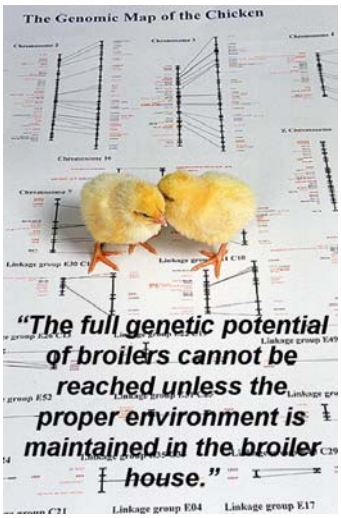
Chapter 2 - FACTS AND FIGURES

Contents:

- Chicken consumption
- Infrastructure
- Entry and experience in broiler production
- Size of broiler operations
- Expenses on broiler operations
- Litter management practices
- Farm operators and their households
- Farm household income

A. Chicken consumption

Chicken meat is a popular food item in most countries and continues to increase in its popularity worldwide. Chicken is a relatively inexpensive, nutritious food source (see Table 2.1). The versatility of chicken has allowed for the introduction of a wide variety of further-processed products that meet the needs of the changing American lifestyle. No commercial meat is produced with higher feed efficiency, and at a faster rate, than that of chicken (see Table 2.2).



In breeding programs over the last several decades broilers have been selected for increased meat yield, high growth rate, and better feed conversion and high growth rates for many decades. As shown in Figure 2.1, the average time required to raise a broiler chick to market was cut from 72 days in 1960 to 48 days in 1995. Over the same time period average slaughter weight rose from 4.0 to 4.8 lb and the feed/gain rate fell by 15%. Genetics and nutritional improvements in broiler production have been extremely important to the efficiency of poultry meat production; however, **the full genetic potential of broilers cannot be reached unless the proper environment is maintained in the broiler house**. The fast growing, modern broiler lines are more dependent on proper environmental conditions than birds from lines raised just a few years ago.

The development of chickens specific for meat production has an interesting history. In the early 1900s the same chicken breeds were used for both meat and egg production, with little or no genetic selection. This all changed with the introduction of the 'Chicken of tomorrow' contests (see Figure 2.2) which were created to encourage the breeding of chickens for superior meat production. The result was the development of a faster, more efficient 'broiler' chicken. As the economy recovered from WW II, the demand of chicken

increased and the industry was now prepared to supply it. There has been a constant increase in the per capita availability of chicken meat since around 1949.

Table 2.1 - Nutritional information per 3-ounce boneless, cooked portion.

FOOD ITEM	Calories	Total fat (g)	Saturated fat (g)	Cholesterol (mg)	Protein (g)
Filet of sole, baked	100	1.5	0.5	60	20
Chicken breast, no skin, baked	120	1.5	0.5	70	24
Chicken drumstick, no skin, baked	130	4.0	1.0	80	23
Chicken wing, no skin, baked	150	6	1.5	70	23
Salmon, baked	160	7.0	1.0	6	22
Chicken breast with skin, baked	170	7.0	2.0	70	25
Beef sirloin steak, trimmed of visible fat, broiled	180	9.0	3.0	75	25
Chicken drumstick, with skin, baked	10	9.0	3.0	75	23
Pork loin rib chop, trimmed of visible fat, lean only	180	9.0	3.0	60	24
Canned cured ham, 13% fat, roasted	190	13.0	4.0	55	17
Lamp chop, trimmed of visible fat, broiled	200	12.0	6.0	70	22
Beef tenderloin, trimmed of visible fat, broiled	200	11	4	72	23
Beef, ground, extra lean, broiled, well done	225	13.0	5.0	85	24

Source: Nutri-Facts Fresh Food Labeling Program, 1995 and USDA Nutrient Database for Standard Reference, Release 14, 2001

