

United States Pork Production

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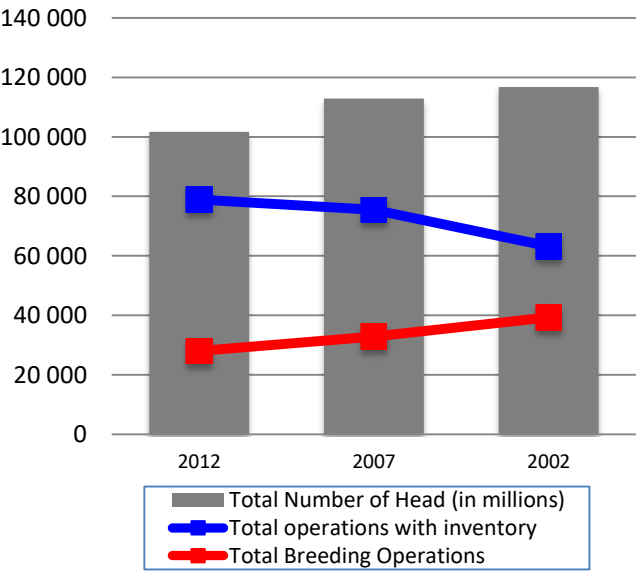
Dermot Hayes



THE UNITED STATES is the world's third-largest pork producer after China and the EU. It is a major player in the world pork market, ranking seventh as an importer and second as an exporting country. U.S. hog farms have become larger. The US has 50,000 farms that fall in the categories up to 200 pigs but their share in the

total number of pigs is below 1%. Places with 2,000 or more head accounted for 87 percent of the inventory. The number of farms with hogs has declined by over 70%, as hog enterprises have grown larger. Large operations that specialize in a single phase of production have replaced farrow-to-finish operations that performed all phases of production.

Number of pigs (million)
Number of farms with pigs and sows (thousand)



Total pork production	No. 2	1000 MT	105555
Total domestic consumption	No. 2	1000 MT	8441
Export of pork	No.1	1000 MT	2441
Import of pork	No. 7	1000 MT	364
Pig crop		1000 head	117,601
Pork consumption per capita	No. 10	lbs	59.9
Number of animals in inventory Dec 2013	3	1000 head	65,940

*1 MT=2204.6 lbs
Source: Quick Stats, USDA

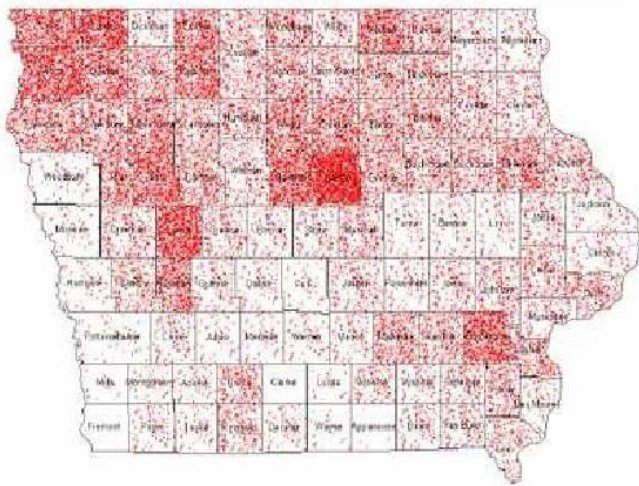
Hog Density



<http://www.penergetic.ca/penergetic-g.html>

Hog Density in Iowa

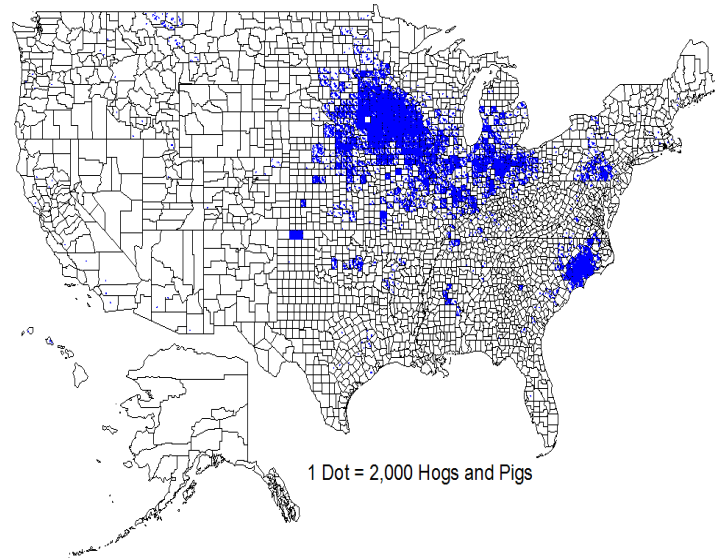
Hogs per square mile 2002



Each red dot represents 20,000 hogs

<http://www.scribd.com/doc/41220033/hog-maps>

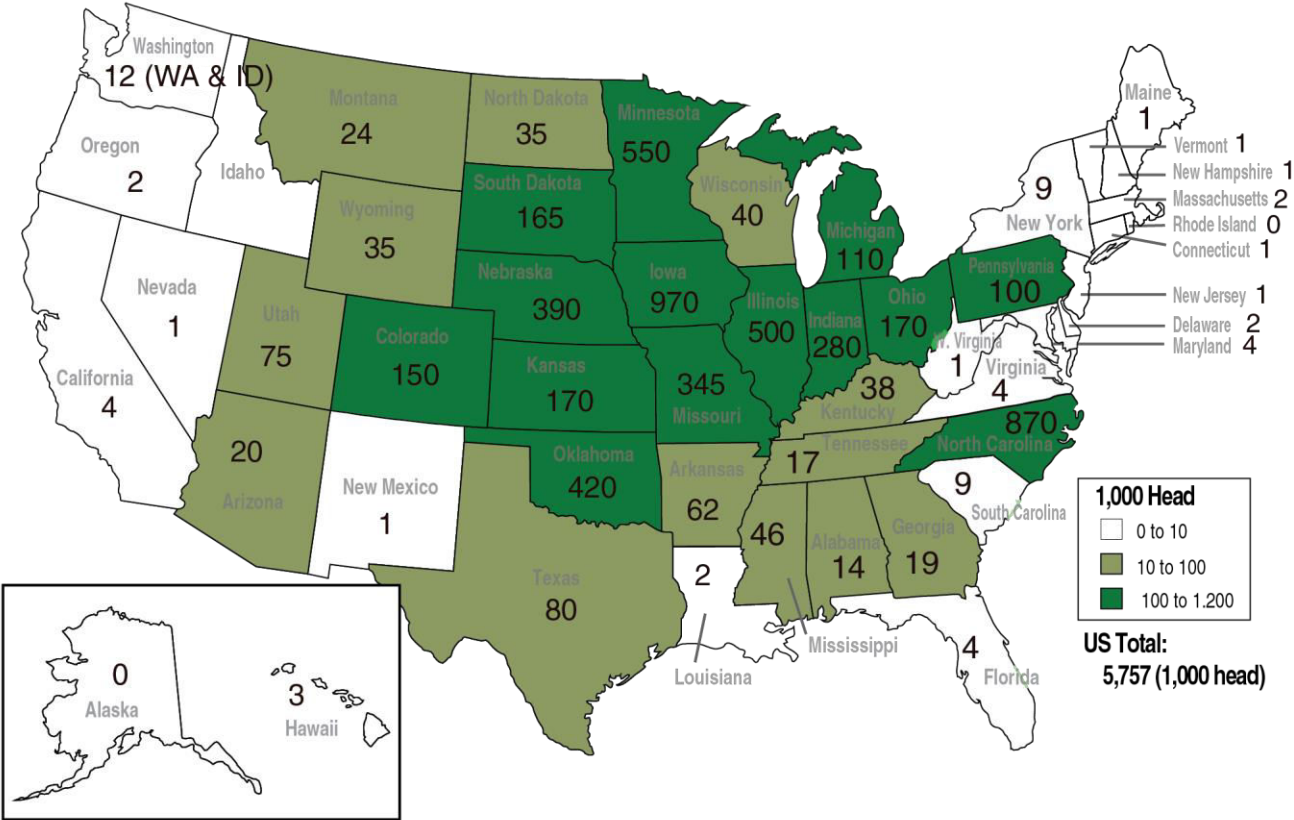
Hog Density in U.S.



