

Impacts of Integrated Poultry and Hog Production/Processing: The Economic Story

Jim Pease (Virginia Tech/AAEC)

Dennis Robinson (U of Missouri/CPAC)

Verel Benson (U of Missouri/FAPRI)

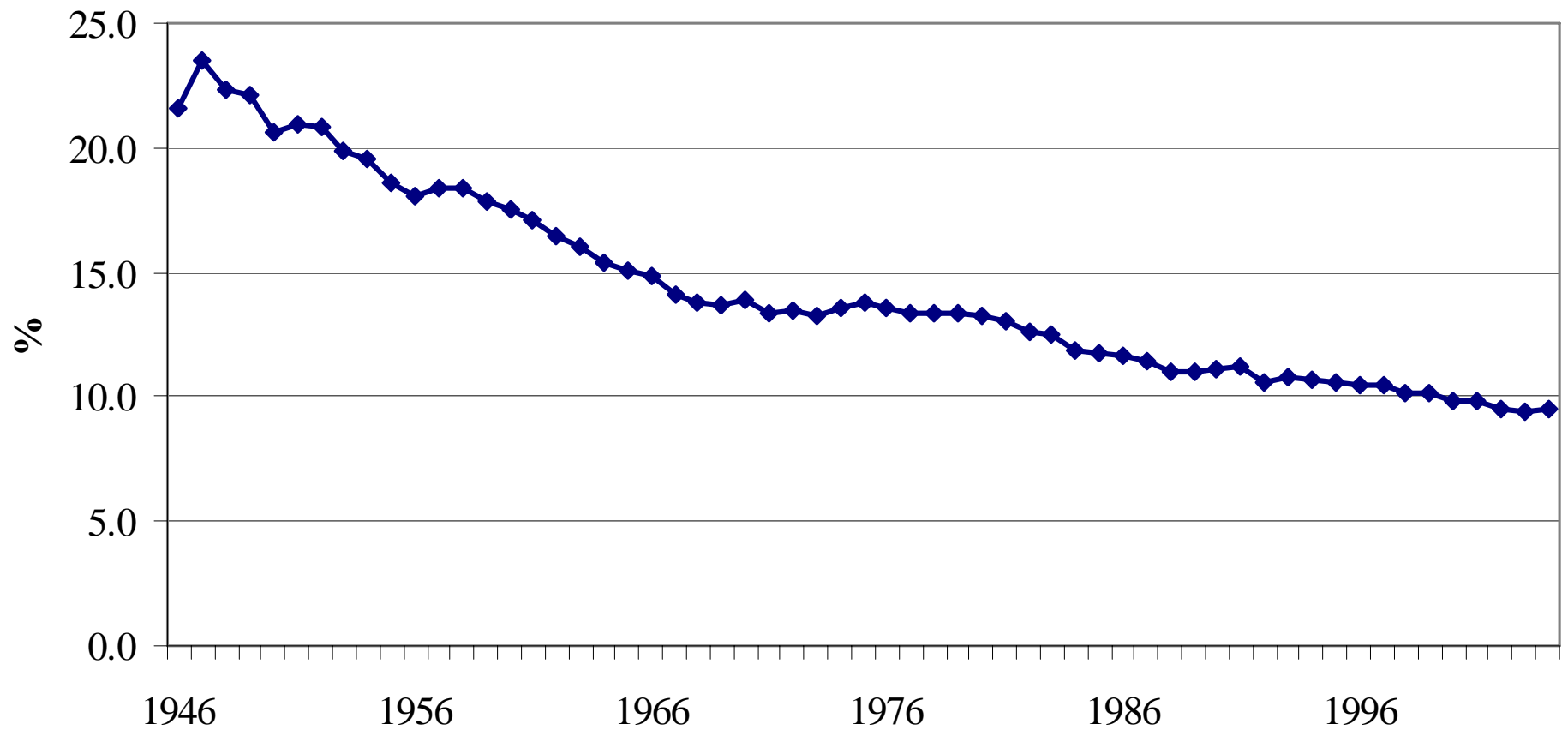
Tom Johnson (U of Missouri/CPAC)

National Public Policy Education Conference

Fayetteville, Arkansas

September 17-20, 2006

Food Purchases Share of Personal Disposable Income, 1946-2004

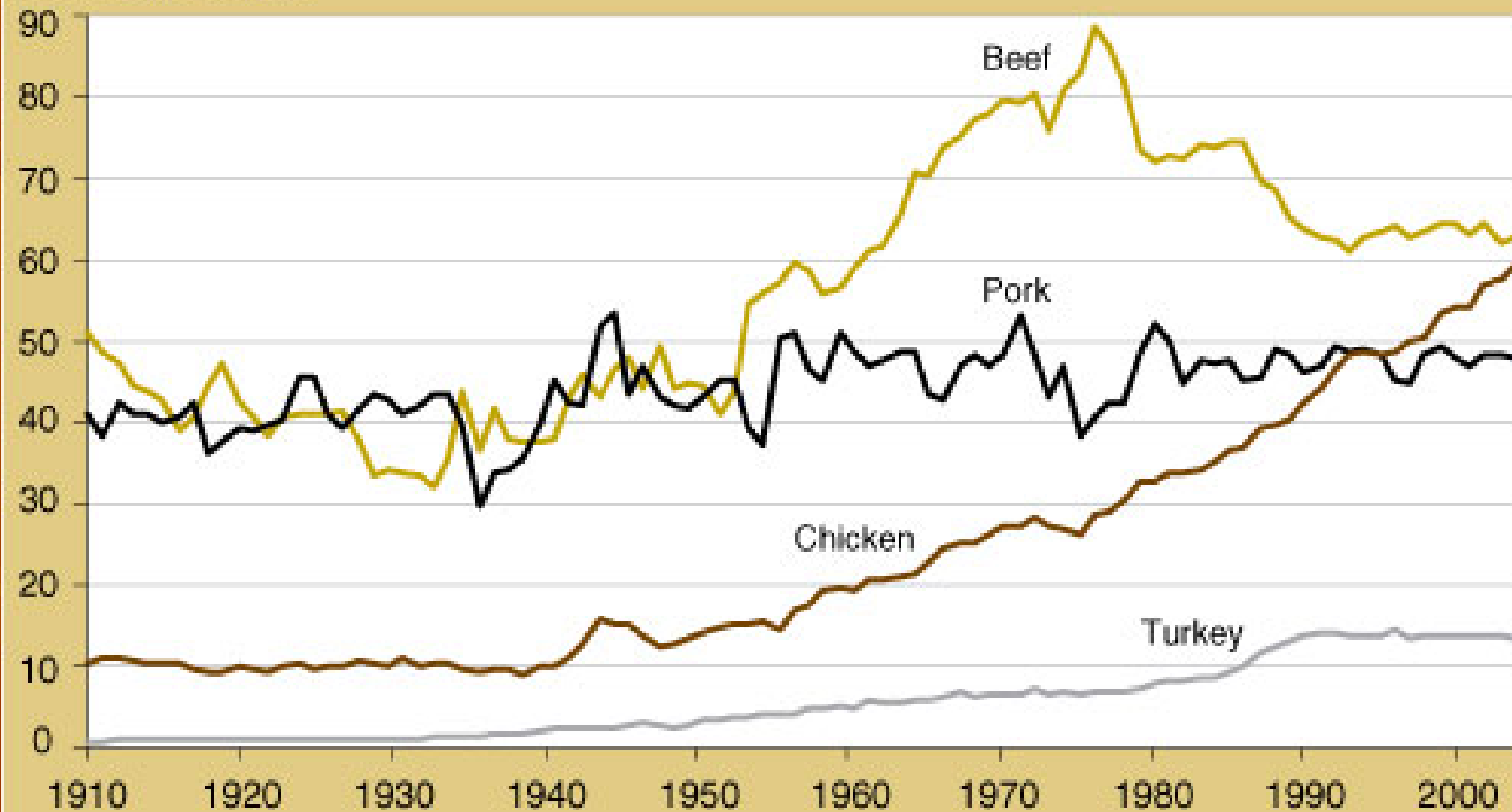


Source: USDA/ERS, <http://www.ers.usda.gov/Data/FoodMarketIndicators/>, accessed Aug 1, 2006

US Per Capita Meat Consumption, 1910-2005

Versatile, affordable chicken has grown in popularity

Pounds per capita



Source: USDA, Economic Research Service, 2005.