TIDBIT: *Where did the term 'broiler' come from?*

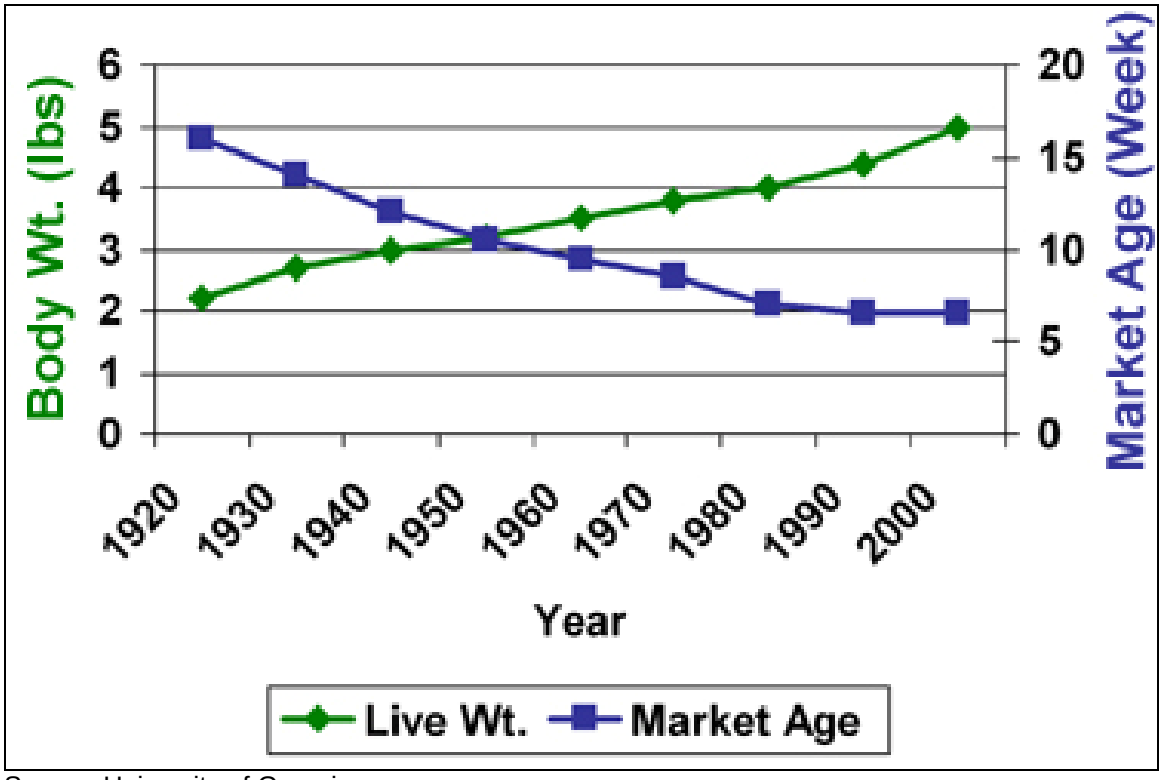
The term 'broiler' comes from the main method that was used at that time for cooking chicken. Addition terms that came into use, such as 'fryer' and 'roaster', also reflect the most common method used to cook a chicken of the specific market weight.

Table 2.2 - Feed conversion efficiencies of major food animals

	Chicken	Pork	Beef	Carp
Feed conversion (feed/live weight)	2.5	5.0	10.0	1.5
Feed conversion (feed/edible weight)	4.5	9.4	25.0	2.3
Protein content (% of edible weight)	20	14	15	18
Protein conversion efficiency (%)	20	10	4	30

Source: V. Smil, 2008. Eating meat: Evolution, Patterns and Consequences

Figure 2.1 - Changes in average broiler market age and market weight in the United States over the last several decades.