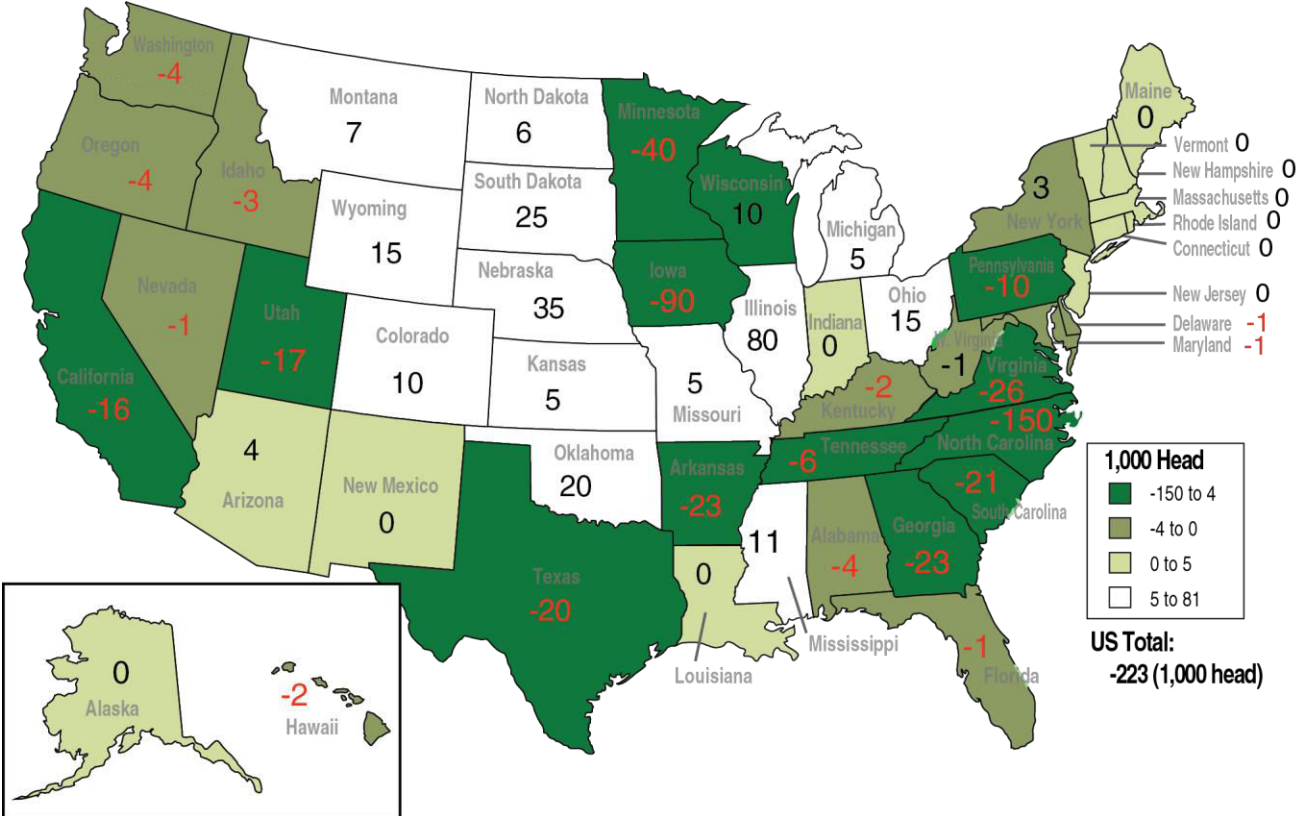
<http://air101.msue.msu.edu/air101/swine>

IOWA IS THE number one pork producing state in the U.S. and the top state for pork exports. Nearly one-third of the nation's hogs are raised in Iowa. Each year, Iowa farmers produce approximately 33 million slaughter hogs.

