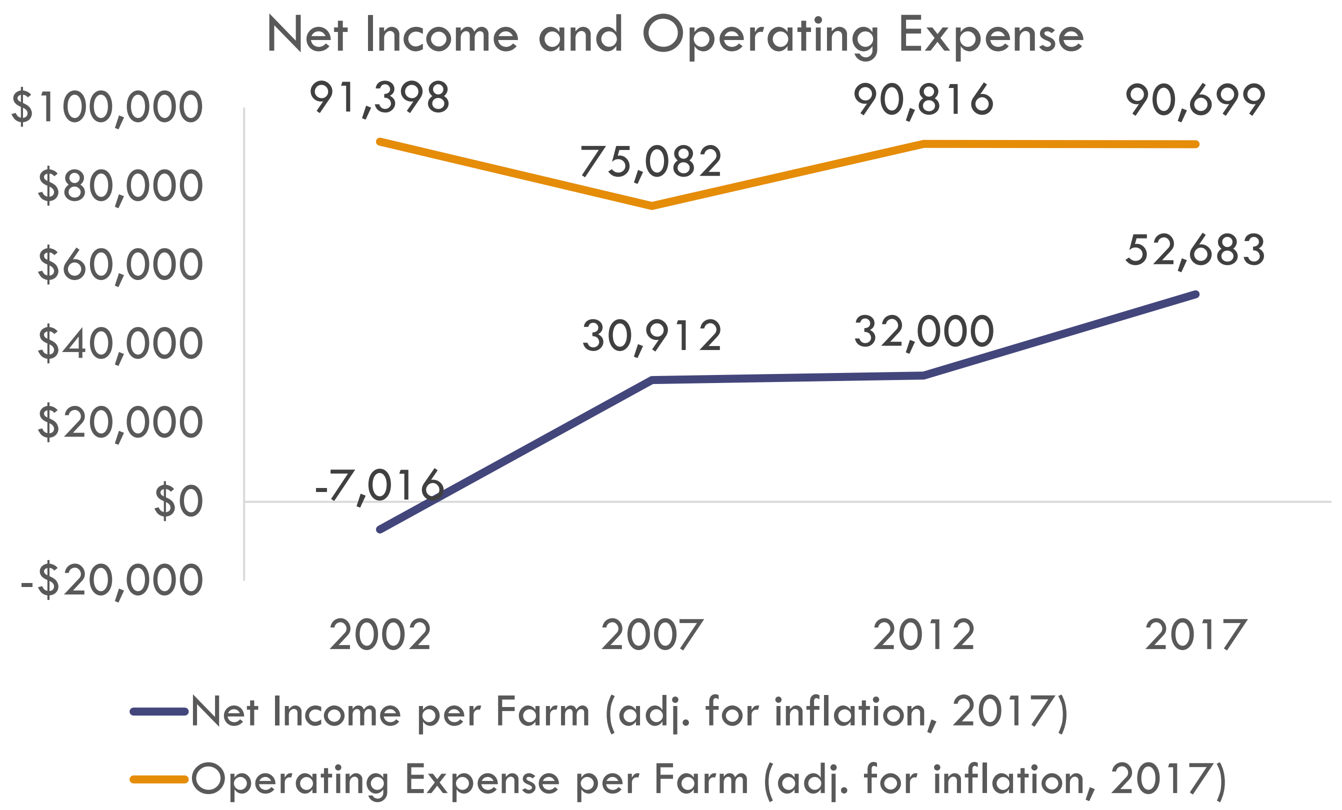


Farmer Experience, 2017



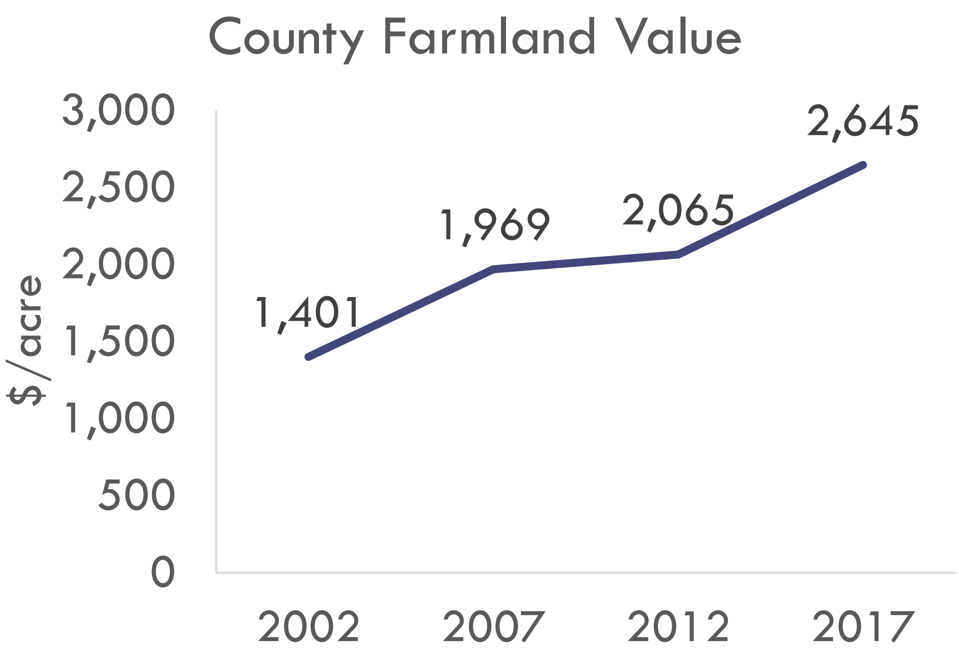
FARM PROFITABILITY





FARMLAND VALUE

County and Region



	2002	2017	% Change
Allegany	$1,056	$2,013	91%
Cattaraugus	$1,293	$2,291	77%
Chautauqua	$1,401	$2,645	89%
Wyoming	$1,341	$3,463	158%

FARM LABOR

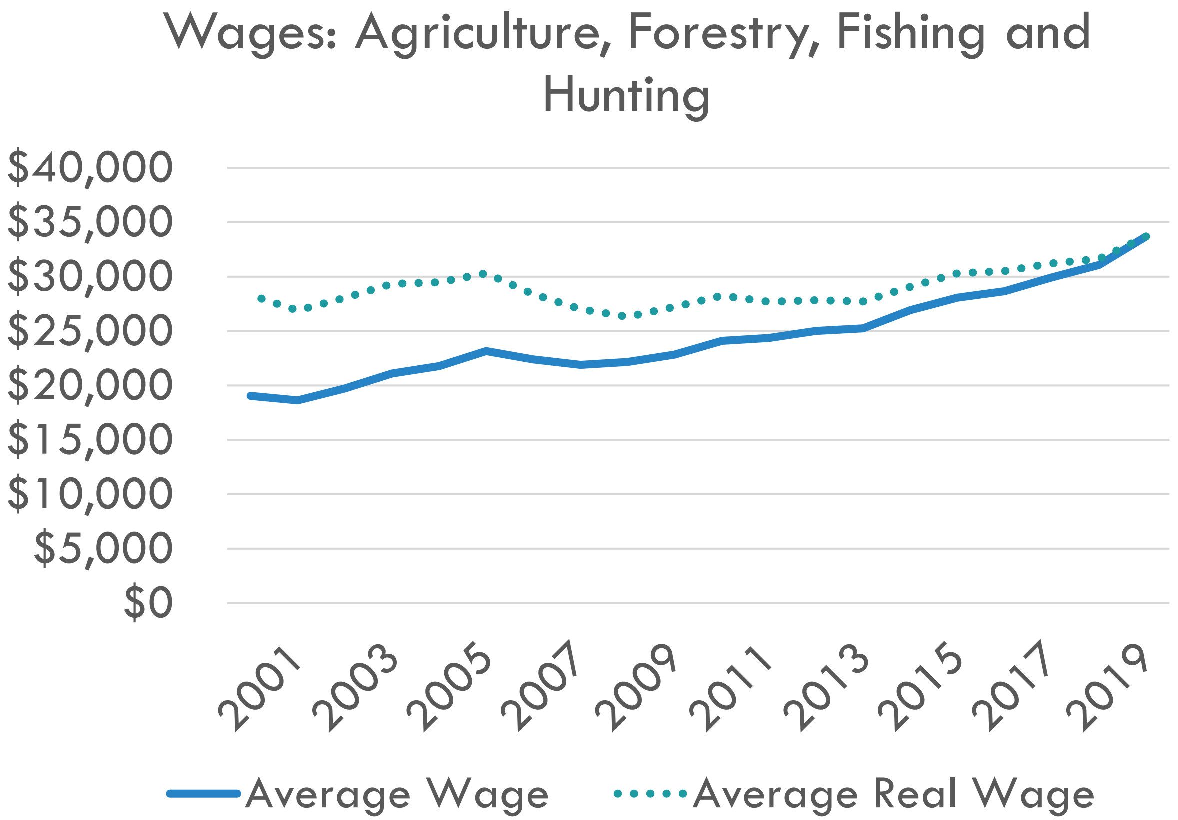
- **50% increase** in labor expenses since 2002
- Labor as share of expenses is 18%
- Decline in hired and contracted labor
- 1,614 unpaid laborers (**-9% since 2012**)
- 166 migrant laborers (**-40% since 2012**)

	2002	2007	2012	2017	% Change
Labor Expenses ($1,000)	13,359	17,862	21,540	20,063	50%
Total Farm Expenses ($1,000)	116,248	105,339	128,945	111,378	-4%
Share of Total Farm Expenses	11%	17%	17%	18%	57%

LABOR

Chautauqua Average Wages for NAICS 11

- Average wages have increased 77% since 2000
- Average real wages have increased 19% since 2000