Source: University of Georgia

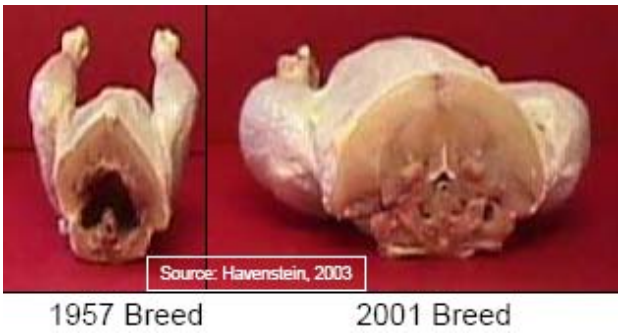
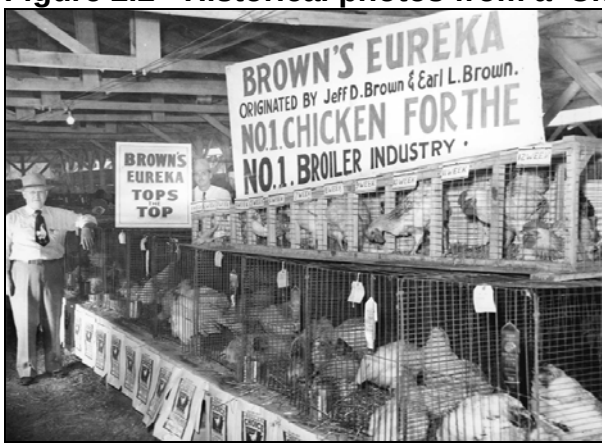
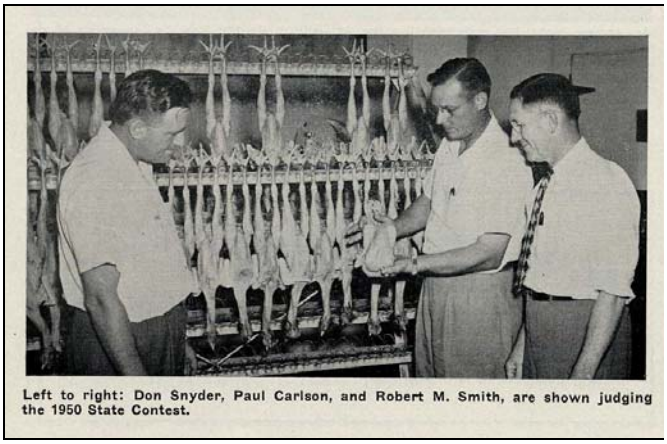


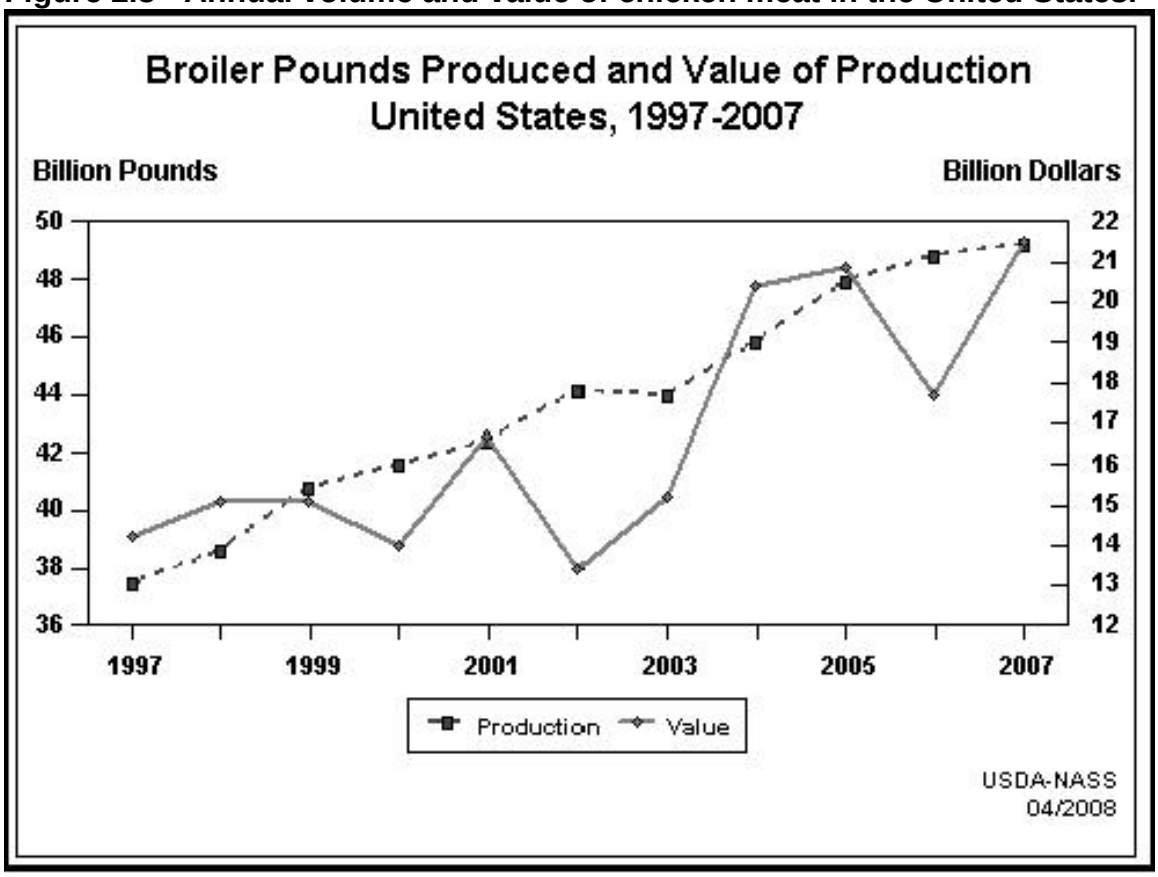
Figure 2.2 - Historical photos from a 'Chicken of Tomorrow' contest.




