

A group of broiler chickens is shown in a grassy enclosure. The chickens are white and yellow, some standing and some sitting on the grass. A red, conical feeder is hanging from the top of the enclosure. The background shows a green field and a fence. The text "Broiler Chickens" is overlaid in the center of the image.

Broiler Chickens

Stu Michel & Thomas Hill

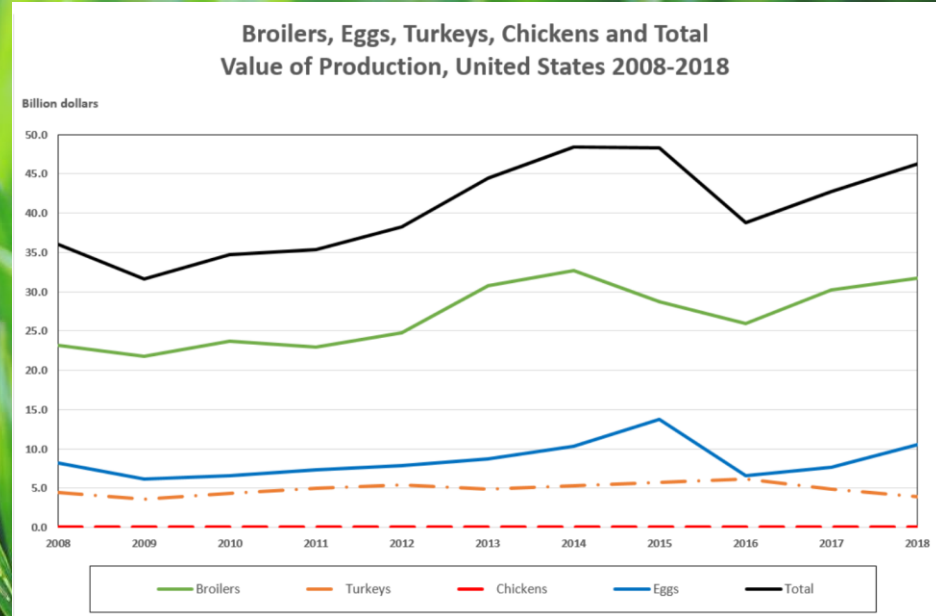
The Broiler Market - Production

- ❑ ~30 billion USD produced per year in U.S.
- ❑ Ranks 5th in cash receipts for Agricultural Commodities in the U.S.
- ❑ Broilers dominate poultry production value

Cash receipts by state, commodity ranking and share of U.S. total, 2018
Nominal (current dollars)