2013 December 1, Breeding Hogs and Pigs

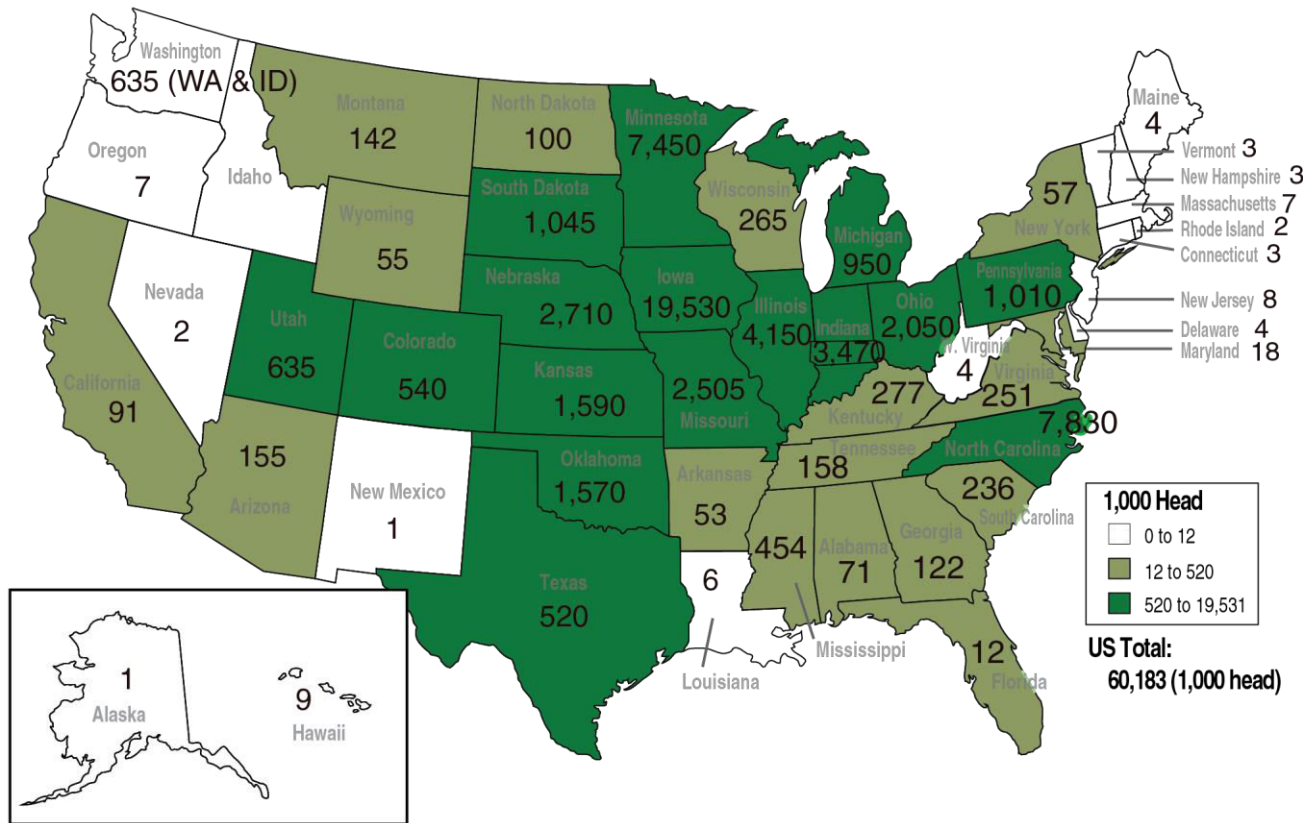


Change 2004-2013

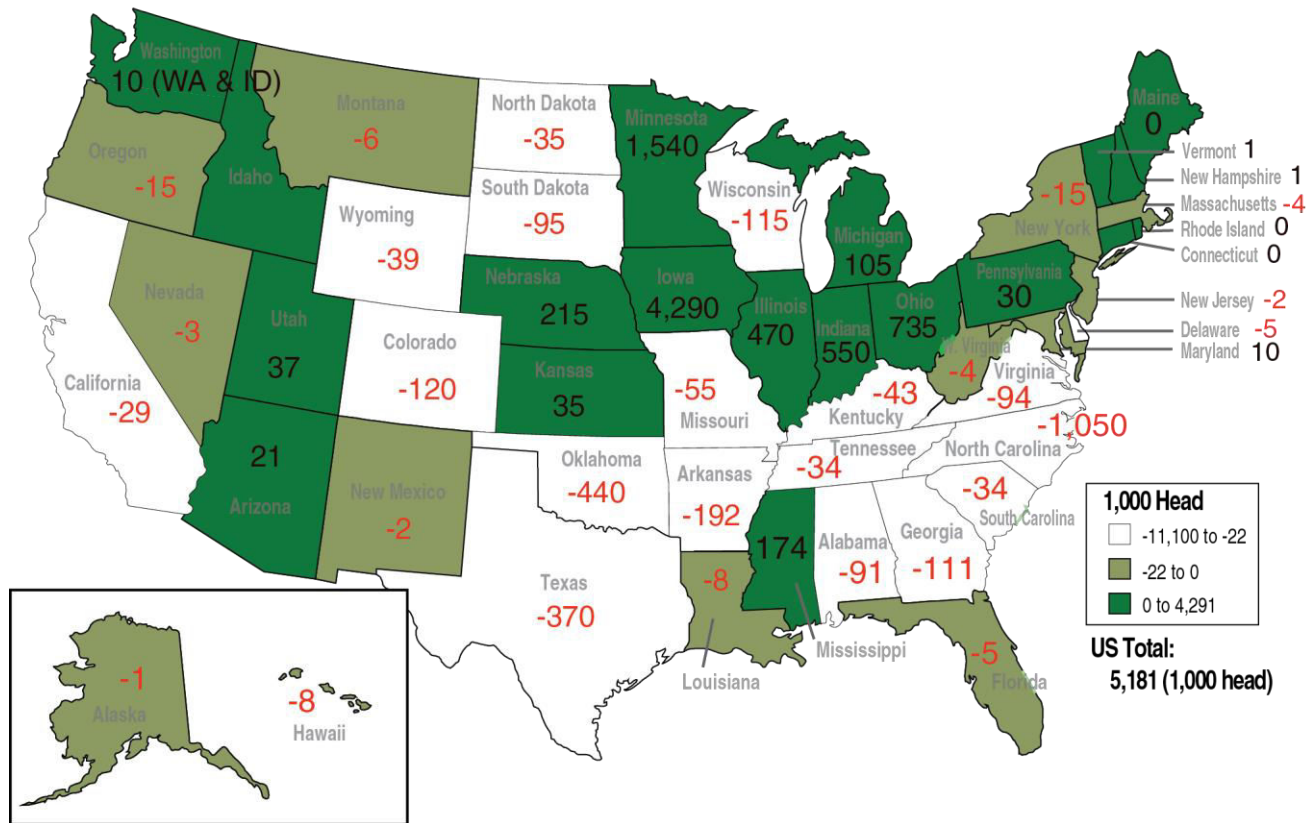


Source: USDA-NASS, Livestock Marketing Information Center

2013 December 1, Market Hogs and Pigs



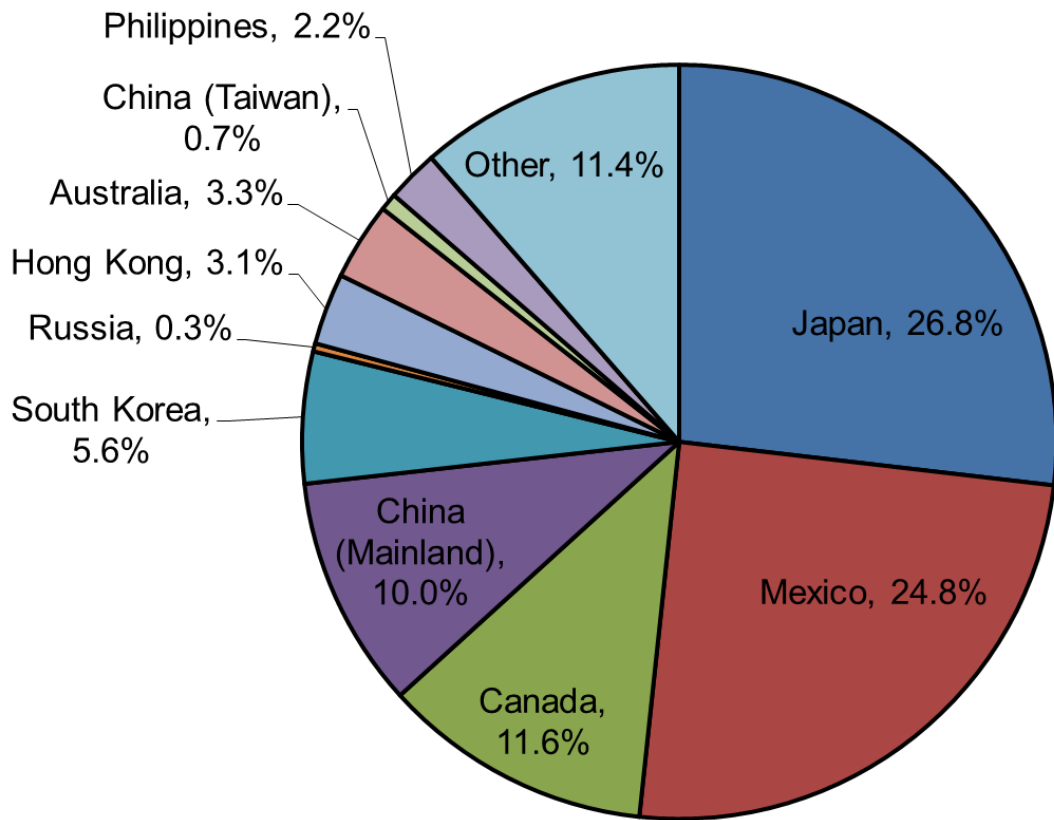
Change 2004-2013



Source: USDA-NASS, Livestock Marketing Information Center

USA Pork Exports

% of Total, January–December 2013



USA Pork Exports, Jan-Apr 2014

Country	Change from a Year Ago	
	Carcass Weight (1,000 lbs)	Percent
Japan	396	0.1
Mexico	84,976	23.3
Canada	-14,004	-7.6
China (Mainland)	70,937	53.1
South Korea	40,594	32.6
Russia	-14,083	-81.9
Hong Kong	-21,168	-39.2
Australia	7,959	11.8
China (Taiwan)	609	4.6
Phillippines	-502	-1.3
Other Countries	10,646	6.4
Total	166,361	10.3

Feed

1. 35,000 full-time pork producing jobs
2. 151,000 indirect jobs
3. U.S. farmers produce 46% of the world's soybeans and 41% of the world's corn
4. Pigs are weaned at 2 to 4 weeks of age when they weigh 10 to 15 pounds.