Left to right: Don Snyder, Paul Carlson, and Robert M. Smith, are shown judging the 1950 State Contest.

Source: University of Arkansas

Figure 2.3 - Annual volume and value of chicken meat in the United States.



The broiler industry has become globalized – chicken meat is bought and sold around the world. Global poultry meat production in 2008 is projected to be 93 million metric tones (102.5 million tons), almost 4% higher than last year. The availability of a global market is one factor that has allowed the continuous increase in chicken meat production in the U.S. A date of importance is 1986 when the Uruguay Round of the Global Agreement on Tariffs and Trade (GATT) began. Agriculture, which had previously been exempt, was included, opening export markets for U.S. chicken.

While there has been a steady increase in the pounds of chicken meat produced in the United States each year, the value of the product sold fluctuated dramatically (Figure 2.3). There were drops in the price of chicken in 2000, 2002, and 2004. Politics and disease are two main factors that affect the U.S.'s ability to export chicken, and thus the domestic price for chicken meat. The U.S. is primarily a white-meat market (breast meat) leaving a lot of dark meat (leg quarters) to be sold. Russia, where the population has a preference for dark meat, is a major export market for American chicken. In 2002 the U.S. put a tariff on imported steel, and Russia, an exporter of steel to the U.S., retaliated by banning the importation of American poultry products. Periodic outbreaks of low pathogenic Avian Influenza (LPAI) in the U.S. have resulted in temporary bans on chicken imports from the U.S. In both cases, the U.S. market became flooded with chicken meat, resulting in a drop in chicken prices. The prices for other meats also declined in order to compete with the cheaper chicken.

As shown in Figure 2.4, the majority of chicken meat production in the U.S. is in the southeast region. In 2007 Kentucky ranked 7th in broiler production. As with the nation as a whole, broiler production in Kentucky has been increasing annually (Figure 2.5).

Figure 2.4 - Broiler production in the U.S. by state.