KEY AGRICULTURAL SECTORS

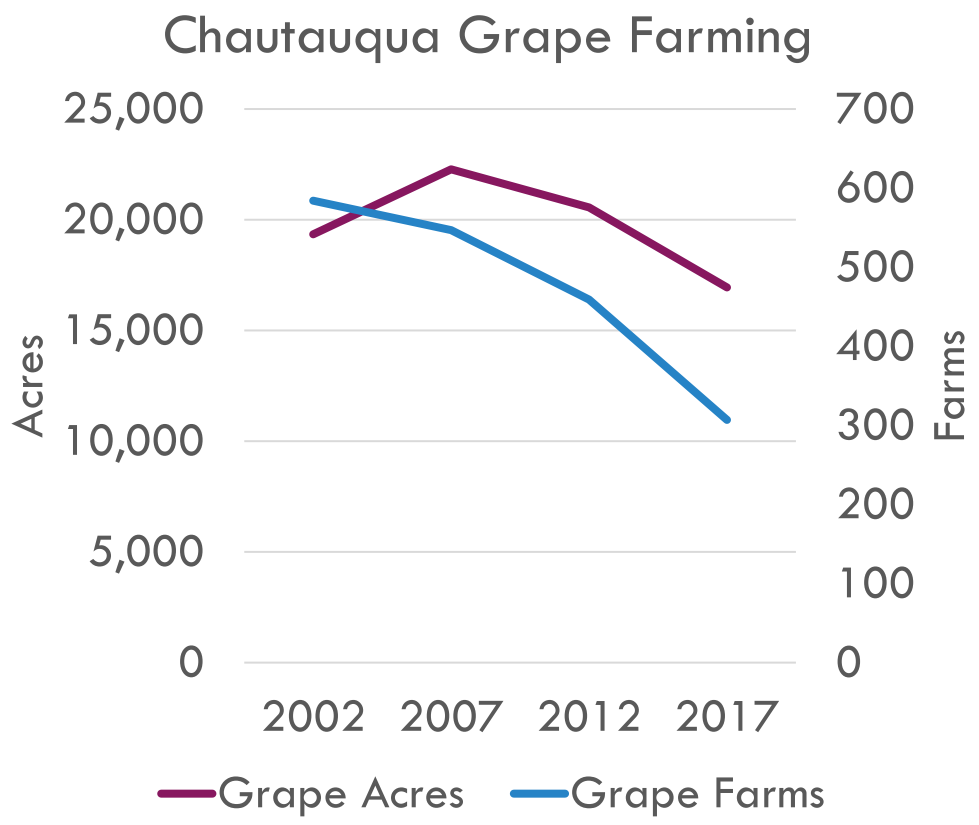
GRAPES

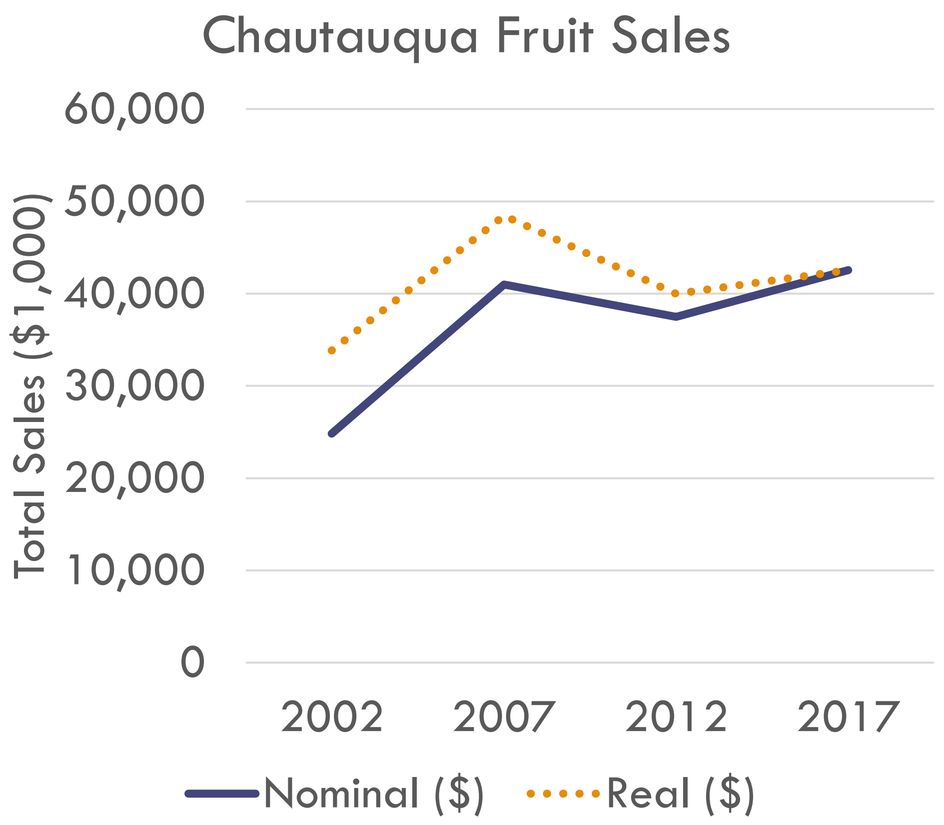
- **13% of the cropland** was dedicated to grapes
- Grapes represents **98% of the fruit acreage**
- 307 vineyards represent **51% of the NY's grape acreage**
- Most is grown for processed products (juice, jam, wine)
- Concord grapes is the predominant variety
- **18% decline** in grape acreage
- **47% decline** in number of grape farms
- **28% increase** in fruit sales (inflation adjusted)
- Grape farms are getting larger
  - Mean acreage in 2002: 35 acres
  - Mean acreage in 2017: 55 acres