1. The 2013 pig crop was 116 million hogs
2. Farms have grown in size; 53 percent of farms now produce 5,000 or more pigs per year
3. USA costs are low because of the low feed and capital costs
4. The average live weight is 287 pounds.
5. in 2014 the average weight will be well over 300 lbs.

Farm

1. Average litter size of 10-12 pigs
2. 2.4 litters per year
3. 3,200 sows will produce 90,000 feeder pigs each year.
4. 2.4 to 2.5 turns per year.
5. The typical pig farm in Iowa raises 3,200 sows and fattens around 90,000 pigs on twelve units, each of up to 2,999 pigs per farm.

1. Average days in rearing unit is 39 days
2. Average days in finishing unit is 124
5. The average farm size is 420 acres; commercial farms typically have more than 2,000 acres of crops

Meat

1. Average live weight at slaughter 122.5kg
2. Average lean meat 57%
3. 32 billion lbs of pork production in 2013
4. U.S Total Slaughter 112 million head
5. U.S consumed 8.7 metric tons of pork

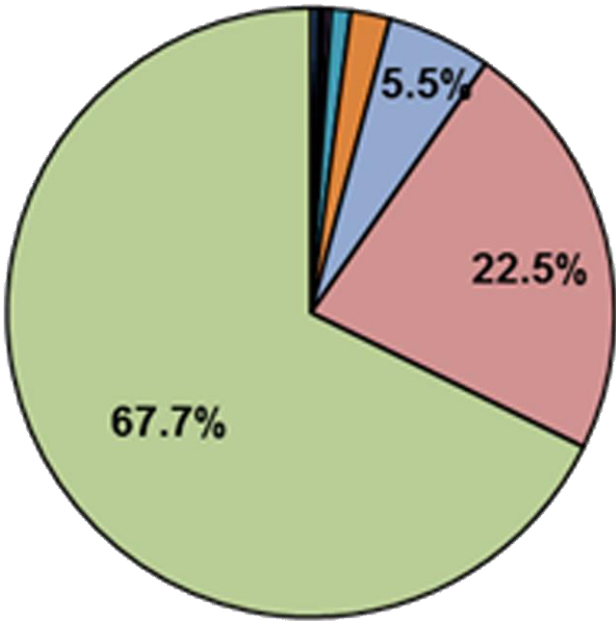
1. 23 billion lbs of pork produced in 2013
2. A 265 lb live pig produces a 200lb carcass

Retail

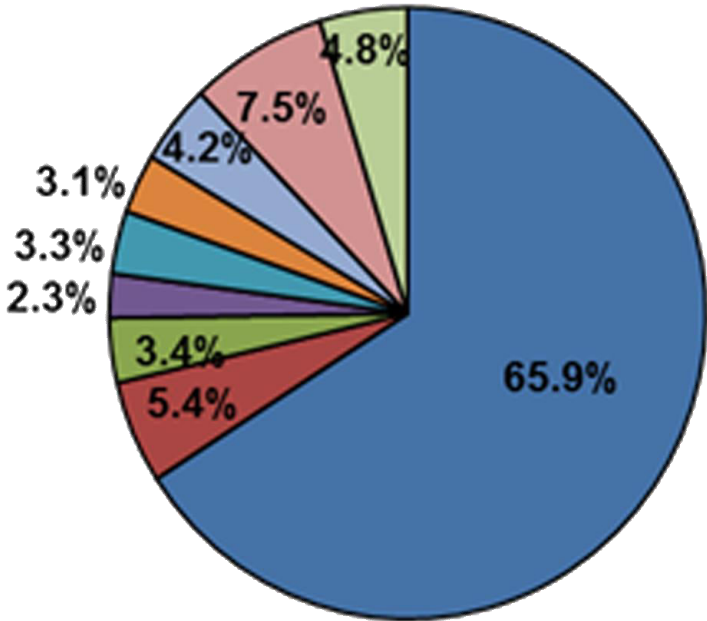
1. A total of 2.3 million metric tons of pork valued at more than \$6.3 billion was exported in 2012.
2. There are 6,278 federally inspected meat and poultry slaughtering and processing plants in the U.S.

1. On average in 2004, Americans spent only 2% of their disposable income on meat and poultry, compared to 4.1% in 1970.
2. Americans spend a smaller proportion of their income on food than any other developed nation in the world.