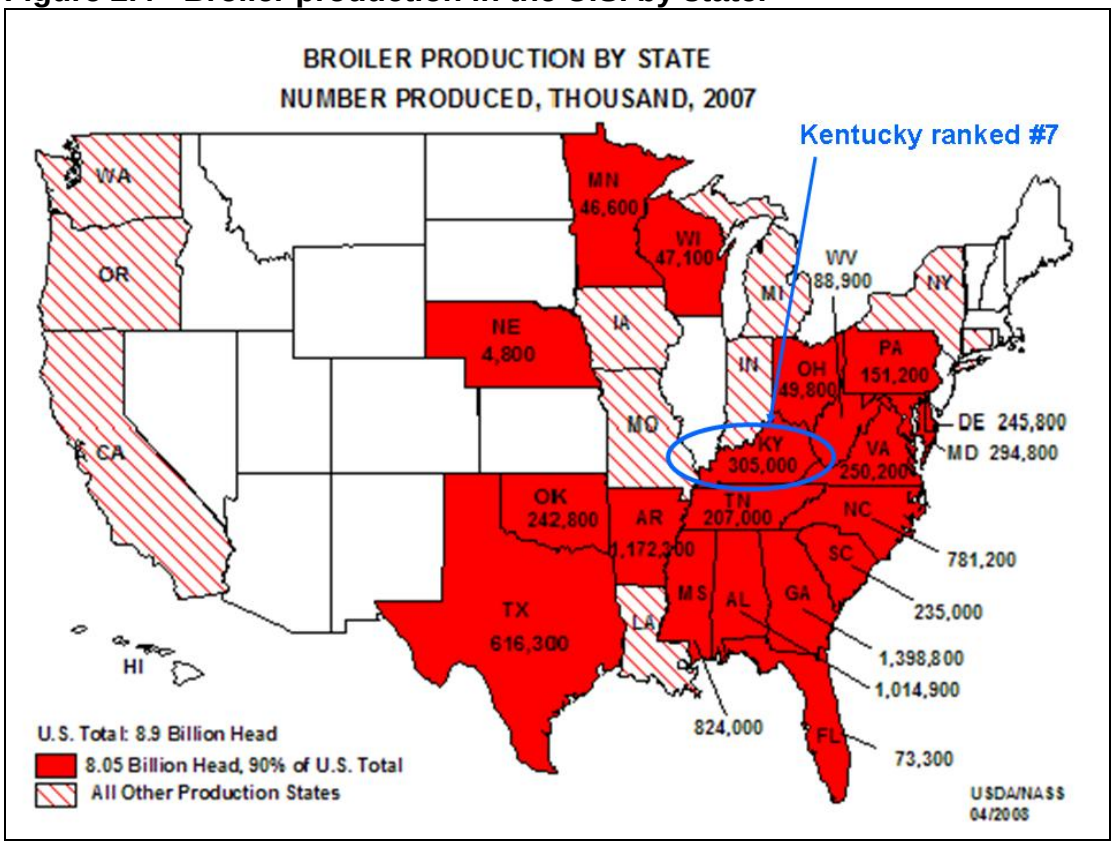
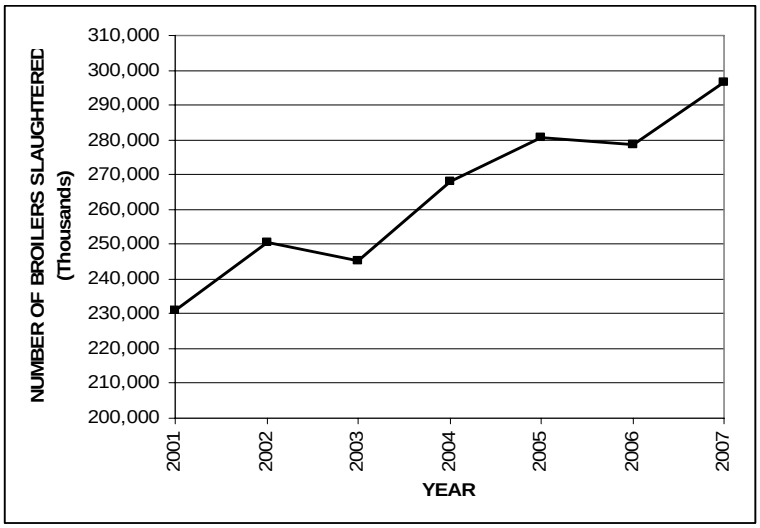


Figure 2.5 - Annual broiler production in Kentucky.



Americans currently consume about 81 pounds of chicken per person per year. Chicken production is expected to continue to increase to meet the demands of the growing human population. Estimations of the U.S. population are kept current by the Census Bureau by means of a 'Population clock'. The clock is periodically recalibrated based on the latest available data on births, deaths, and international migration. The American population estimate to September 12, 2008 at 1:30 PM Central time was 305,133,730.

(http://www.census.gov/population/www/popclockus.html)