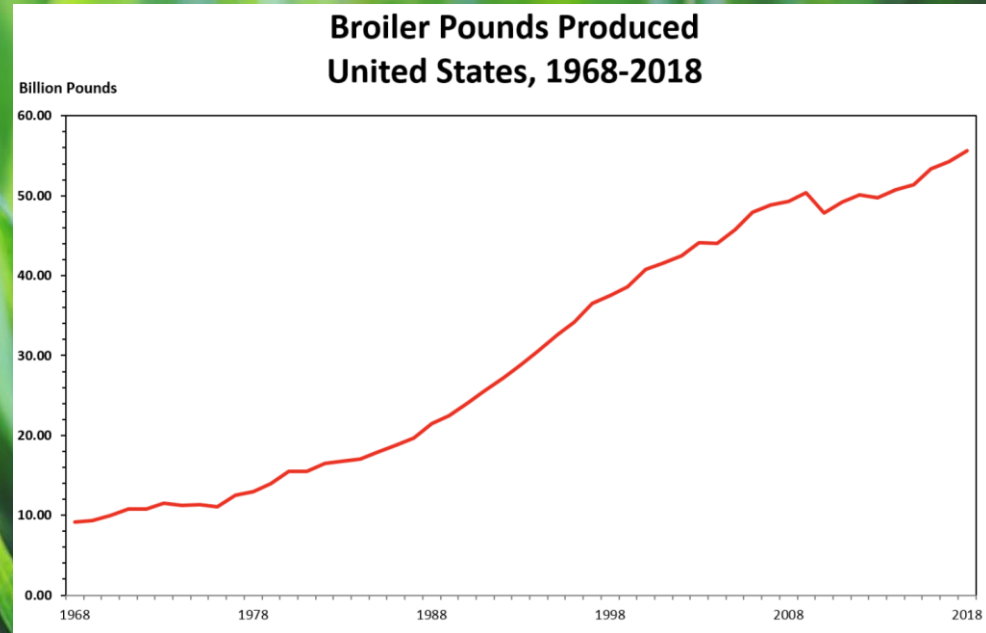
United States

Rank	Commodity	State receipts	Share of State receipts	Cumulative share of State receipts	U.S. receipts	Share of U.S. receipts by commodity
		\$1,000	Percent	Percent	\$1,000	Percent
	All commodities	372,741,074	100.0		372,741,074	100.0
	Animals and products	176,529,725	47.4		176,529,725	100.0
	Crops	196,211,349	52.6		196,211,349	100.0
1	Cattle and calves	67,105,197	18.0	18.0	67,105,197	100.0
2	Corn	48,937,043	13.1	31.1	48,937,043	100.0
3	Soybeans	37,174,921	10.0	41.1	37,174,921	100.0
4	Dairy products, Milk	35,244,314	9.5	50.6	35,244,314	100.0
5	Broilers	31,746,230	8.5	59.1	31,746,230	100.0
6	Hogs	21,098,058	5.7	64.7	21,098,058	100.0
7	Miscellaneous crops	21,025,932	5.6	70.4	21,025,932	100.0
8	Chicken eggs	10,586,262	2.8	73.2	10,586,262	100.0
9	Wheat	9,550,710	2.6	75.8	9,550,710	100.0
10	Hay	6,924,348	1.9	77.6	6,924,348	100.0



The Broiler Market - Production

- ❑ ~10 billion lbs in 1968 to ~50 billion lbs in 2018
- ❑ ~30 federally-inspected companies in the business of raising, processing and marketing chickens
- ❑ ~25 thousand family farms have contracts; ~95% of production



The Broiler Market - Production

□ Top Producing States:

1. Georgia ~1.4 billion
2. Alabama ~1.1 billion
3. Arkansas ~1.0 billion
4. North Carolina ~0.9 billion
5. Mississippi ~0.8 billion

Broiler Production and Value – States and United States Total: 2018

[Annual estimates cover the period December 1 previous year through November 30. Broiler production including other domestic meat-type strains. Excludes States producing less than 500,000 broilers]

State	Number produced (1,000 head)	Pounds produced (1,000 pounds)	Value of production (1,000 dollars)
Alabama	1,123,700	6,180,400	3,454,844
Arkansas	1,092,000	7,316,400	4,089,868
Delaware	263,600	1,924,300	1,075,684
Florida	65,400	385,900	215,718
Georgia	1,361,400	8,168,400	4,566,136
Kentucky	303,300	1,971,500	1,102,069
Maryland	289,400	1,736,400	970,648
Minnesota	59,100	360,500	201,520
Mississippi	747,800	4,711,100	2,633,505
Missouri	293,100	1,465,500	819,215
North Carolina	873,600	6,901,400	3,857,883
Ohio	107,900	561,100	313,655
Oklahoma	196,800	1,318,600	737,097
Pennsylvania	200,100	1,140,600	637,595
South Carolina	237,800	1,807,300	1,010,281
Tennessee	177,300	939,700	525,292
Texas	653,500	4,247,800	2,374,520
Virginia	278,900	1,673,400	935,431
West Virginia	83,300	316,500	176,924
Wisconsin	55,800	228,800	127,899
Other States ¹	573,300	3,435,500	1,920,446
United States	9,037,100	56,791,100	31,746,230

¹ California, Illinois, Indiana, Iowa, Louisiana, Michigan, Nebraska, New York, Oregon, and Washington combined to avoid disclosing individual operations.

The Broiler Market - Production

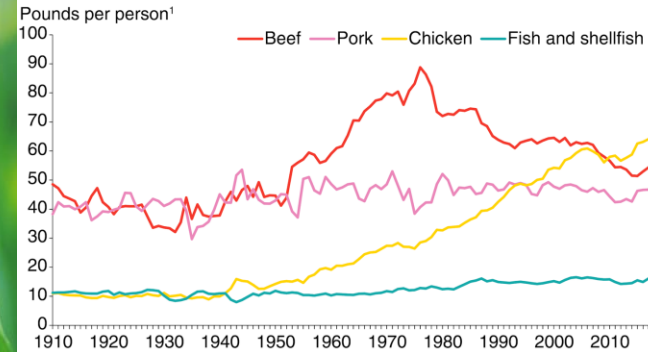
- ❑ Falling off amid COVID-19
- ❑ “Elbow-to-elbow” work poses risks
- ❑ Shrinking workforce creates imbalance in number produced and number processed