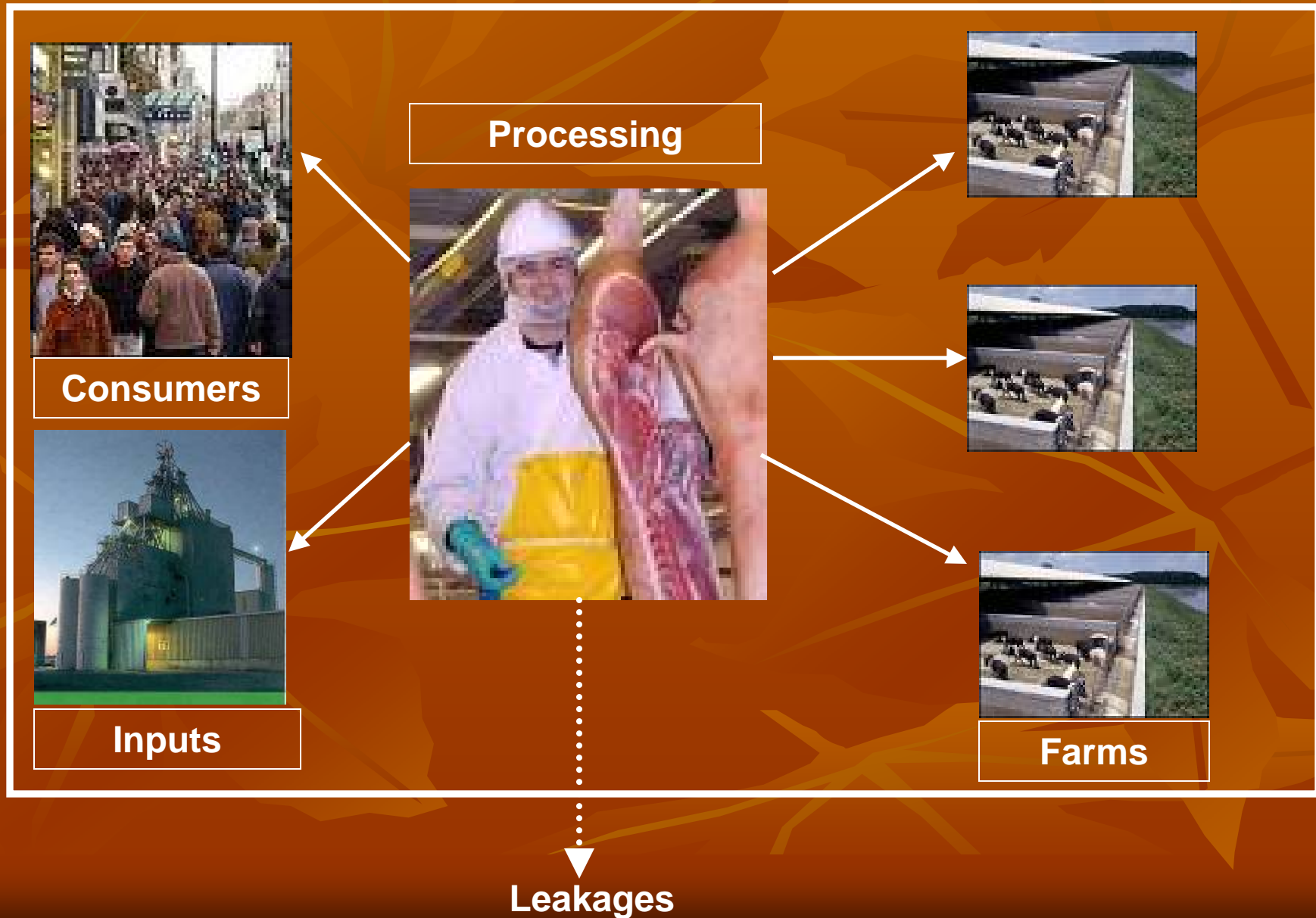
Reported Benefits of Integrated Livestock Production

- Production/processing efficiencies
- Reduced consumer prices
- Decreased supply variability, increased variety/quality of products
- Profitable and low risk farm enterprise
- Increased local tax revenues
- Export earnings
- Substitution of manure for imported fertilizer nutrients

Reported Costs of Integrated Livestock Production

- Loss of independent producers and impacts on local supply businesses
- Low returns and financial risk for producers
- Health impacts on production workers
- Decreased property values and poorer quality of life for rural neighbors
- Deteriorating water quality
- Decreased wages/employment in processing
- Low-paying processing jobs
- Social and local government problems in urban areas around processing plants