Top 10 NY Counties	Grape Acres
Chautauqua	16,953
Yates	5,987
Seneca	2,134
Suffolk	1,815
Niagara	1,067
Erie	1,024
Schuyler	927
Ontario	633
Steuben	529
Cattaraugus	301

GRAPES

Improved Yields and Farm Consolidation





OTHER PRODUCE AND NURSERY PRODUCTION

- Excluding vineyards, there are about **379 acres** of fruits, tree nuts, and berries
- About **3,000 acres** of vegetables and melons
- $5.76 million worth of vegetables sold

- Small and diversified operations
- Mostly fresh market sales
- Data Note: lots of undisclosed data

Crop Acreage	2002	2007	2012	2017	% Change from 2002	% Change from 2007
Fruits	19,670	22,662	21,050	17,332	-12%	-24%
Orchard	19,670	22,550	20,937	17,131	-13%	-24%
Non-Citrus	--	22,536	(D)	17,120	n/a	-24%
Tree Nut	--	15	(D)	11	n/a	-27%
Berries	--	112	113	201	n/a	79%
Vegetables & Melons	2,439	3,070	3,403	2,977	22%	-3%

OTHER PRODUCE AND NURSERY PRODUCTION

Horticultural Sales

- Mostly nursery and floriculture sales
- High location quotients (LQ) for firms and employment for the horticultural industry

	New York	Chautauqua
Horticulture Total	$385,792,000	$2,932,000
Floriculture	184,654,953	986,190
Nursery	121,595,323	1,810,000
Greenhouse Vegetables & Fruits	38,959,184	120,690
Propagative Material	19,931,182	(D)
Sod	18,213,810	0
Mushrooms & Mushroom Spawn	2,124,970	(D)
Bulbs & Corms & Rhizomes & Tubers, Dry	167,072	0
Aquatic Plants	74,087	(D)
Flower Seeds	71,084	0
Short Term Woody Crops	(D)	(D)

HAY, GRAINS, SOYBEANS, AND OTHER CROPS

- Hay, grains, and soybeans represent **80% of the cropland acreage**
- Decline in hay production and productivity
- Hay sales increased **11% CAGR** since 2002
- Grains and oilseed sales increased **15% CAGR** since 2007

	2002	2007	2012	2017	% Change
Farms	846	761	690	616	-27%
Acres	68,601	59,290	56,990	46,042	-33%
Dry Tons	188,959	157,571	133,880	120,064	-36%

HAY, GRAINS, SOYBEANS, AND OTHER CROPS

Shift Towards Grains and Soybeans

Crop Acreage	2002	2007	2012	2017	% Change
Corn Silage	14,956	12,836	13,876	16,113	8%
Corn	8,986	8,026	12,937	14,277	59%
Soybeans	1,034	755	4,619	4,639	349%
Oat	997	1,138	1,042	1,099	10%
Wheat	338	129	356	1,061	214%
Sorghum Silage	85	84	253	(D)	n/a
Rye	223	(D)	211	(D)	n/a
Barley	88	44	(D)	(D)	n/a
Sorghum	(D)	0	0	(D)	n/a
Grains & Soybeans	**26,707**	**23,012**	**33,294**	**37,189**	**39%**

DAIRY

- Produced about **511 million pounds** of milk in 2017
- **$75 million** in milk sales in 2017
- Most milk leaves the county for processing plants in Buffalo, Erie, Cleveland, and Pittsburgh