Percent of Inventory, 2012



Number of Operations, 2012



- 1-24 head

25-49 head

50-99 head
- 100-199 head

200-499 head

500-999 head
- 1,000-1,999 head

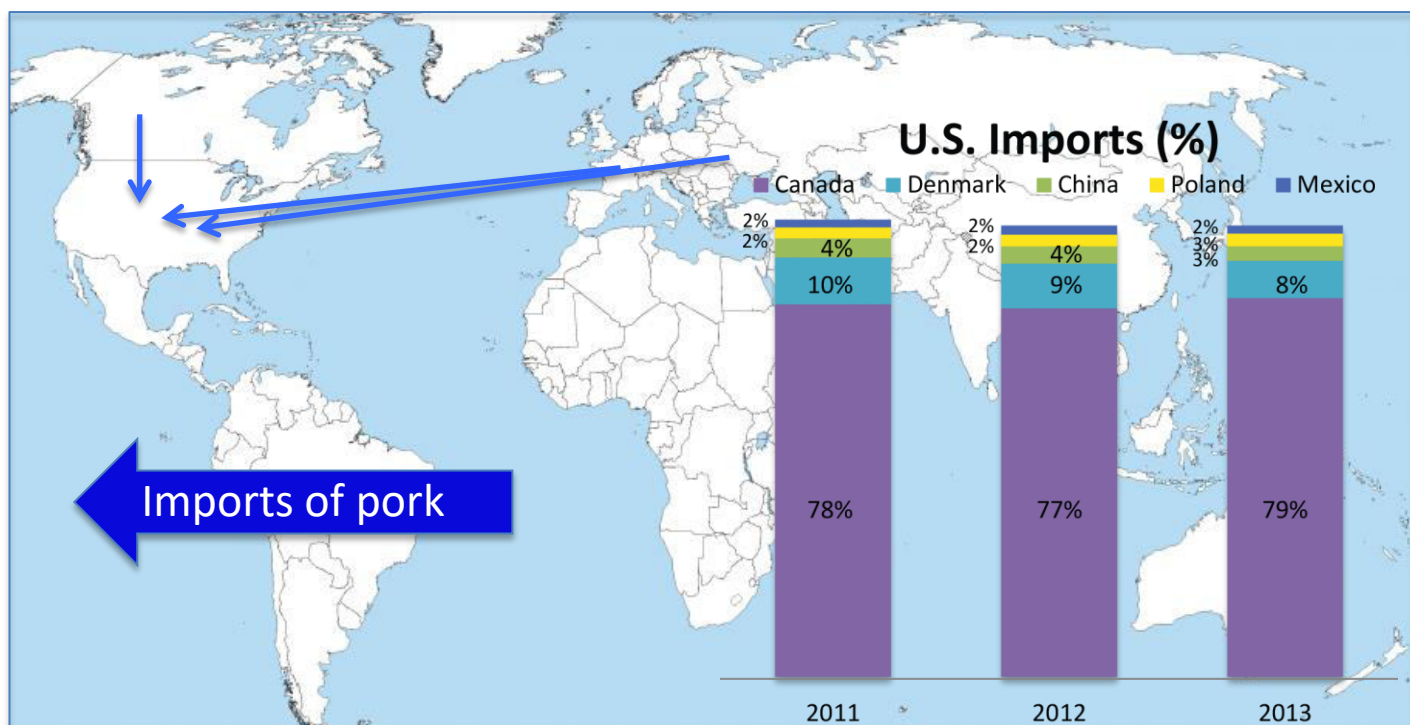
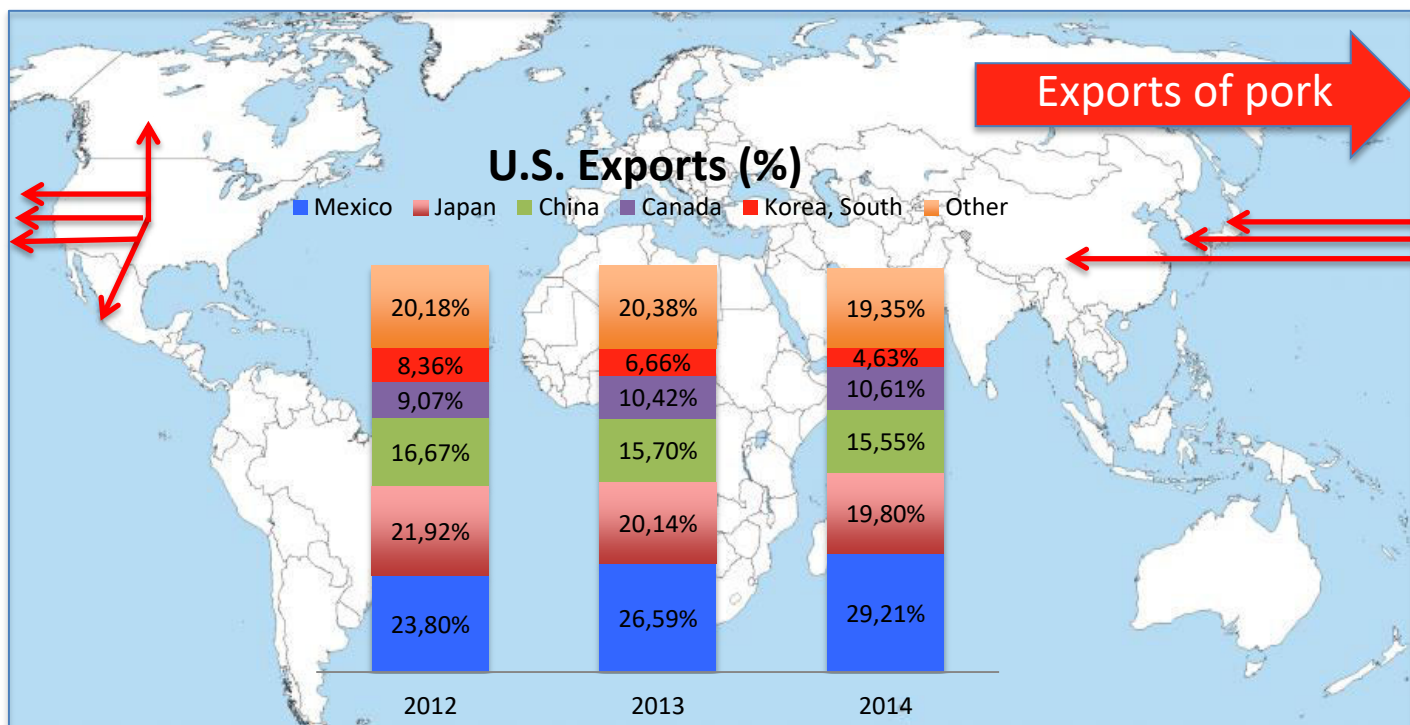
2,000-4,999 head

5,000+ head

Share of consumer expenditures

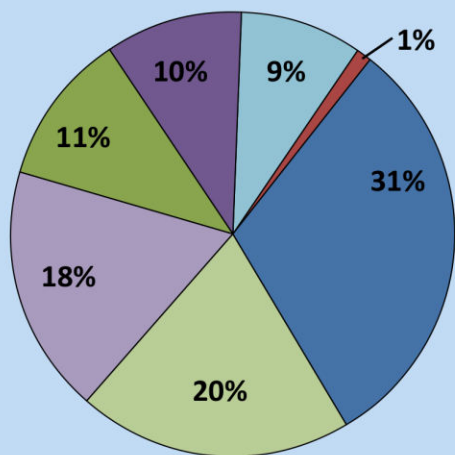
	Food	Alcoholic beverages and tobacco	Consumer expenditures	Expenditure on food
	Percent		U.S. dollars per person	
United States	6.6	1.9	34,541	2,273
ERS estimate	6.4	1.9	34,541	2,215
Singapore	7.3	2.1	19,398	1,422
United Kingdom	9.1	3.8	24,260	2,214
Canada	9.6	3.4	27,761	2,679
Austria	10.1	3.3	25,908	2,617
Ireland	10.1	5.4	20,093	2,037
Australia	10.2	3.6	37,492	3,814
Germany	10.9	3.0	22,762	2,481
Switzerland	11.0	3.5	44,899	4,943
Denmark	11.1	3.8	27,306	3,036
Netherlands	11.6	3.3	20,625	2,388
Finland	12.0	4.7	24,927	3,001
Qatar	12.1	0.3	11,199	1,361
Sweden	12.2	3.7	26,146	3,193
South Korea	12.2	2.2	12,002	1,468
Norway	13.2	4.3	37,146	4,885

Source: USDA ERS

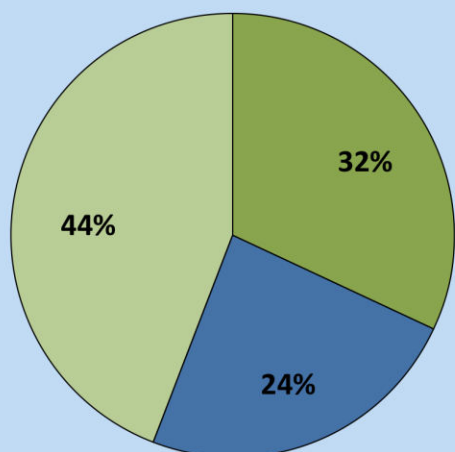


Source: GTIS

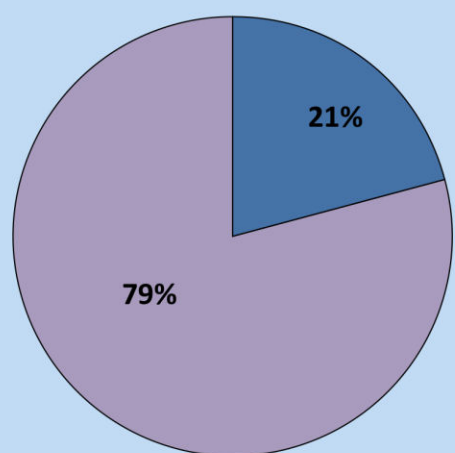
U.S. Consumption



- Ham (including lunch meat)
- Sausage
- Bacon
- Lunchmeat (excluding ham)
- Pork chops
- Fresh pork (excluding chops/ribs)
- Other