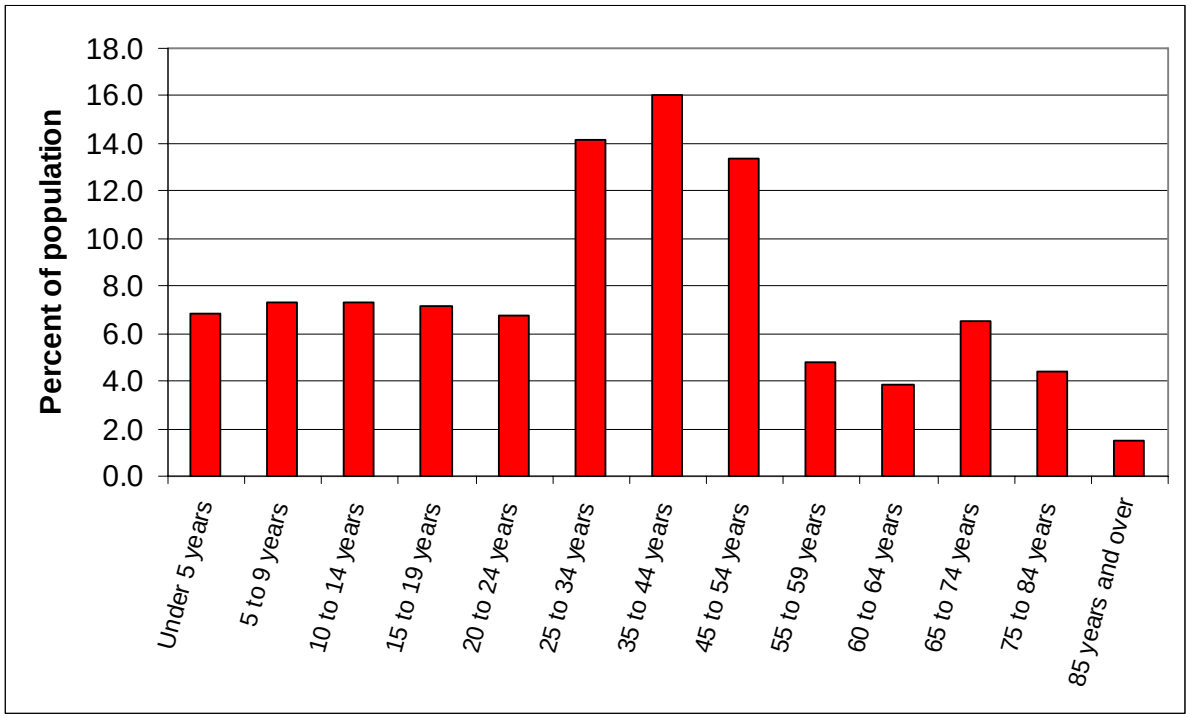
The component settings for September 2008 were:

One birth every……..	7 seconds
One death every ……..	13 seconds
One international migrant (net) every	29 seconds
Net gain of one person every ….....	9 seconds

In the 2000 census, there were 281 million Americans counted. This was 54 million more than in 1980 and 7 million more than anticipated based on previous census estimates. Some of the deviation from estimated numbers may be due to improvements in census methodologies, but they clearly indicate that the U.S. is undergoing a population expansion. It is estimated that by 2020 another 50-80 million people will likely be added to the U.S. population, much of this from immigration which has been rising since the 1960s and shows no signs of reducing in the future.

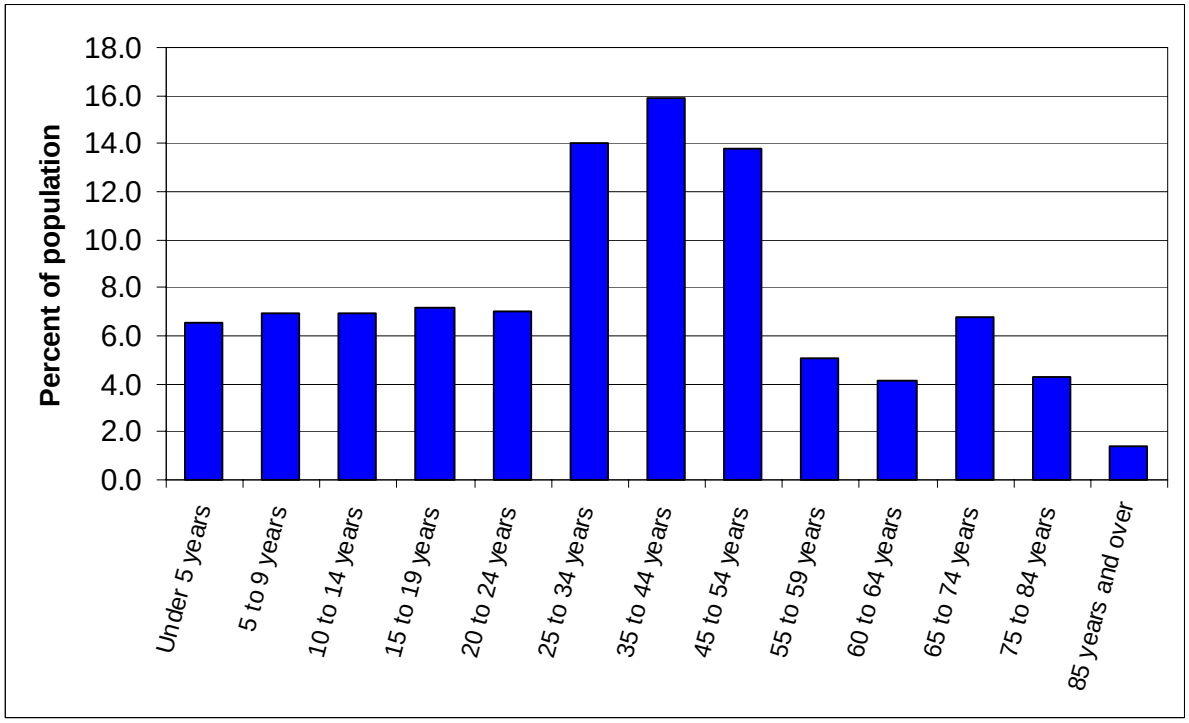
The majority of Americans are between 25 and 54 years of age (Figure 2.6). The same is true for the Commonwealth of Kentucky (Figure 2.7). Education has made major progress in the U.S. over the last century as the percent of the population completing high school rose from 40 to 83. Similarly, the percent of the population graduating from college rose from 10 to 24. The result is that older, less-educated generations are being replaced by more-educated younger generations. It has been predicted that by 2020, 86% of the U.S. population will have a high school degree and 26% will have finished college. This new, active American population wants meals that are easy and quick to prepare. To meet the demand created by the changing American demographics and their associated life-style, the chicken meat industry has put considerable effort into the expansion of the value-added market. **Chicken is a versatile meat** that has been used in the creation of many ready-to-cook, or microwavable, meals.