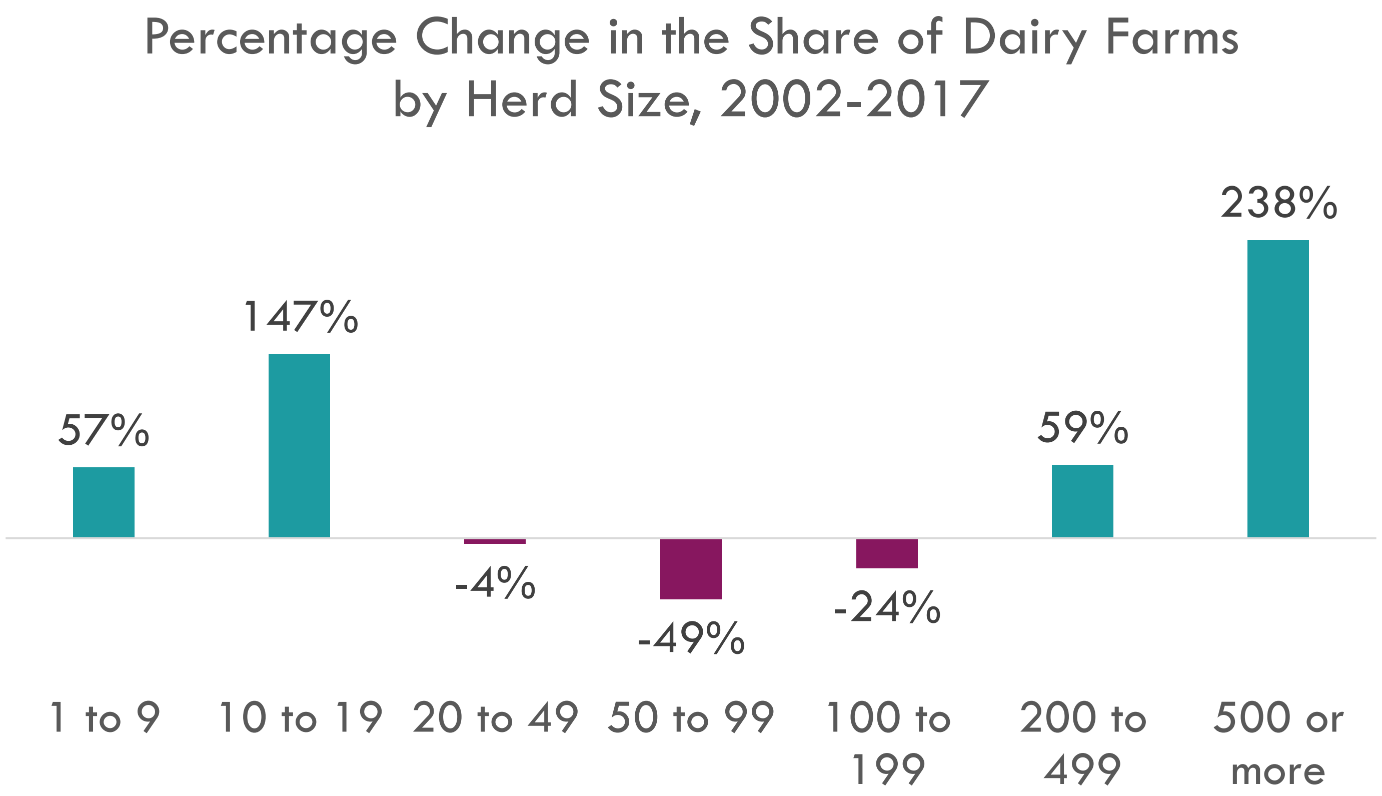
- **41% decline** in dairy farms
- **17% decline** in dairy cows
- **40% increase** in average herd size

	2002	2007	2012	2017	% Change
Dairy Farms	308	229	223	182	-41%
Cow Inventory	26,885	22,324	21,940	22,217	-17%
Cows per Farm	87	97	98	122	40%

DAIRY

Pressure to Consolidate or Exit

- Share farms with fewer than 20 cows **increased 79%**
- Share of farms with more than 200 cows **increased 101%**
- Share of farms with 20 to 199 cows **decreased 27%**



CATTLE AND OTHER LIVESTOCK

Declines in Cattle Raising

- Other cattle sales contributed **$11.4 million** in sales in 2017
- **26% decline** in cattle farms
- **15% decline** in cattle inventory
- **28% decline** in farms with cattle sales
- **27% increase** in cattle sales

	2002	2007	2012	2017	% Change
Cattle & Calves	51,552	43,921	48,947	43,922	-15%
Cows	26,885	22,324	21,940	22,217	-17%
Dairy	24,008	19,039	19,381	18,888	-21%
Beef	2,877	3,285	2,559	3,329	16%
Other Cattle	24,667	21,597	27,007	21,705	-12%

Cattle & Calves	2002	2007	2012	2017	% Change
Farms with Sales	502	435	404	363	-28%
Inventory Sold	21,898	17,687	19,090	18,502	-16%
Value of Sales ($1,000)	9,010	9,674	13,664	11,443	27%

CATTLE AND OTHER LIVESTOCK

Sheep and Goats

- Part of small, diversified operations
- Sales of sheep and goat products **increased 130%** from 2012
- Raising sheep and goats is becoming more popular

	2002	2007	2012	2017	% Change
Farms with Inventory					
Sheep	42	57	64	53	26%
Goats	100	99	116	70	-30%
Inventory					
Sheep	891	791	1,192	1,347	51%
Goats	822	1,381	1,307	1,219	48%
Farms with Sales					
Sheep	27	39	43	29	7%
Goats	45	36	62	41	-9%
Inventory Sold					
Sheep	357	548	569	732	105%
Goats	391	488	518	918	135%
Value of Sales ($)	--	--	189,000	434,000	130%

CATTLE AND OTHER LIVESTOCK

Poultry

- Part of small, diversified operations
- A small but growing interest in raising poultry

	2002	2007	2012	2017	% Change
Layers	2,071	5,573	4,809	5,887	184%
Broilers	777	1,237	2,246	2,725	251%
Turkey	207	212	243	665	221%
Ducks	90	454	324	130	44%

	2002	2007	2012	2017	% Change
Farms w/ Broiler Sales ($)	14	26	36	30	114%
Broilers Sold	2,980	8,616	4,523	4,228	42%
Farms w/ Turkey Sales ($)	7	12	18	18	157%
Turkeys Sold	379	561	356	1,309	245%
Farms w/ Duck Sales	5	16	7	1	-80%
Ducks Sold	111	254	266	(D)	n/a
Poultry & Eggs Sales ($)	(D)	231,000	(D)	(D)	n/a