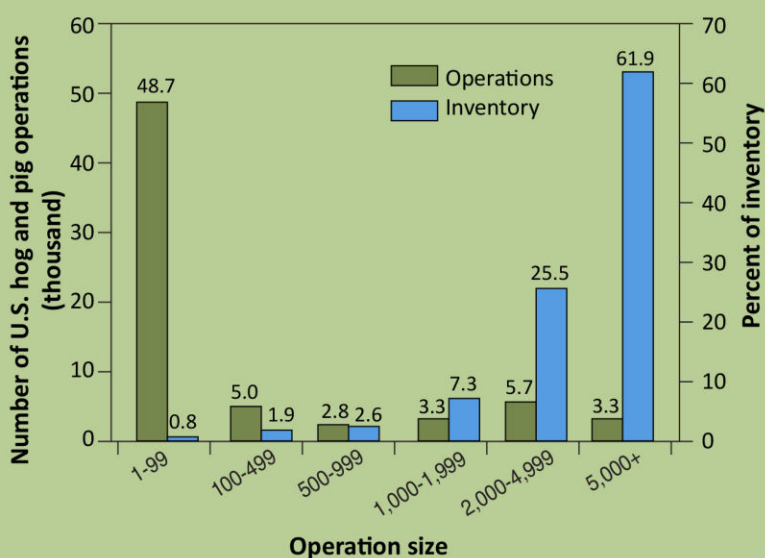
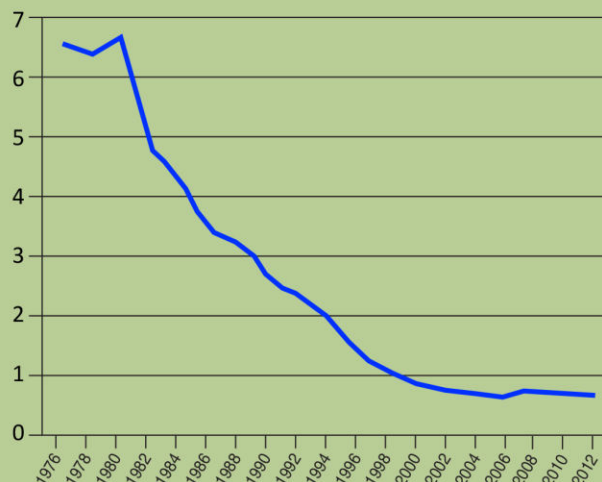


- Beef and veal
- Pork
- Poultry (broiler and turkey)

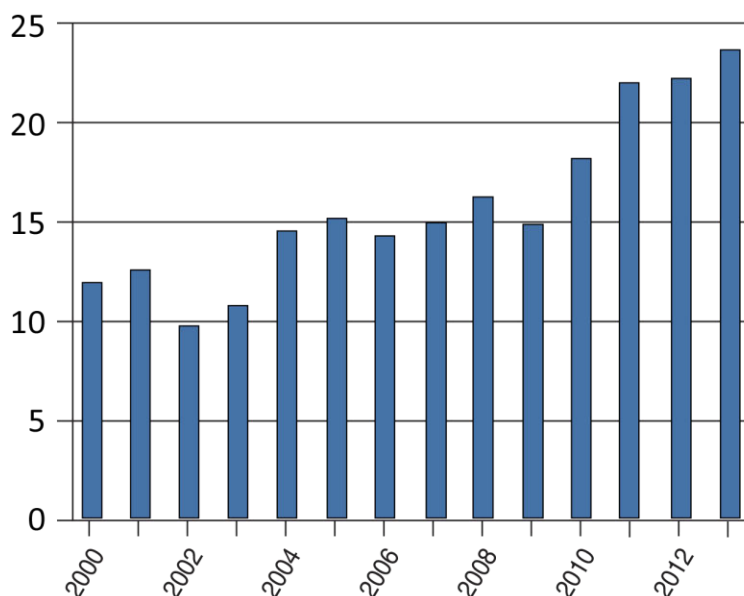


- Processed (ham, bacon, sausage, etc.)
- Fresh (chops, ribs, roasts, etc.)

Number of U.S. hog and pig operations (100 thousand)



Gross U.S. income (billion dollars)



Source: NASS USDA, Iowa Pork, FAS USDA, Pork Checkoff

Hog Confinement Regulations in Iowa

Clean Water Act regulations on concentrated animal feeding operations (CAFOs): when applying manure from CAFOs one must file and follow a nutrient management plan that specifies a manure application rate that minimizes the threat to water quality. The effective cost to pork producers of meeting this requirement is the cost of moving manure to a larger land base than they otherwise would have.

Large CAFOs are those that have 2,500 pigs greater than 55 pounds and medium CAFOs are those with 750 to 2,499 animals.

Iowa Administrative Code on Animal Feeding operations regulates how CAFOs are to be constructed, managed and maintained to meet the minimum manure control requirements: In no case shall manure be discharged directly into a body of state water or into a tile line that discharges into state waters. Control of manure may be accomplished through use of manure storage structures or other manure control methods. Sufficient capacity shall be provided in the manure storage structure to store all manure between periods of manure application.

Animal Agriculture Compliance Act on Manure Management. determines the acceptable volume of manure disposal per acre, establishes set back limits, prevent or diminish soil loss and potential surface water pollution. regulates practices to minimize potential odors caused by the application of manure by the use of spray irrigation

Manure Storage

Manure lagoons represent one of the biggest opportunities to reduce greenhouse gases emissions.



Buffer Zone: 500 feet from a water source (lake, river, reservoir, creek, stream, ditch or other body of water having definite banks and a bed) This distance is 200 feet for dry bedded cattle and hog confinement operations.

- 1000 feet from a major water source (navigable lake or river listed in DNR rules)
- 100 to 1,000 feet from a private well (see table below)
- 2500 feet from a designated wetland
- 500 feet from an agricultural drainage well surface intake
- 1000 feet from a wellhead or cistern of an agriculture drainage well or known sinkhole
- 100ft from public roads

Set back limits are established on the location of dispersal sites relative to residence, schools, business, churches and public use area for the spraying of manure that is not incorporated into the soil within 24 hours of application.

Animal Well Being

You may not confine animals in a vehicle or vessel for more than 28 consecutive hours without unloading the animals for feeding, water, and rest.

Key facts about pig production in the United States, 2013

	Average	Top 10%	Top 25%	Bottom 25%
Conventional Finisher				
Percent Mortality	5.04	1.62	2.24	8.91
Finishing Weight (lbs)	272.10	300.10	291.10	252.90
Days in Finisher	133.80	103.00	108.30	140.30
Average Daily Gain (lbs)	1.81	2.10	2.01	1.62
Feed Conversion (feed to grain)	2.66	2.34	2.42	2.98
Wean to Finish				
Percent Mortality	6.88	2.19	2.99	12.59
Finishing Weight (lbs)	274.00	297.20	290.90	255.50
Days in Finisher	165.30	148.70	153.30	177.90
Average Daily Gain (lbs)	1.58	1.77	1.71	1.45
Feed Conversion (feed to grain)	2.50	2.22	2.29	2.73
Nursery				
Percent Mortality	3.87	0.84	1.32	7.90
Finishing Weight (lbs)	50.90	66.10	61.50	39.90
Days in Finisher	45.40	34.80	38.10	51.70
Average Daily Gain (lbs)	0.83	1.07	0.99	0.67
Feed Conversion (feed to grain)	1.48	1.18	1.25	1.69
Sow				
Pigs/Mated Sow/Year	23.70	29.50	27.80	18.70
Litters/Mated Sow/Year	2.30	2.74	2.59	2.00
Total Born	13.60	15.30	14.80	12.10
Stillborn and Mummies	1.14	0.50	0.68	1.67
Number Born Alive	12.40	14.00	13.60	11.20
Number Weaned	10.20	11.70	11.30	8.80
Pre-weaning Mortality %	17.30	5.40	8.30	29.10
Weaning Weight (lbs)	13.40	13.70	14.10	11.50
Weaning Age (days)	21.90	22.40	22.90	18.60

Top 10%, top 25%, and bottom 25% of farms in each production state, respectively. The farms in each percentile were determined for each production indicator meaning that the farms in each percentile were not the same for each production indicator. The top and bottom were defined as desirable and undesirable for each trait rather than numerically higher and lower.