Spatial Economic Impacts



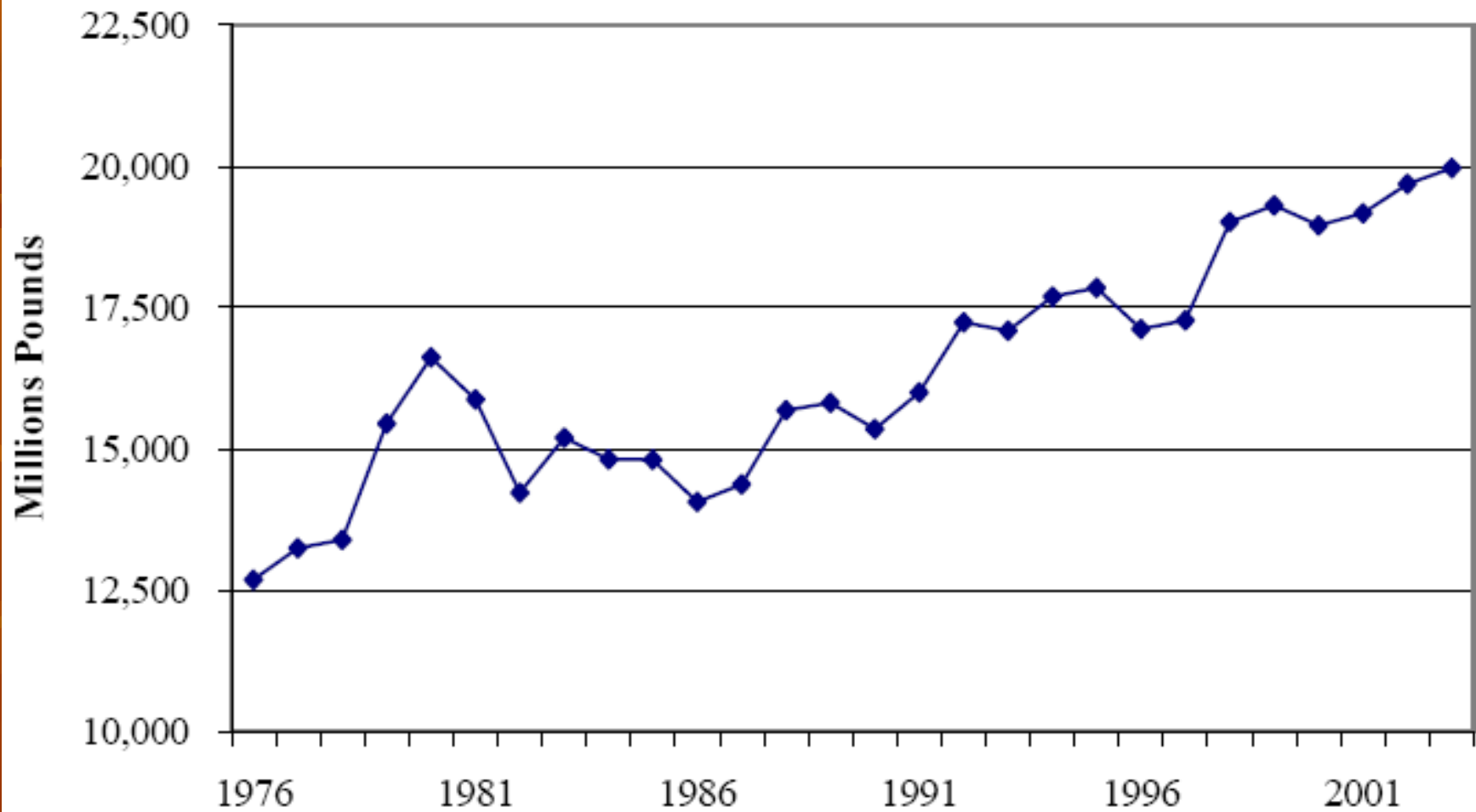
US Economy Perspective



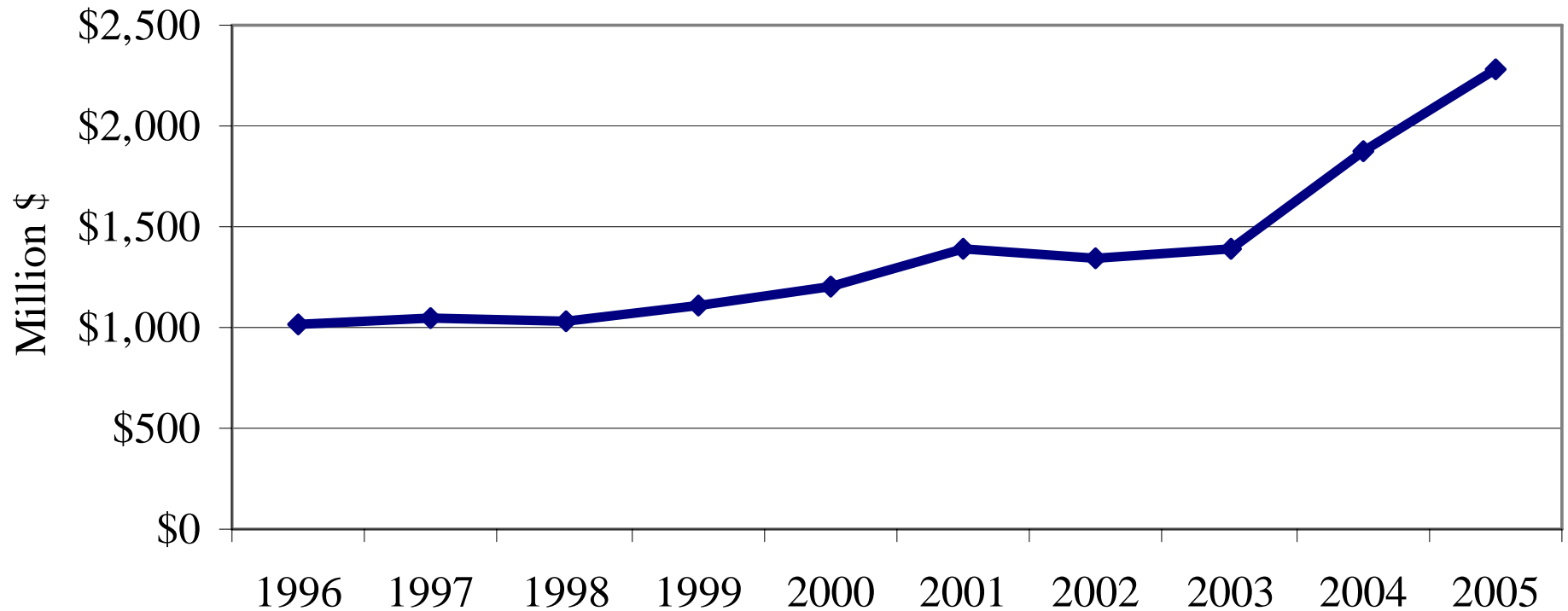
Background US Hog Industry

- 185 million hogs and pigs (sows, boars, piglets, feeders, and market hogs) were sold from 82,000 producing farms in 2002. In 2003, US hog production hit a record 20 billion pounds.
- Between 1987-2002 census years, farms producing hogs & pigs fell by 65% while total hogs & pigs sold increased by 92%
- Sales of total hogs & pigs from farms producing more than 5,000 head increased from 17% (1987) to 81% (2002)
- Approximately 13% of US production was exported in 2005.

US Pork Production



US Pork Export Values, 1996-2005

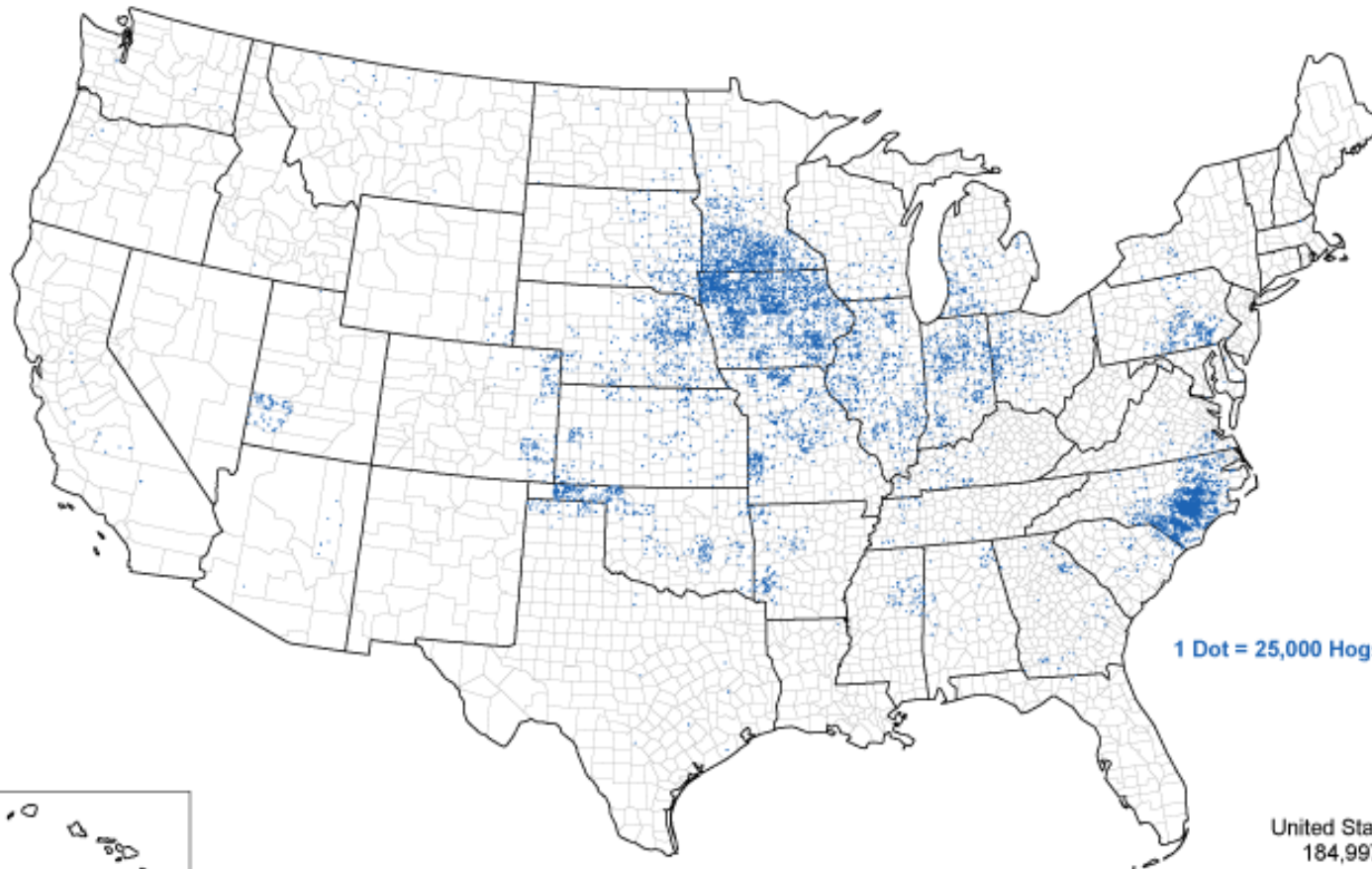


Source: USDA Foreign Agricultural Service BICO reports,
http://www.fas.usda.gov/scriptsw/bico/bico_frm.asp, accessed Aug. 28, 2006

Where the Hogs Are...