AGRITOURISM AND ADDING VALUE

Growing Agritourism

- Agritourism in Chautauqua County and the region has been growing rapidly over the last decade
- Significant growth between 2002 and 2012
- **33% decline** between 2012 and 2017

- Trails, tours, and events:
  - Maple Weekend Tour
  - Fredonia Farm Festival
  - Lake Erie Wine Country Trail
  - Grape Discovery Center

Agritourism sales	2002	2007	2012	2017	% Change
Farms	12	17	30	22	83%
Revenue	$42,000	$211,000	$395,000	$265,000	531%

AGRITOURISM AND ADDING VALUE

Shift Towards Value-Added Processing and Organic Farming

- Direct-to-consumer sales have been declining or stagnating in many markets across the country since 2012
- The USDA Census of Agriculture no longer has data solely on direct-to-consumer activity; it is merged with value-added activity
- Farms sold **$6.2 million** worth of value-added products
- County **ranks 9th** in New York for value-added sales
- Tremendous increase in organic sales

Direct-to-Consumer	2002	2007	2012	2017	% Change
Farms	178	222	204	--	15%
Sales ($1,000)	1,564	1,636	1,307	--	-16%
CSA Operations	--	9	3	--	n/a

	Farms	Sales ($)
Direct to Consumer (incl. value-added)	176	3,501,000
Wholesale, Direct to Retail/Institution/Food Hub (incl. value-added)	43	2,839,000
Value-Added	62	6,160,000

Organic Production	2002	2007	2012	2017	% Change
Farms	--	27	18	36	33%
Sales ($1,000)	--	1,353	1,528	10,204	654%

FORESTRY & NON-TIMBER FOREST PRODUCTS

- Forestland represents **52% of the county's total land area**
- About **25% of the agricultural land** is categorized as woodland
- County has 705,197,124 cubic feet of timber
- **38% of the timber inventory** is maple trees
- **$1.12 million** in maple product sales

Top Species	Cubic Feet
Soft maple	145,947,230
Hard maple	124,513,725
Other eastern soft hardwoods	115,645,200
Ash	94,290,961
Eastern hemlock	61,012,619
Cottonwood and aspen	52,175,455

	2002	2007	2012	2017
Taps	57,401	39,899	52,836	124,156
Farms with Sales	--	--	53	62
Farms with Taps	58	52	53	62
Production (gal)	8,771	6,254	11,114	37,114
Sales ($)	--	--	386,000	1,122,000

FORESTRY & NON-TIMBER FOREST PRODUCTS

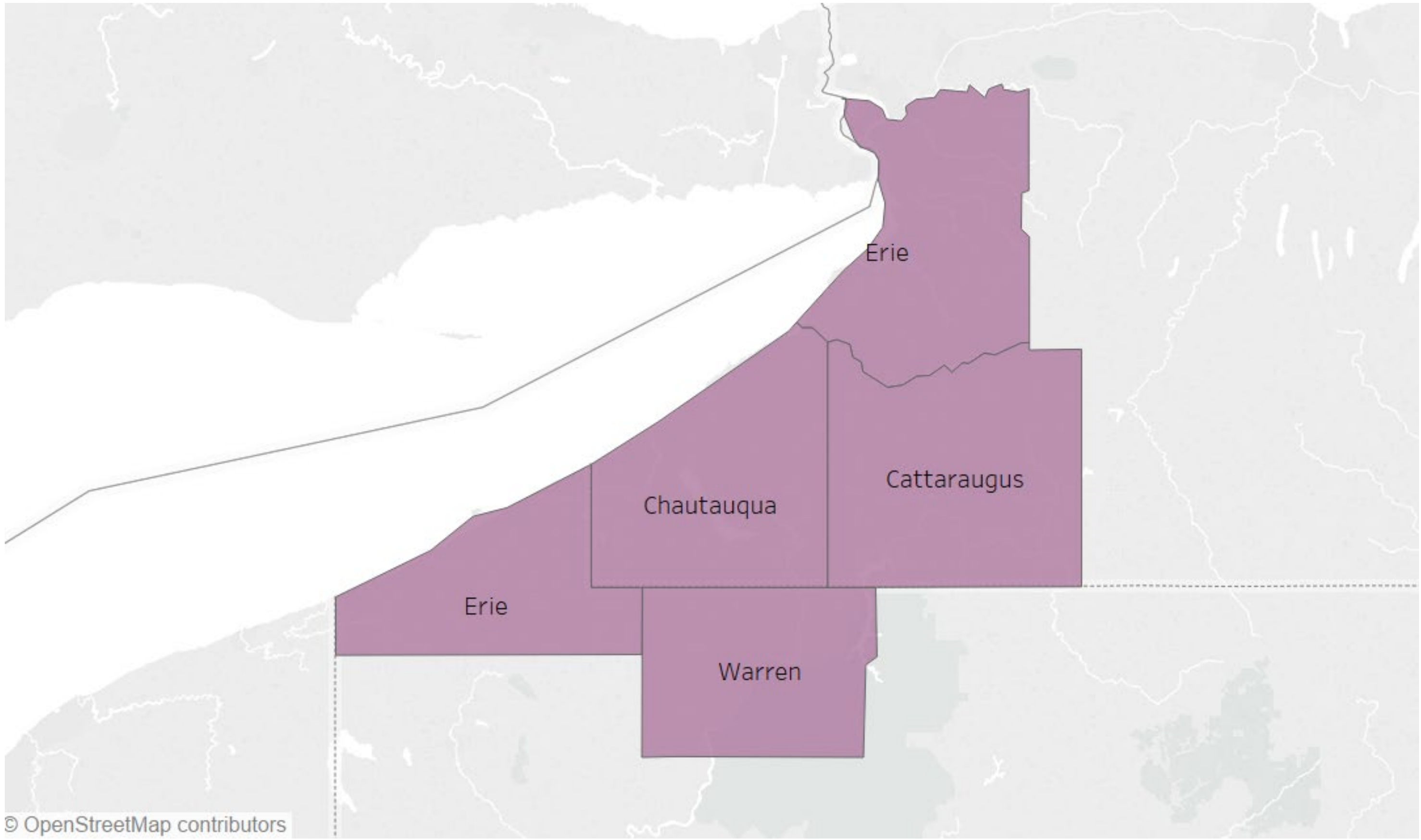
Christmas Trees and Short-Term Woody Crops