The Broiler Market - Consumption

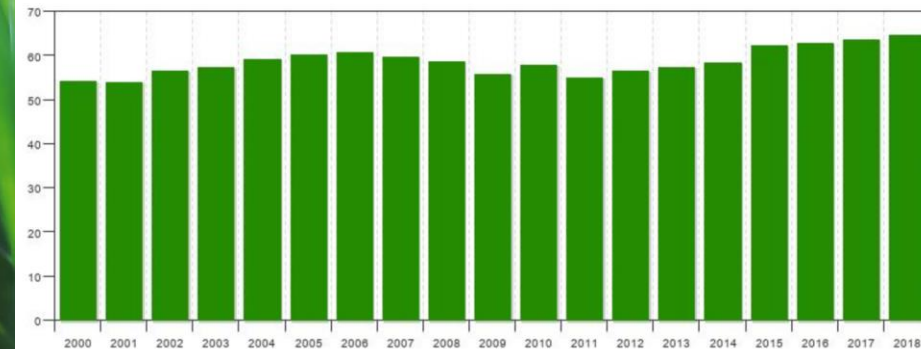
- ❑ U.S. top consumer at ~70 lbs per person per year
- ❑ Total U.S. consumption at ~23 billion lbs per year
- ❑ U.S. availability doubled since 1970

U.S. per capita availability of beef, pork, chicken, and fish/shellfish, 1910-2017



¹Calculated on the basis of raw and edible meat in boneless, trimmed (edible) weight. Excludes edible offals, bones, viscera, and game from red meat. Includes skin, neck, and giblets from chicken. Excludes use of chicken for commercially prepared pet food. Source: USDA, Economic Research Service, Food Availability Data.

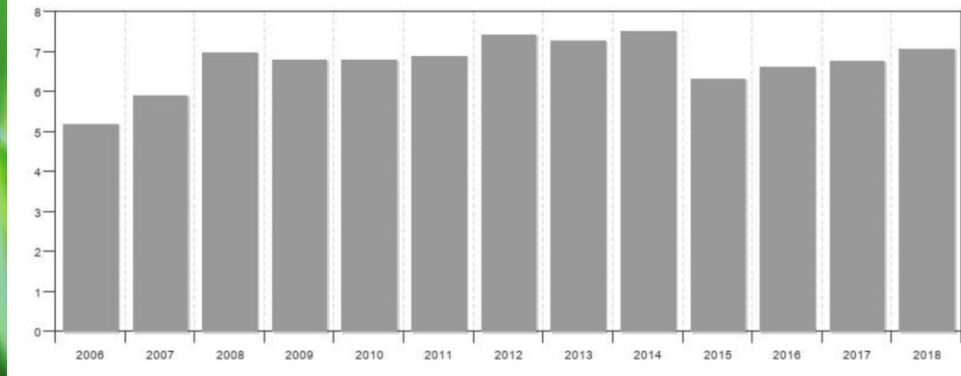
U.S. per Capita Food Consumption - Chicken (Individual) Boneless, trimmed (edible) weight, pounds per capita per year. Source: USDA/Economic Research Service



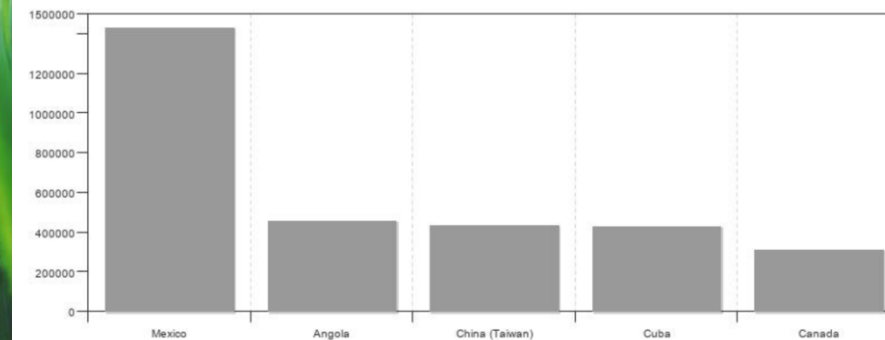
The Broiler Market - Trade

- ❑ ~7 billion lbs exported per year in U.S.
- ❑ Top Export Markets: Mexico, Angola, China
- ❑ 2nd behind Brazil in export volume
- ❑ Export ~17% of total production

Broiler Exports (billions of pounds) - Rollover graph bars for exact numbers.