Number of Hogs and Pigs Sold: 2002



1 Dot = 25,000 Hogs and Pigs

United States Total
184,997,686

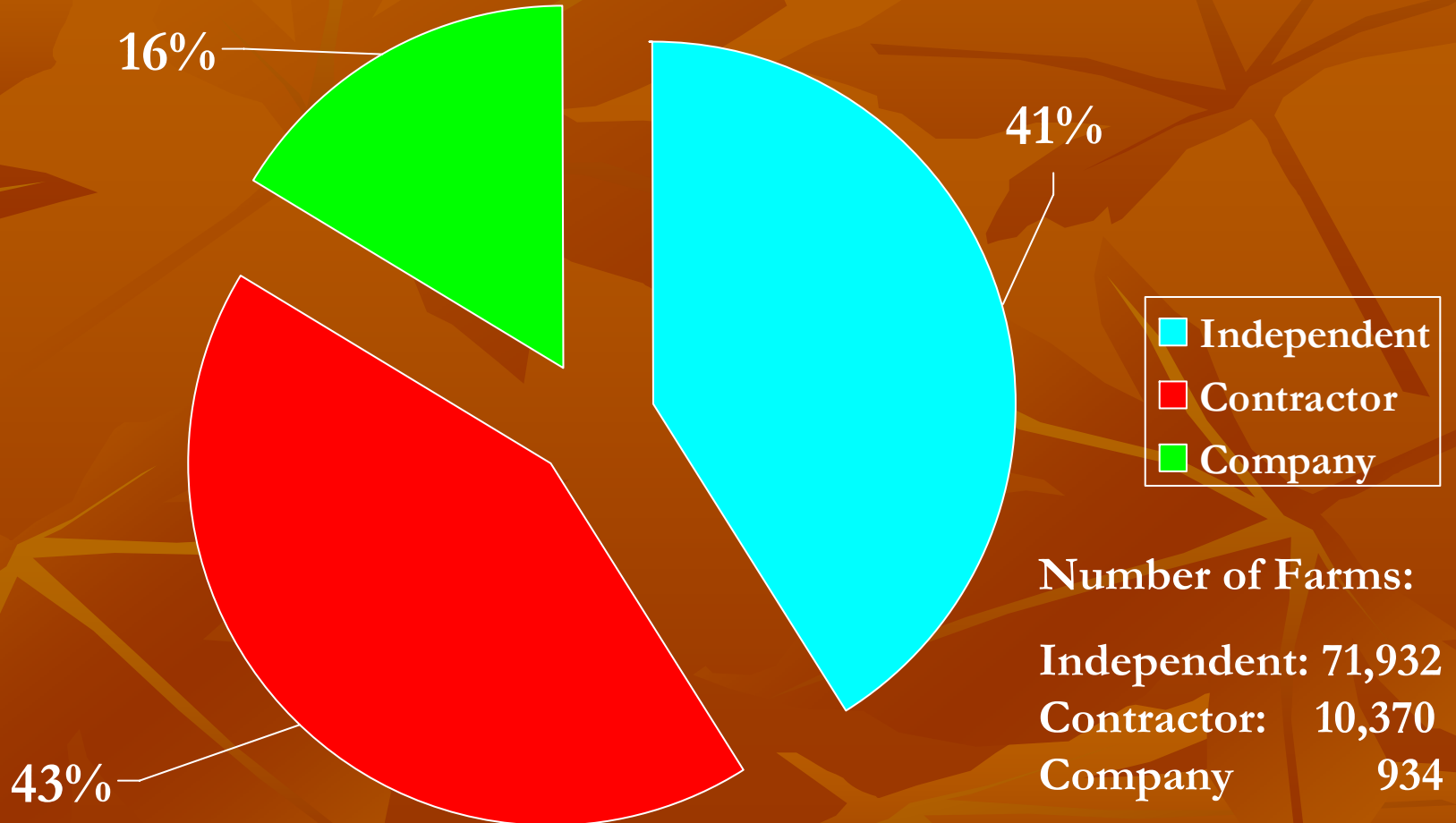


02-M159
U.S. Department of Agriculture, National Agricultural Statistics Service

Top US Hog Companies, 2004

2004 Rank	Company	Headquarters	# Sows 2004
1	Smithfield Foods	Smithfield, VA	808,000
2	Premium Standard Farms	Kansas City, MO	225,000
3	Seaboard Farms	Shawnee Mission, KS	213,600
4	Christensen Farms	Sleepy Eye, MN	144,000
5	Iowa Select Farms	Iowa Falls, IA	130,000
6	Prestage Farms	Clinton, NC	130,000
7	The Pipestone System	Pipestone, MN	100,000
8	Cargill	Minneapolis, MN	99,000
9	Goldsboro Hog Farm	Goldsboro, NC	76,000
10	The Hanor Company	Spring Green, WI	73,500