Housing Systems



Barn (confinement)

- Either naturally or mechanically ventilated, or a combination of the two, depending on the season
- Bedding optional
- Can accommodate group and individual housing

Benefits

- Reasonable control of the environment.
- Separation of manure from the pig resulting in fewer opportunities for disease transmission.
- Easy to clean and disinfect.
- Multiple pens allow for split-sex feeding and separation of pigs by weight.
- Excellent parasite control
- Multiple pens and feeders allow for age-appropriate diets to be fed.

Challenges

- High capital investment in a single purpose building.



Hoop Barn

- A lower-cost facility.
- Deep bedding used to absorb manure, which is handled as a solid.
- Usually used for gestation and grow-finish pigs.
- Group sizes often 100 or more.

Benefits

- Low investment cost per pig.
- Multiple-use building (can be used for other storage purposes if not for pigs.)
- Reasonable control of the environment with adequate bedding.

Challenges

- Lots of bedding required plus a place to store the bedding.
- Can be difficult to cool pigs in hot, humid weather.
- More difficult to identify and treat sick pigs.
- Difficult to clean and disinfect.
- Difficult to separate pigs from the manure.
- More time required for handling and bedding pigs.



Pasture

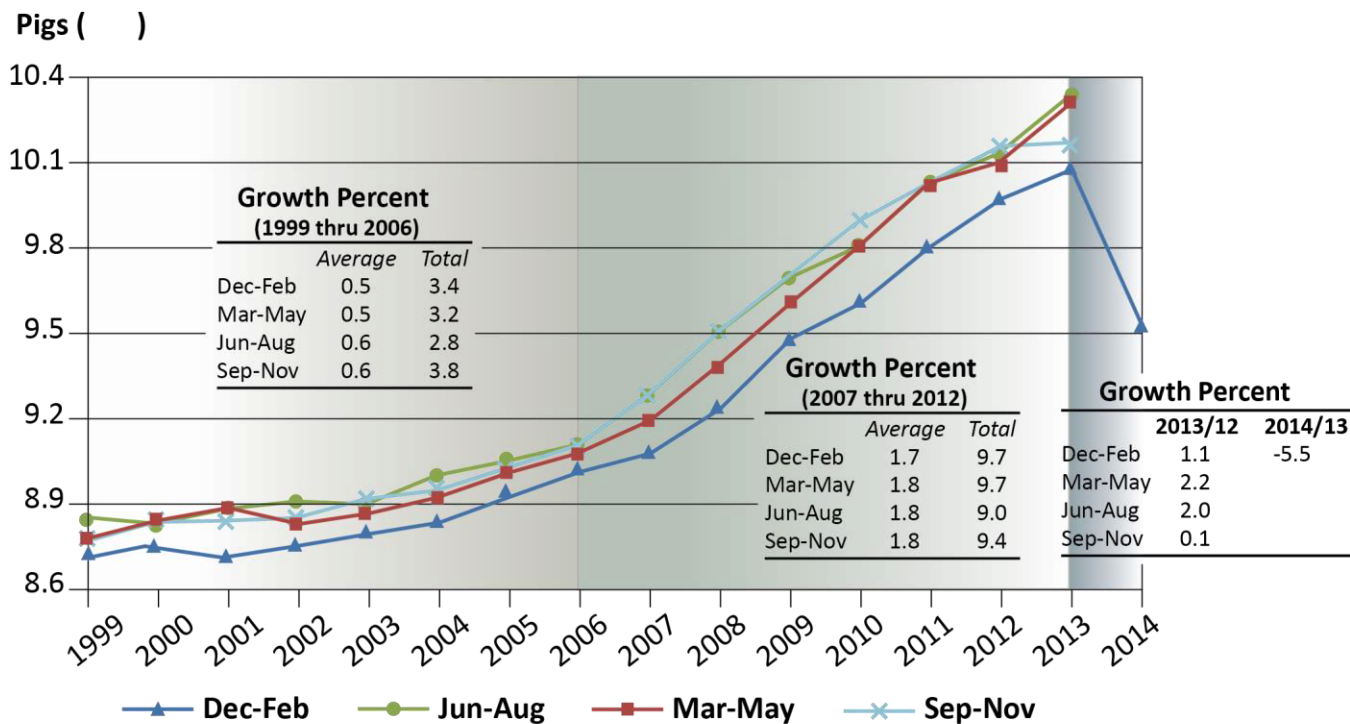
- Used for all stages of production, with obvious seasonal limitations for winter production in some parts of the United States.
- Pasture production systems involve intensive production management and pasture rotation.
- Low cost of facilities, but the opportunity cost of the land for crop production must be considered.

<http://www.leopold.iastate.edu/pubs-and-papers/2005-06-hoop-barn-swine-production>

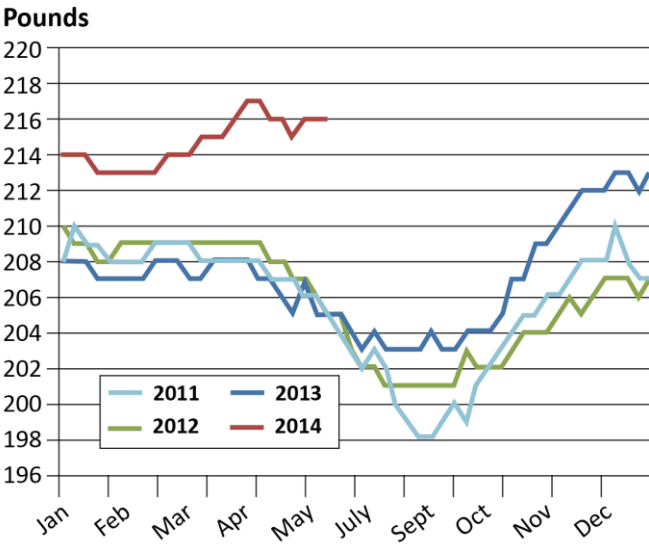
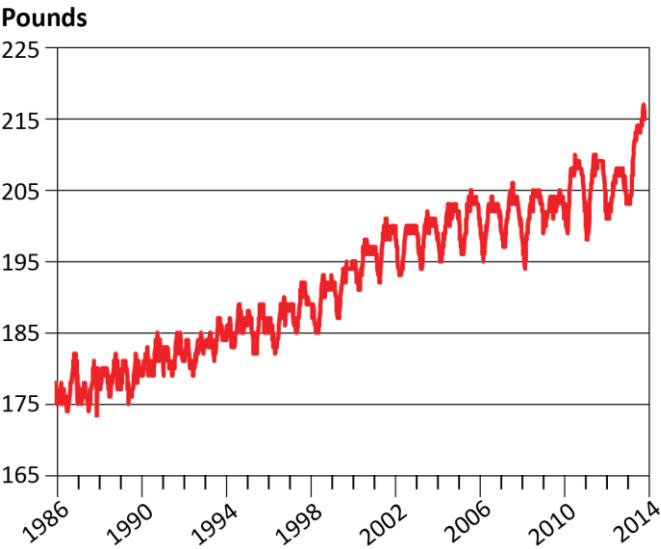
<http://dakotasecurity.com/pigs-worth-more-than-38000-stolen-from-iowa-farm/>