Top 5 Export Markets for U.S. Chicken Meat, 2018 (1,000 pounds) - Rollover graph bars for exact numbers.



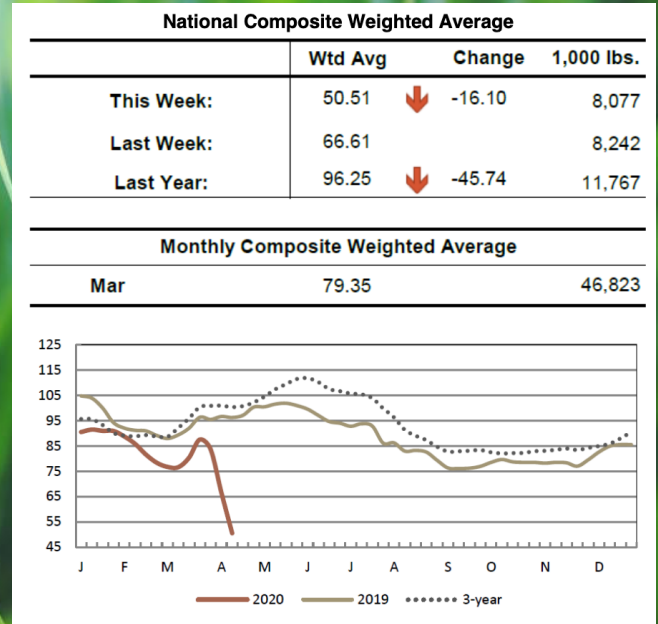
Top Players

1. Tyson - 192.33 million lbs weekly
2. Pilgrim's Pride Corp. - 156.02 million lbs weekly
3. Sanderson Farms Inc. - 86.6 million lbs weekly
4. Perdue Foods - 64.42 million lbs weekly



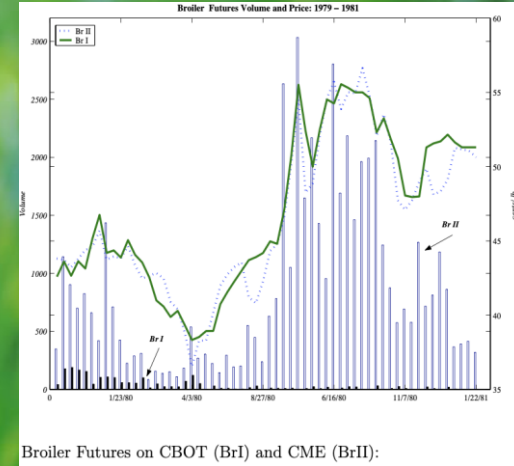
The Broiler Market - Price

- ❑ 2019 wholesale price - 76.8 cents per pound
- ❑ 2019 retail price - 187.7 cents per pound
- ❑ Estimated 2020 wholesale price - 73.5 cents per pound
- ❑ Estimated 2020 retail price - 185.0 cents per pound
- ❑ Falling due to decreased demand