Total Pigs & Hogs Sold, by Type of Producer, 2002

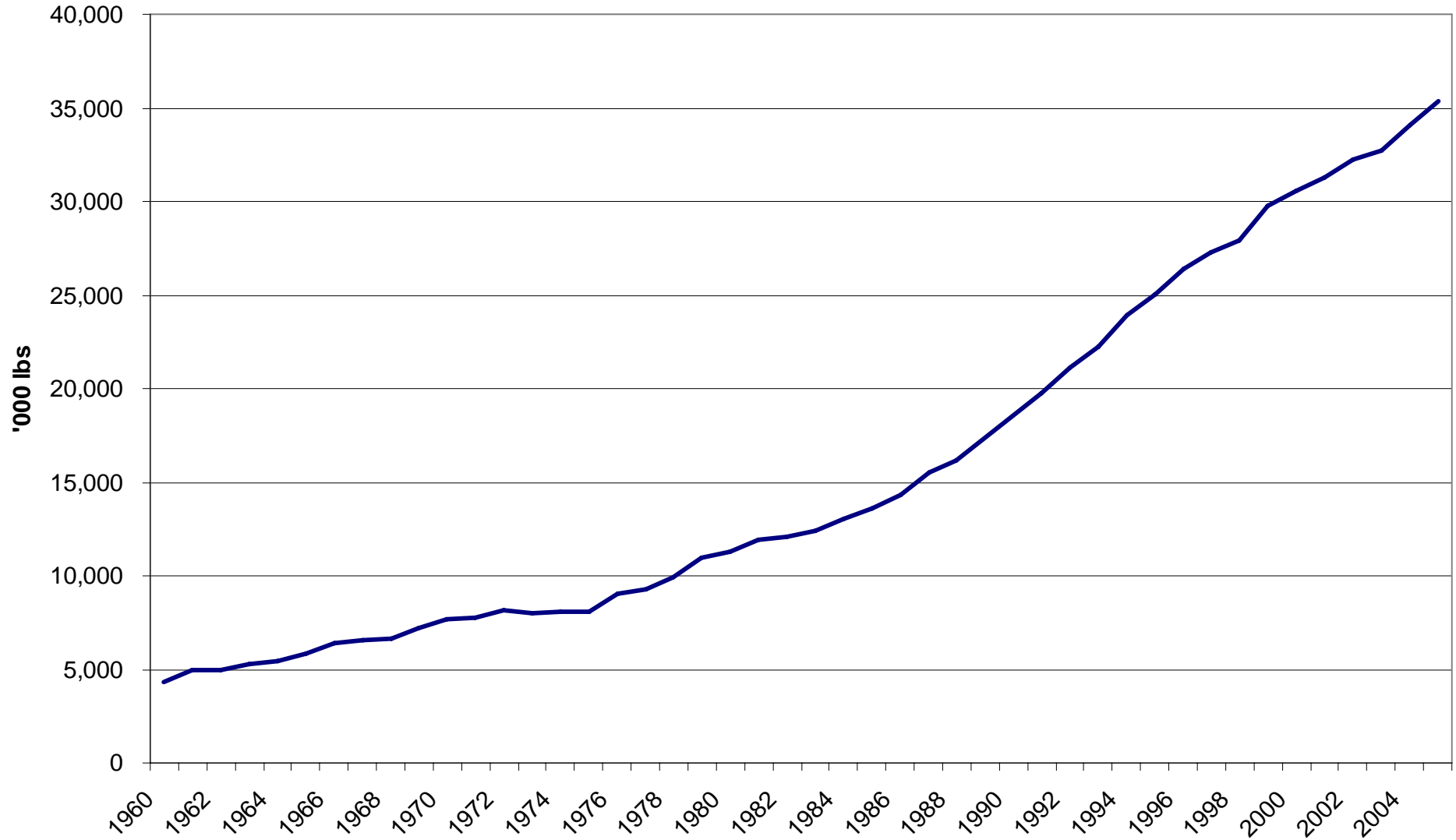


Source: Census of Agriculture

U.S. Broiler Industry 2005

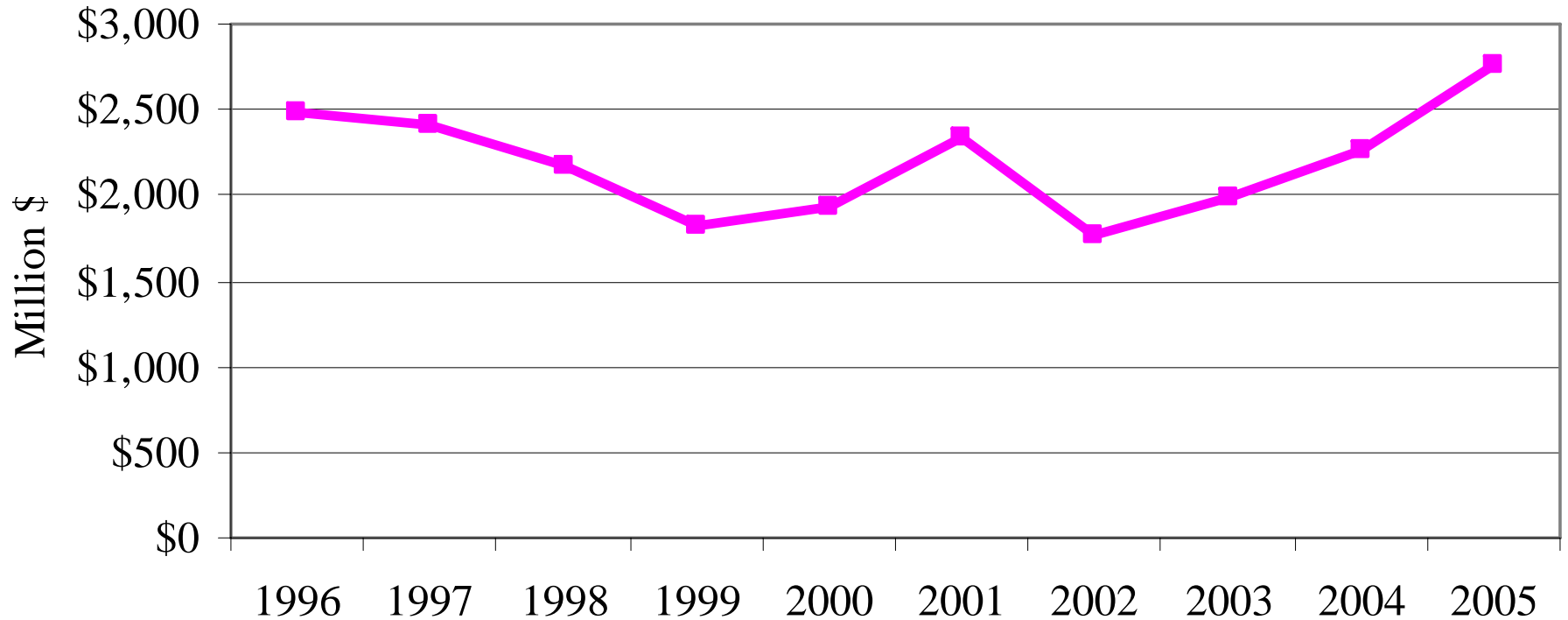
- 32,000 producers
 - 8.9 billion birds produced
 - 35.4 billion pounds
- Value of Production
 - Farm value \$20.9 billion
 - Retail value \$43 billion
- 5.1 billion pounds exported (15% of production), valued at \$2.75 billion

US Broiler Production 1960-2005



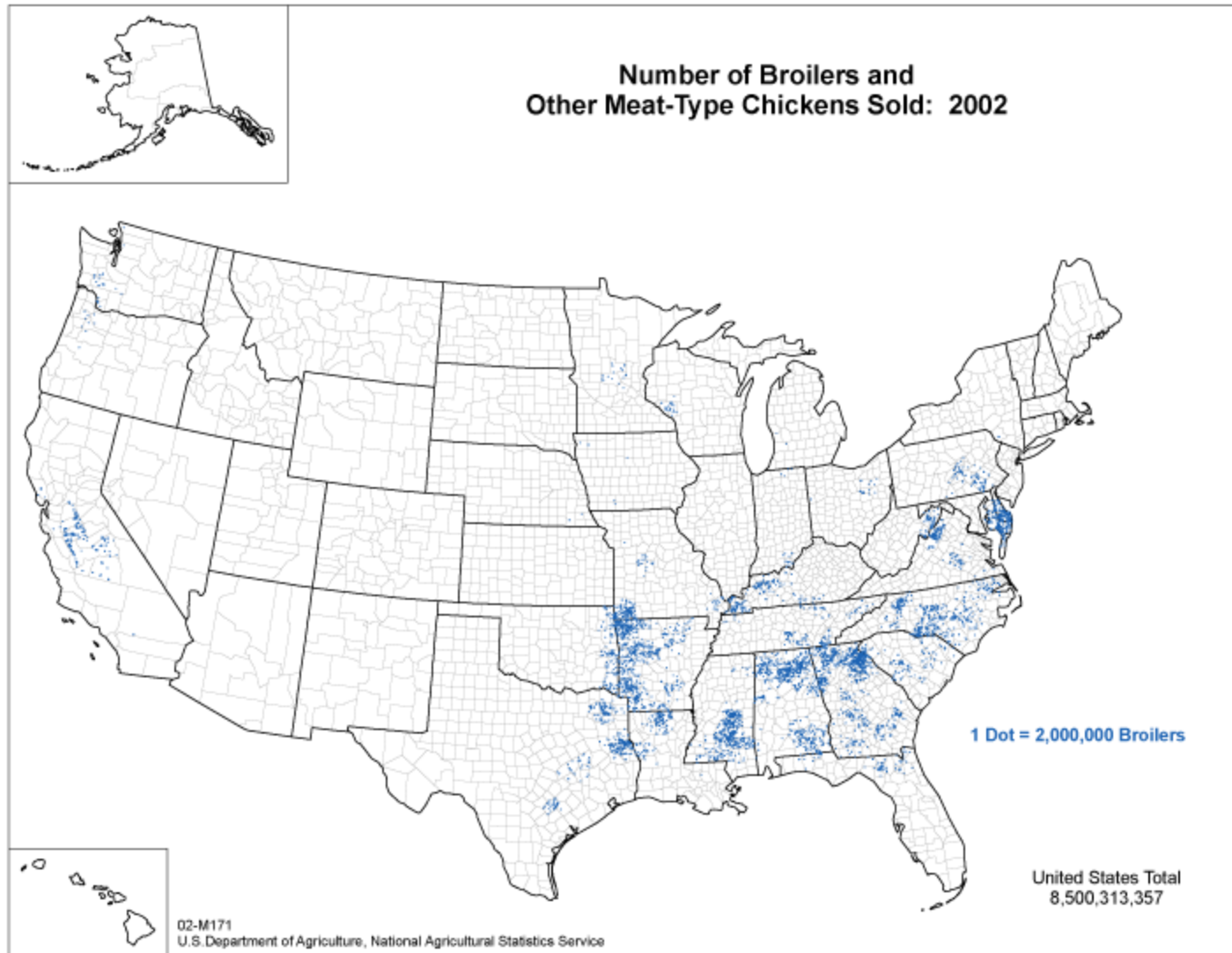
Source: Agricultural Outlook, Statistical Indicators. USDA/ERS
<http://www.ers.usda.gov/Publications/Agoutlook/AOTables/>, accessed Sept 15, 2006