Figure 2.6 - Distribution of age groups in the United States.



Source: 2000 U.S. Census

Figure 2.7 - Distribution of age groups in Kentucky.



Source: 2000 U.S. Census

B. Infrastructure

A survey of 17 major broiler states (listed alphabetically: Alabama, Arkansas, California, Delaware, Georgia, **Kentucky**, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia) produced an overview of the infrastructure available for broiler production in the U.S. The results are discussed below. As shown in Table 2.3, in 2006 there were an estimated 17,440 commercial broiler farms in the 17 surveyed states, with at total production of 8.44 billion broilers. Since total nationwide slaughter amounted to 8.84 billion broilers in 2006, the data from this 17-state sample represents about 95% of total U.S. production.

Production contracts dominate the U.S industry, accounting for almost all farms and broilers. The survey did identify a few independent operations (0.4% of broilers produced) and some operations that were owned by processors (about 1% of farms). Respondents were also asked whether they produced certified organic broilers or free-range broilers ('free-range' is operator-defined and not necessarily organic). About 1.7% of operations were certified organic (1.4% of broilers) while a smaller fraction (0.44% of operations) reported that they produced free-range broilers.

Table 2.3 - Broiler production in 2006, by type of operation

Type of operation	All farms		Farms reporting broiler removals		
	Obs.	Farms	Obs.	Farms	Removals
Production contract	1,546	17,200	1,543	17,183	8,310,308,738
Processor-owned	12	163	12	163	84,166,446
Independent	6	52	6	52	31,411,423
More than one type	2	14	2	14	8,219,932
Refusal/Don't know	2	11	2	11	5,265,560
All operations	1,568	17,440	1,565	17,423	8,439,372,079

Notes: 'Obs.' Refers to sample observations. Three sample farms with production contracts failed to report any broilers removed, leaving 1,543 respondents in the removals columns.
Source: 2006 Agricultural Resource Management Survey, version 4.

Housing

Broiler houses are a major investment for growers. In 2006, a single large house of nearly 30,000 square feet could easily cost $300,000, and most growers had multiple houses. Housing is also an important limiting factor in the industry's productivity growth, as improvements in housing design and climate control systems can lead to improved feed efficiency, lower bird mortality, and reduced costs of feeding and litter management.

In 2006 there were over 70,000 broiler houses in use for meat production in the 17 surveyed states. Nearly two-thirds of broiler capacity was built in a 15-year period from 1986 through 2000. Investment dropped sharply after 2000, as considerably less capacity was built in the 6-year period from 2001 through 2006 than in any of the three preceding 5-year periods (1986-1990, 1991-95, and 1996-2000).