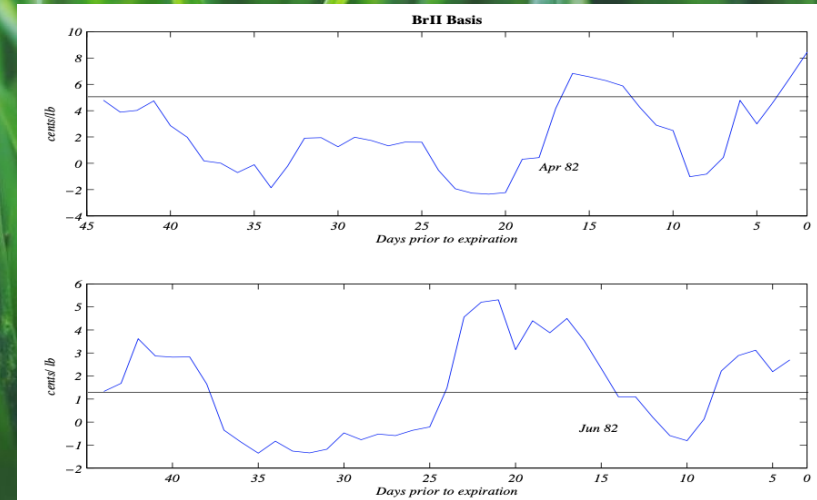


The Broiler Market - Futures

- ❑ There is no active broilers futures
- ❑ 3 attempts over past 40 years
 - ❑ Chicago Board of Trade 1968-1981 (I)
 - ❑ CBOT and Chicago Mercantile Exchange 1979-1982 (II)
 - ❑ CME 1991-1993 (III)
- ❑ Basis risk is likely reason for failure



Broiler Futures on CBOT (BrI) and CME (BrII):



What Are Broilers and How They Are Raised

- ❑ Chicken bred and raised specifically for meat production
- ❑ Raised in large chicken houses
- ❑ Reach slaughter weight between 4 and 7 weeks old
- ❑ Need water and high protein diet
- ❑ Typically fed corn and soybean meal
- ❑ ¼ pound of feed per chicken per day
- ❑ Cost of feed accounts for more than 70% of the cost of raising a chicken



How Broilers Are Sold

- ❑ More than 90% of broilers in the U.S. are raised by contract farmers
- ❑ Chicken companies remove approx. 97% of economic risk from growers
- ❑ Independent farmers typically sell to restaurants and direct to consumer



Image courtesy of Larry Rana, USDA

Processing Broilers

- ❑ Step 1- Arrival at processing plant
- ❑ Step 2- Stunning
- ❑ Step 3- Slaughter
- ❑ Step 4- Evisceration
- ❑ Step 5- Cleaning and chilling
- ❑ Step 6- Inspection by USDA
- ❑ Step 7- Additional testing
- ❑ Step 8- Second processing
- ❑ Step 9- Packaging
- ❑ Step 10- Shipping



Broiler Performance - comparison over time

- ❑ Market age down by over half since 1925
- ❑ Weight more than doubled
- ❑ Feed requirements reduced by over 2 lbs per lbs of broiler
- ❑ Mortality down by 13%

Year	Market Age average days	Market Weight <i>pounds, liveweight</i>	Feed to Meat Gain <i>pounds of feed to one pound of broiler, liveweight</i>	Mortality <i>percent</i>
1925	112	2.5	4.7	18
1935	98	2.86	4.4	14
1940	85	2.89	4	12
1945	84	3.03	4	10
1950	70	3.08	3	8
1955	70	3.07	3	7
1960	63	3.35	2.5	6
2015	48	6.12	1.89	4.8
2016	47	6.16	1.86	4.5
2017	47	6.20	1.83	4.5
2018	47	6.26	1.82	5.0
2019	47	6.32	1.80	5.0

The Broiler Market - Current Events

<https://www.wsj.com/articles/what-does-the-covid-19-economy-look-like-chicken-prices-might-hold-a-clue-11584523802>

<https://www.reuters.com/article/us-health-coronavirus-meat-focus/elbow-to-elbow-north-america-meat-plant-workers-fall-ill-walk-off-jobs-idUSKCN21V0WM>

<https://www.nytimes.com/2020/04/09/us/coronavirus-chicken-meat-processing-plants-immigrants.html>

References

https://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0519.pdf

https://data.ers.usda.gov/reports.aspx?ID=17843#P9c1f0db55e604532bf5725b7d1db910c_2_17IT0R0x0

https://www.uspoultry.org/economic_data/

<https://www.wattagnet.com/articles/37451-tyson-foods>

<https://www.nationalchickencouncil.org/about-the-industry/statistics/broiler-chicken-industry-key-facts/>

https://www.google.com/url?sa=t&rct=i&q=&esrc=s&source=web&cd=2&ved=2ahUKEwjXvu_7kPDoAhUxgnIEHbqvCkAQFjABegQIAhAB&url=https%3A%2F%2Fageconsearch.umn.edu%2Frecord%2F20397%2Ffiles%2Fsp04he06.pdf&usq=AOvVaw1EKt9RPOIF9H0pA5P8QvVN

<https://www.chickencheck.in/faq/how-chickens-slaughtered-processed/>

<https://www.chickencheck.in/faq/chicken-contract-growers/>