US Poultry Export Values, 1996-2005



Source: USDA Foreign Agricultural Service BICO reports,
http://www.fas.usda.gov/scriptsw/bico/bico_frm.asp, accessed Aug. 28, 2006

Where the Broilers Are...

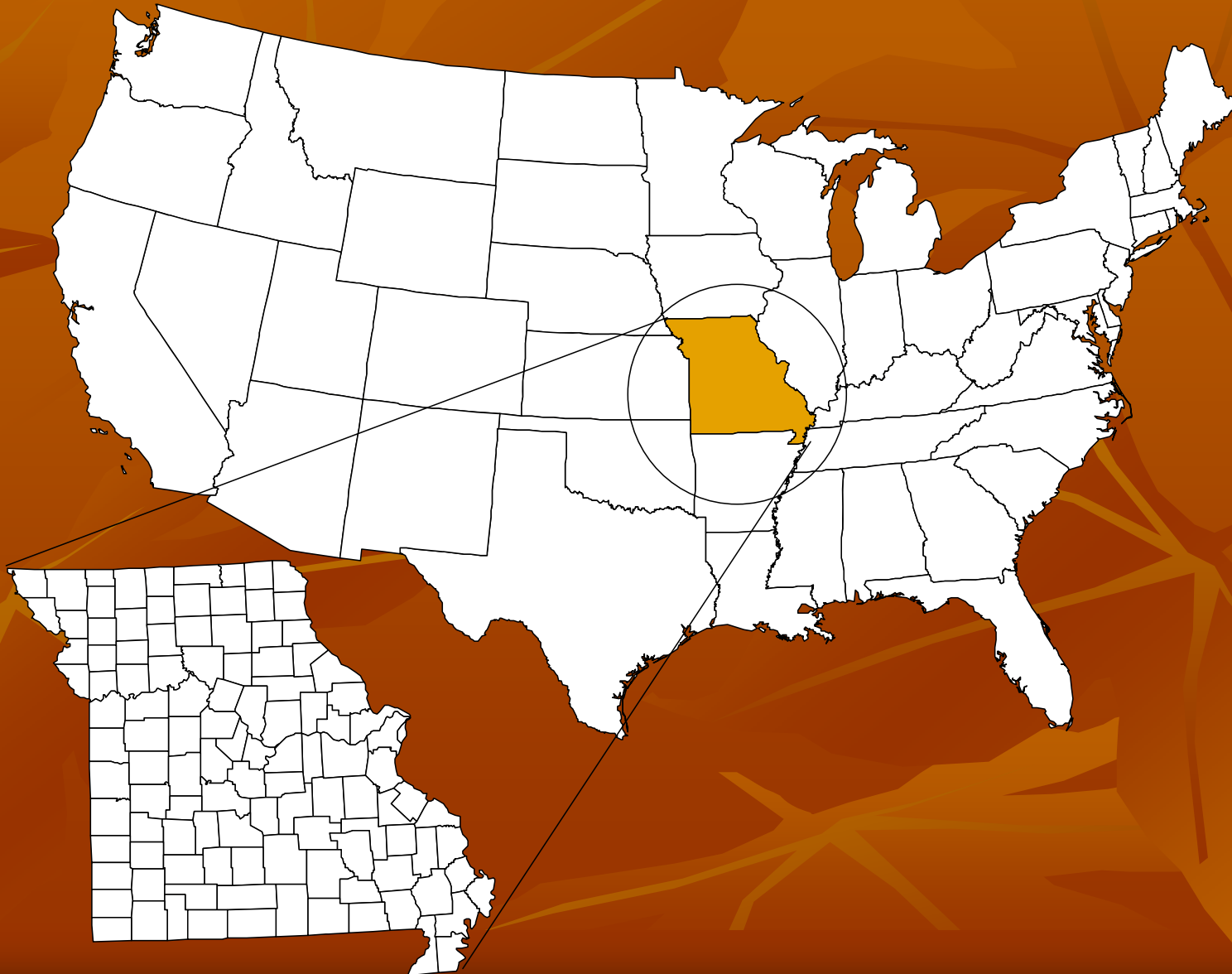


Top 10 US Broiler Processors, 2005

Tyson Foods	151.30
Pilgrim's Pride Corp.	109.06
Gold Kist	61.79
Perdue Farms Inc.	51.32
Sanderson Farms	30.39
Wayne Farms LLC	28.95
Mountaire Farms Inc.	23.44
Foster Farms	16.51
OK Foods Inc.	15.80
Peco Foods Inc.	15.60

Source: US Poultry and Egg Association, <http://www.poultryegg.org/EconomicInfo/index.html>, accessed Aug. 27, 2006
Millions of ready-to-cook pounds