- Lots of undisclosed data
- General decline in production

	2002	2007	2012	2017
Farms with Sales	23	10	12	13
Sales ($)	(D)	25,000	(D)	26,000
Acres in Production	1,255	409	100	>137
Farms with Production	65	29	22	25

PROCESSING & MANUFACTURING

THE REGION


Erie
Chautauqua
Cattaraugus
Erie
Warren
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FOOD MANUFACTURING

Summary

Industry	Firms	Employees	Revenue
Animal food manufacturing	5	315	$6,708,128
Grain and oilseed milling	11	319	$2,824,422
Sugar and confectionery product manufacturing	24	392	$261,109,226
Fruit and vegetable preserving and specialty food manufacturing	28	2,283	$1,329,244,881
Dairy product manufacturing	23	1,642	$1,800,150,567
Animal slaughtering and processing	26	343	$127,232,457
Seafood product preparation and packaging	3	6	$302,058
Bakeries and tortilla manufacturing	173	2,116	$228,606,711
Other food manufacturing	41	1,786	$4,244,773,325
Total food manufacturing	**334**	**9,202**	**$8,000,951,774**

FRUIT AND VEGETABLE PRESERVING / SPECIALTY FOOD MANUFACTURING

- Most of the processing capacity in the region is dedicated to grapes
- No co-packing or light / pre-processing facilities available

Industry	Firms	Employees	Revenue
Frozen fruit, juice, and vegetable mfg.	2	8	$83,029
Frozen specialty food mfg.	6	611	$56,686,336
Fruit and vegetable canning	18	1,661	$1,272,235,514
Specialty canning	2	3	$240,002
Total	**28**	**2,283**	**$1,329,244,881**

ALCOHOLIC BEVERAGE MANUFACTURING

- Most of the economic contribution comes from wineries
- Many are farm wineries
- 11 farm wineries in Chautauqua County

Industry	Firms	Employees	Revenue
Breweries	11	94	$9,774,759
Wineries	44	240	$21,585,919
Distilleries	14	51	$2,603,048
Total	**69**	**385**	**$33,963,726**

DAIRY PRODUCT MANUFACTURING

- Most of the milk produced in the county and the region goes toward fluid milk manufacturing
- Key buyers include: Upstate Niagara Cooperative, Lactalis, Nestle

Industry	Firms	Employees	Revenue
Fluid milk mfg.	6	130	$1,037,487,385
Cheese mfg.	4	612	$552,868,747
Dry, condensed, and evaporated dairy product mfg.	6	224	$818,246
Ice cream and frozen dessert mfg.	7	676	$208,976,189
Total	**23**	**1,642**	**$1,800,150,567**

ANIMAL SLAUGHTER AND PROCESSING

- Only three USDA inspected facilities in Chautauqua County
- Mostly small-scale operations
- Facilities in adjacent counties focus on prepared food products, deli meats, and hot dogs
- Bottleneck for growers looking to sell primals, sub-primals, cuts, boneless/skinless parts, or whole birds

Industry	Firms	Employees	Revenue
Animal (except poultry) slaughtering	9	113	$15,194,472
Meat processed from carcasses	15	203	$111,159,757
Rendering and meat byproduct processing	1	19	(D)
Poultry processing	1	8	$878,228
Total	**26**	**343**	**$127,232,457**

GRAIN AND OILSEED MILLING / ANIMAL FOOD MANUFACTURING

- Major flour mill operations:
  - ADM
  - General Mills
- Major animal and pet feed manufacturers:
  - Cargill
  - Gramco
  - Nestle Purina

Industry	Firms	Employees	Revenue
Flour milling	5	228	$62,381
Malt manufacturing	2	9	$400,763
Fats and oils refining and blending	1	20	$2,120,219
Breakfast cereal manufacturing	3	62	$241,059
Total	**11**	**319**	**$2,824,422**