Productivity: Pigs Saved per Litter

Pigs per Litter (U.S. quarterly)



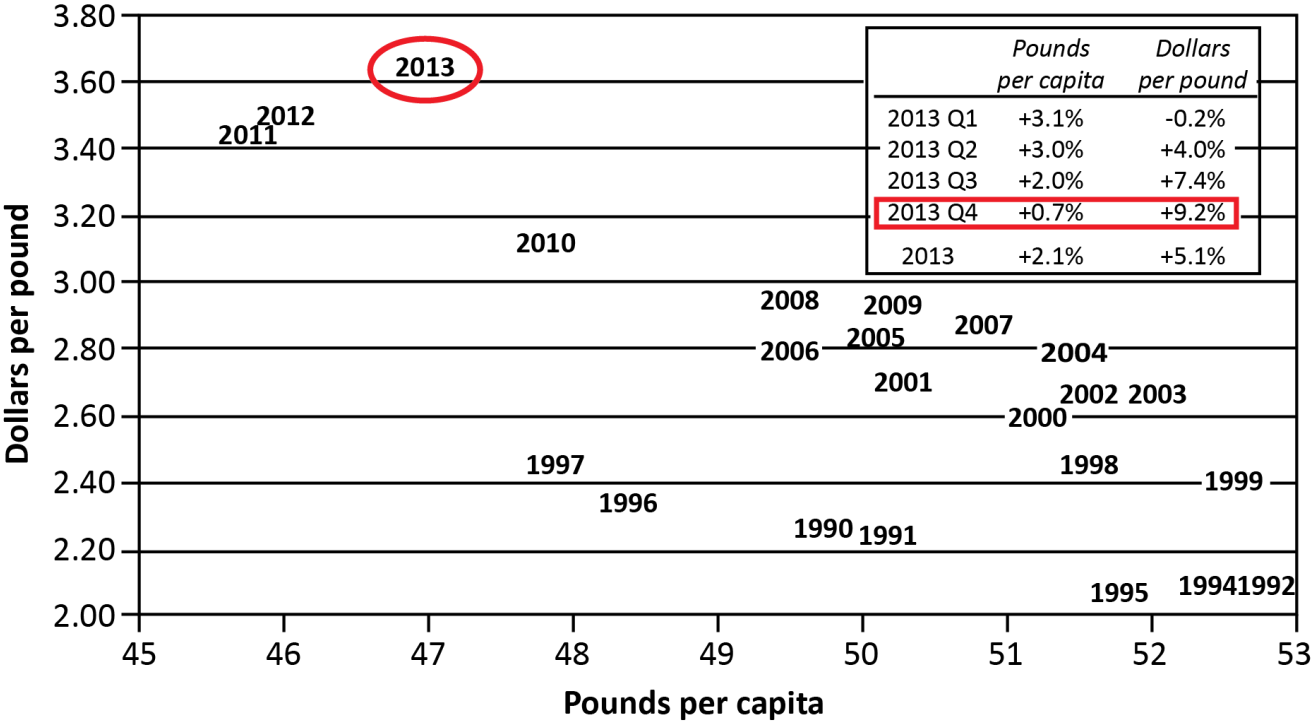
Productivity: Hog Carcass Weights



U.S. Pork Consumption and Prices

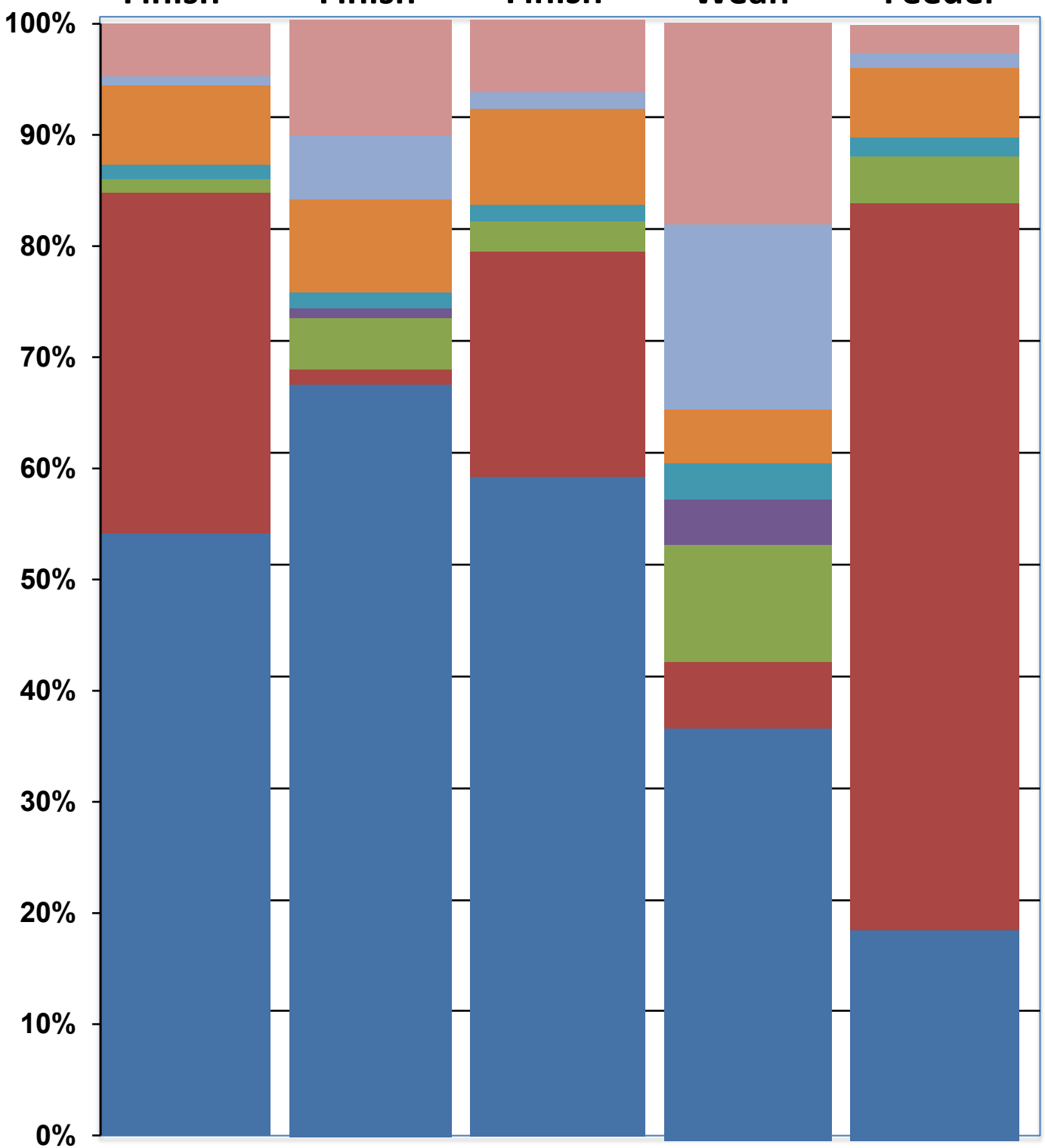
Pork price-quantity relationship







Annual retail weight, nominal retail price



Source: USDA-ERS and USDL-BLS

Feeder to Finish Farrow to Finish Wean to Finish Farrow to Wean Wean to Feeder



- | | | |
|---|--|---|
|  Capital |  Energy |  Purchased or Breeding animals |
|  Labor |  Insemination |  Feed |
|  Other |  Veterinary | |