Missouri Agriculture

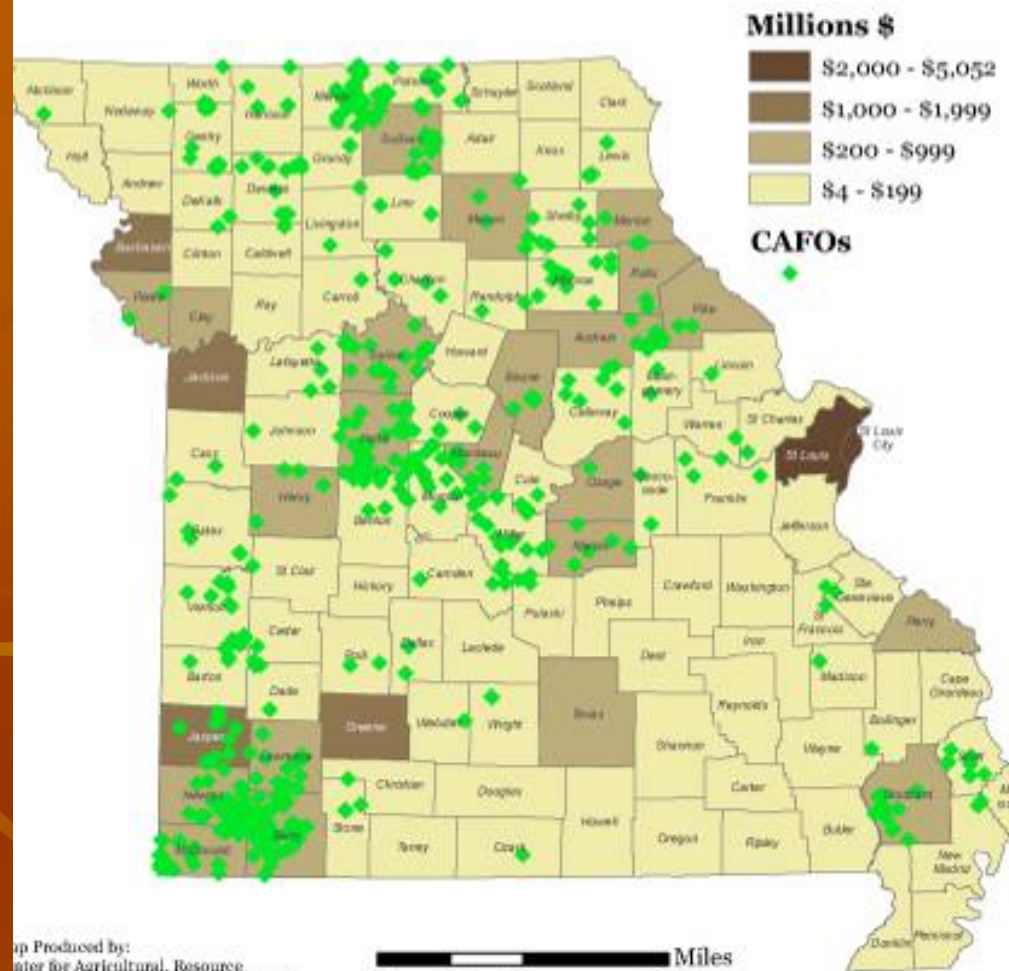


Missouri Agriculture 2002

Item	Farms	Sales (\$1,000)	Rank	Percent of Total Sales
Total sales	106,797	4,983,255	(X)	100.0
Grains, oilseeds	24,793	1,546,535	1	31.0
Cattle and calves	57,957	1,285,288	2	25.8
Poultry and eggs	3,103	784,986	3	15.8
Hogs and pigs	3,752	570,551	4	11.4
Milk	3,233	300,460	5	6.0
Other crops	21,460	139,973	6	2.8
Cotton	596	137,378	7	2.8
Nursery, greenhouse	932	101,316	8	2.0

Total Agriculture Related Business Sales by County, 2005

Showing Concentrated Animal Feeding Operations (CAFOs)



Map Produced by:
Center for Agricultural, Resource
and Environmental Systems (CARES).
August, 2006.

Map Projection:
Universal Transverse Mercator
Projection Coordinate System:
NAD 1983 UTM Zone 15N





Missouri Poultry

Missouri Poultry/Broiler Industry

- 812 producers (2002)
- 273 million birds (2002)
- Principal integrators: Tyson (SW, Central & SE), George's (SW), and Simmons (SW). Broiler processing employment is about 7700, payroll \$157m.
- Poultry production increased by almost seven times over 1987-2002. 50% increase in number of farms producing 1/2 million or more broilers
- State slaughters 50% more broilers than it produces, because of cross-state poultry complexes. Nearly 2400 broiler processing jobs from imported birds.

Economic Impacts of Missouri Poultry Sector, 2002

	Units	Poultry & Eggs	Poultry Processing	Total
Business Sales	\$1000	\$33,469	\$2,135,542	\$2,169,011
Value Added	\$1000	\$14,594	\$798,082	\$812,677
Labor Income	\$1000	\$4,466	\$487,786	\$492,252
Employment	Number	208	14,913	15,122
Sales Taxes	\$1000	\$304	\$22,162	\$22,466
Property Taxes	\$1000	\$243	\$18,770	\$19,014

Missouri Hog Industry

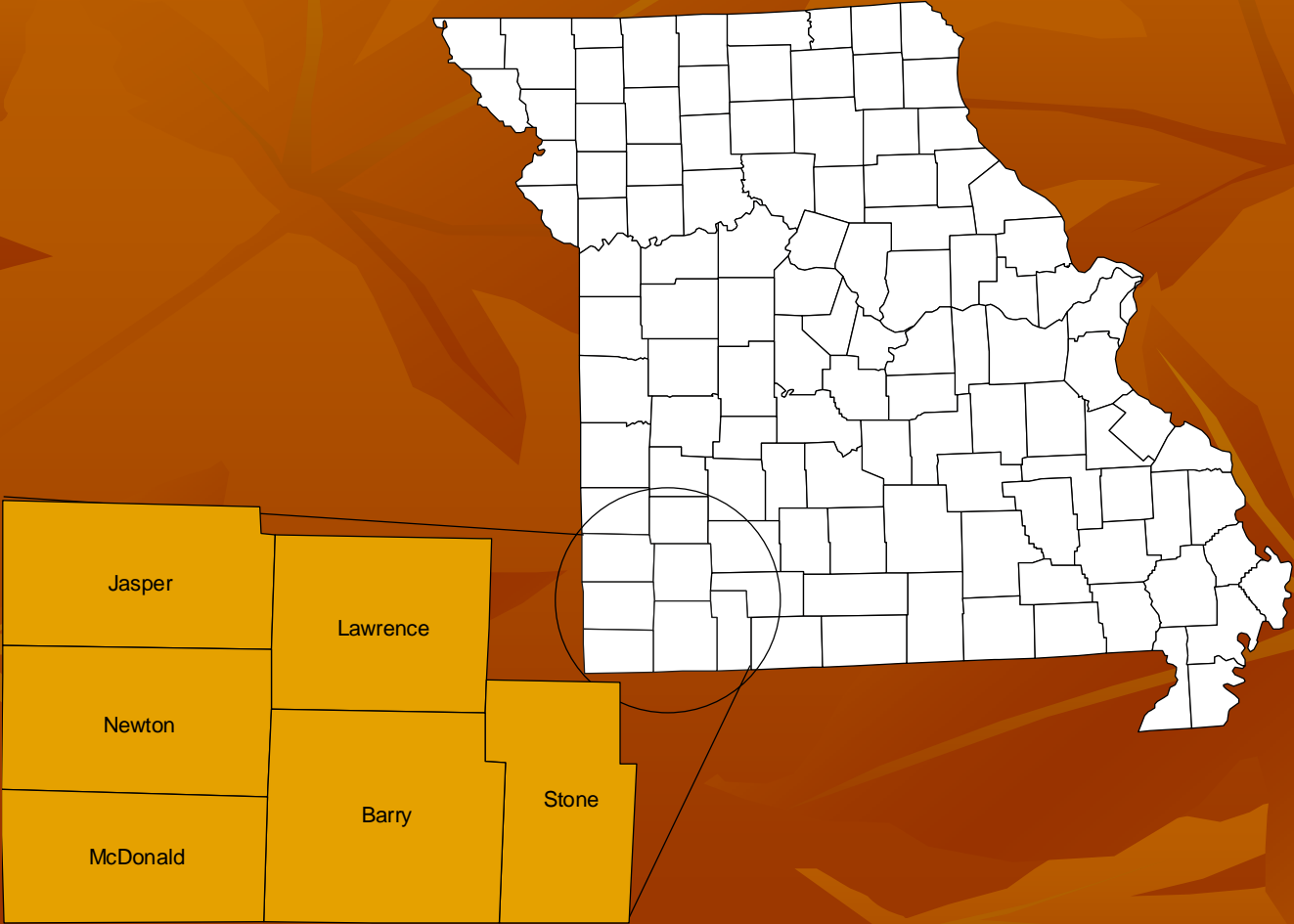
- In 2002, 3,752 farms sold 9,288,986 hogs and pigs, with farm-gate value of \$570 million.
- The number of hogs and pigs marketed increased by 47% from 1993-2003. Hog production has concentrated in the north and north central regions of the state.
- The number of hog producers fell by 29% between 1997-2002, and the number of hogs produced on farms of over 5000 hogs capacity grew by 27%.
- Most hogs contracted by Premium Standard, Cargill, or Missouri Farmers' Association.
- There are only 2 hog processing plants for hogs in MO, MO slaughters only about 1/2 of hogs produced, rest of production is shipped to surrounding states for feeding or slaughter, so multiplier economic effects for the state are limited.