Industry	Firms	Employees	Revenue
Dog and cat food manufacturing	1	300	(D)
Other animal food manufacturing	4	15	$6,708,128
Total	**5**	**315**	**$6,708,128**

OTHER FOOD MANUFACTURING

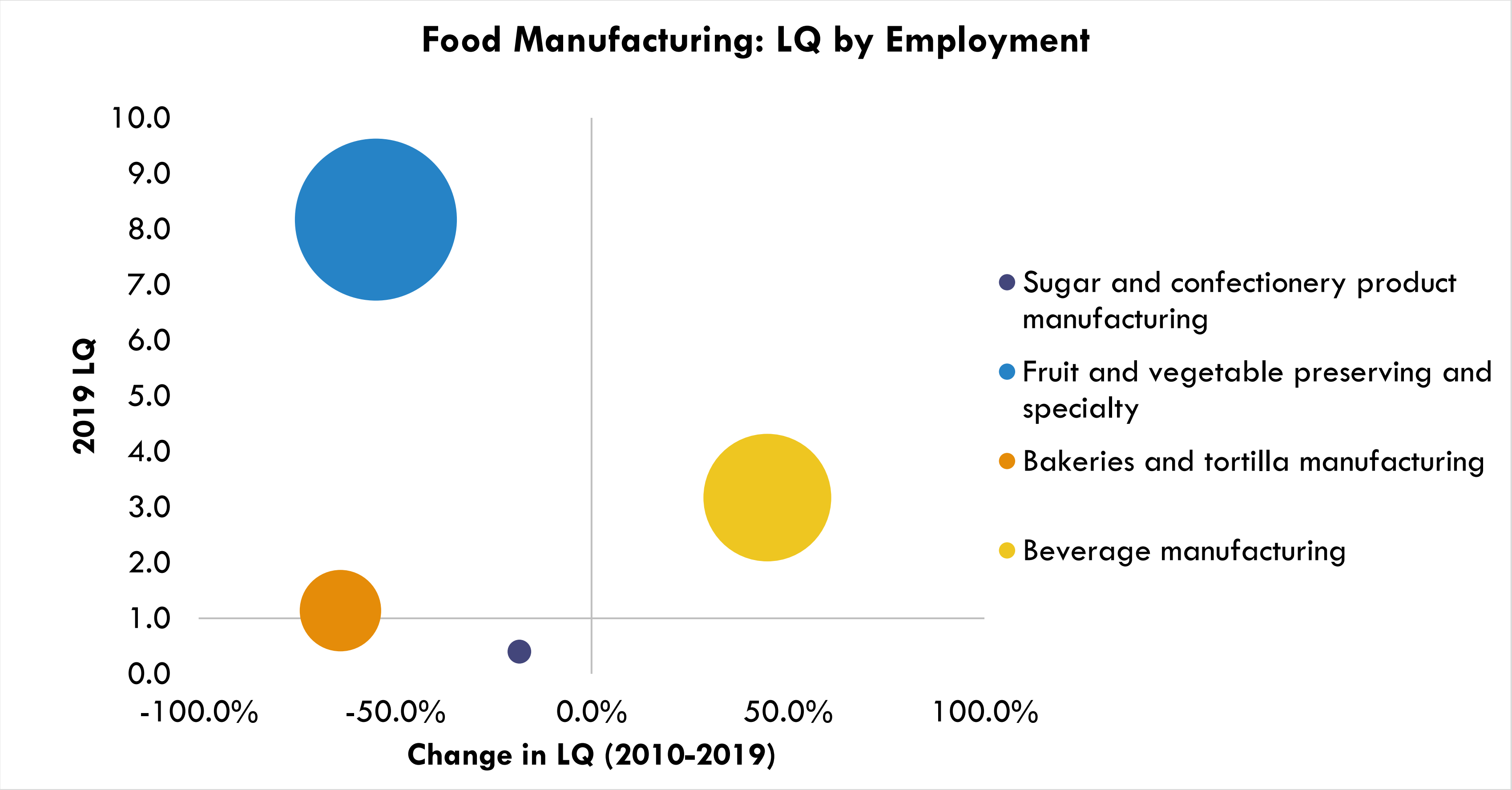
Industry	Firms	Employees	Revenue
Other snack food mfg.	5	45	$5,391,412
Coffee and tea mfg.	3	52	$18,358,997
Flavoring syrup and concentrate mfg.	1	23	$9,000,000
Mayonnaise, dressing, and other prepared sauce mfg.	6	140	$31,519,096
Spice and extract mfg.	4	8	$394,249
All other miscellaneous food mfg.	22	1,518	$4,180,109,571
Total	**41**	**1,786**	**$8,000,951,774**

INDUSTRY CLUSTER ANALYSIS

INDUSTRY CLUSTER ANALYSIS

Location Quotient - Employment

- Lots of undisclosed data at the county level
- Produce processing is at risk for a decline
- Beverage manufacturing is a strong sector



INDUSTRY CLUSTER ANALYSIS

Location Quotient - Firms

- Dairy, animal feed, produce, and beverage manufacturing are important
- Produce processing is potentially at risk
- Other food manufacturing is at risk of decline