Economic Impact of Missouri Swine Industry, 2005

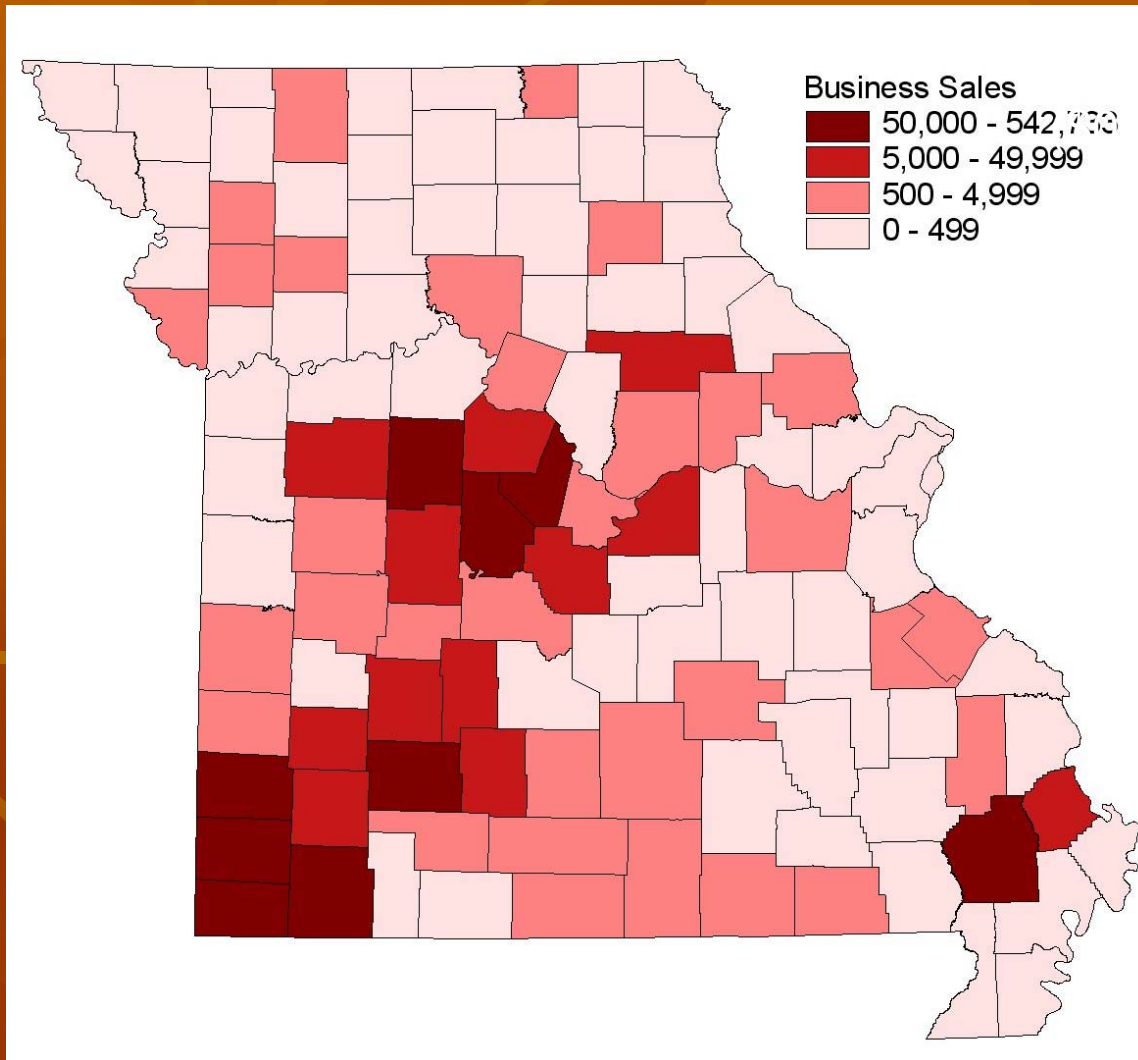
Industry	Combined Output	Value Added	Associated Jobs
Agriculture	\$769,165,952	\$108,911,528	11,544
Construction	22,999,032	12,679,704	290
Manufacturing	51,787,460	17,386,814	202
Utilities & Transportation	56,745,524	29,244,868	391
Wholesale/Retail Trade	89,408,184	62,481,860	1,157
Finance/Insur./Real Estate	77,179,912	53,050,256	496
Services	70,461,656	43,678,108	1,189
Government	6,363,558	2,739,503	64
Total Impact	\$1,144,111,278	\$330,172,641	15,332

Source: The Missouri Swine Audit: An Analysis of Missouri's Competitive Position in the Swine Industry, Boesen, Chris et al., <http://agebb.missouri.edu/commag/swine/audit/index.htm> July 2005

Missouri Regional Economic Impacts



Poultry Industry Production & Processing: Business Sales by County, 2002



Source: Ron Plain, Impact of Poultry on Missouri's Economy, Unpublished Report to Missouri Senate, Poultry Industry Committee, FAPRI, University of Missouri, 2006.

County Value Added by Missouri Poultry Industry

Rank	County	Poultry & Eggs	Poultry Processing	Total
1	Mc Donald	0.1%	39.2%	39.3%
2	Barry	0.6%	15.5%	16.1%
3	Moniteau	0.5%	11.9%	12.4%
4	Morgan	11.4%	0.0%	11.4%
5	Pettis	0.0%	8.3%	8.3%
6	Stoddard	0.0%	8.2%	8.3%
7	Newton	1.6%	3.0%	4.6%
8	Osage	4.3%	0.0%	4.3%
9	Miller	4.0%	0.0%	4.0%
10	Lawrence	3.4%	0.0%	3.4%
11	Benton	3.0%	0.0%	3.0%
12	Dallas	2.8%	0.1%	2.9%
13	Jasper	0.0%	2.5%	2.5%
14	Dade	2.4%	0.0%	2.4%

Employment Impacts of Tyson Foods in Pettis County, Missouri (1998)

- **Direct Effects**
 - 1,800 employees of Tyson Foods
- **Indirect impacts/backwards linkages**
 - 346 jobs
- **Effects of employee spending**
 - 449 jobs
- **Total jobs supported by Tyson foods:**
 - 2,595 jobs

Economic Impacts With/without Tyson (1998)

<u>Variable</u>	<u>With Tyson</u>	<u>Without Tyson</u>	<u>% difference</u>
Per Capita Income (\$)	21,052	22,443	+6.6%
Total Income (\$000)	780,384	726,737	-6.9%
Assessed Prop. Value (\$000)	337,887	295,505	-12.5%
Retail Sales (\$000)	414,765	356,190	-14.1%

Economic Impacts With/without Tyson (1998)

<u>Variable</u>	<u>With Tyson</u>	<u>Without Tyson</u>	<u>% difference</u>
Property Tax Revenues	1,043,686	856,966	-17.9%
Sales Tax Revenues (\$000)	2,126	1,781	-16.2%
Total Revenues (\$000)	5,816	4,687	-19.4%
Total Expenditures (\$000)	6,367	5,174	-18.7%

Farm-level/Local Economic Impacts



Farm-level/Local Economic Impacts of Swine Feeder-to-Finish Operation

Missouri crop producer with 640 acres decides to produce 2400 feeder-to-finish hogs annually.

Initial construction \$520,000

Annual change in gross operating revenue:

Contract payments \$88,000

Annual change in operating expenses:

Net manure nutrient credit -\$27,000

Taxes, insurance, utilities \$11,500

Annual change in net revenue:

Net operating revenue \$104,500

Local economic impact: \$207,000

Source: Ray Massey, Dept of Agricultural Economics, Univ. Missouri,
<http://agebb.missouri.edu/commag/swine/audit/index.htm>

Poultry and Hog Integration

- Benefits are large and well-documented
- Benefits are concentrated among few & spatially
- Costs are:
 - Difficult to identify/quantify
 - Values-based
 - Opportunity costs
- Who pays the costs?
 - Small hog farmers
 - Rural neighbors
 - Small-town businesses
 - Taxpayers



Jim Pease

Professor

Dept. of Agricultural & Applied Economics

Virginia Tech

Ph. 540/231-4178

Email: peasej@vt.edu