The diffusion of technologies in the industry can be traced by sorting houses according to vintage – that is, the year in which they were built (Table 2.4). Houses have become steadily larger over time. Whereas the typical house built in the 1960s was about 12,750

ft^2, recently built houses average over 20,000 ft^2, and large houses built in 2005 and 2006 are much larger – up to 36,000 ft^2. Most houses built before 2000 have side curtains – fabric that can be raised or lowered to help control the climate in a house with natural ventilation. While many recently built houses also have side curtains, they are more likely to have solid walls with equipment added for climate control.

About 75% of the broiler houses surveyed had cooling cells and tunnel ventilation, with newer houses much more likely to have them than the older houses (Table 2.4). Over 90% of houses built after 2000 had those features, compared with 70% of houses from the late 1980s and 50% from the 1970s. Older houses that have cooling cells and tunnel ventilation have probably been retrofitted, with the equipment installed after the houses were originally constructed.

Table 2.4 - Broiler housing, by vintage

Vintage (year built)	Houses		Mean size (ft^2)	Percent of houses with:		
	Number	Share of total (%)[1]		Side curtains	Cooling cells	Tunnel ventilation
No year	1,013	1.4	14,466	66	29	57
Pre-1960	345	0.5	12,340	70	50	36
1961-1965	619	0.9	12,751	80	28	11
1966-1970	1,292	1.8	12,754	87	44	40
1971-1975	2,883	4.1	13,110	82	49	53
1976-1980	5,362	7.6	14,694	72	55	53
1981-1985	4,486	6.4	16,449	68	64	64
1986-1990	12,291	17.4	16,259	75	71	70
1991-1995	16,303	23.1	17,678	74	78	79
1996-2000	15,142	21.5	18,765	75	85	88
2001-2006	10,861	15.4	20,180	48	92	94
All houses	70,597	100.0	17,352	70	75	76

[1]Column sums may not add to 100 due to rounding

Source: 2006 Agricultural Resource Management Survey, version 4. Only includes houses for farms that have production contracts.

C. Entry and experience in broiler production

The same survey previously referred to asked respondents for the number of years that their operation had been producing broilers. Only 4.5% of the farms, with 6.6% of the total production, had been raising broilers for 5 years or less (Table 2.5). In contrast operations that, by 2006, had been in operation for 6-10 years accounted for 20% of farms and 23% of production. At the other end of the spectrum, about a third of all operations had been in business for at least 20 years.

An operation's age had a strong relationship with its facilities and finances. Older operations were smaller with much older housing and technology. Many older operations had no debt, while those with debt carried much less, per square foot of capacity, than newer operations.

New operations, in business for 5 years or less, had houses that were, on average, 11 years old indicating that many recent entrants bought out existing operations with older facilities. Just under half of the new operations in Table 2.5 also had new houses. Those operations carried higher debt loads - $6.52 per square foot, on average, compared to $3.03 for new operations with older houses – and 99% of their houses had evaporative cooling and tunnel ventilation.

Table 2.5 - Experience and broiler production.

Item	Years operation has produced broilers			
	Under 6	6-10	11-20	Over 20
Farms	770	3,354	7.073	5,802
Share of broiler farms (%)	4.5	19.5	41.2	33.8
Share of broiler removals (%)	6.6	22.9	41.3	28.4
Mean operator age (years)	48	49	54	60
Financial characteristics				
Debt per sq ft of housing ($)	4.55	4.81	2.42	1.69
Share with no debt (%)	14	13	25	43
Financial characteristics				
Average age (years)	11	12	16	24
Tunnel ventilation (%)	88	85	76	55
Evaporative cooling (%)	91	80	72	57
Side curtains (%)	43	72	72	73
Contract duration				
Five years or more (%)	40	22	15	6
One year or less (%)	46	58	62	73

Notes: Shares of farms and pounds sum to 100 when refusals are added (1.0% of farms and 0.8% of pounds)
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

Table 2.6 - Production and the number of houses on broiler operations.

	Birds removed	Pounds removed	Capacity utilization[1]
Operations with:		*Means*	
Two houses	227,971	1,163,653	35.5
Three houses	340,298	1,775,921	36.1
Four houses	472,302	2,584,358	36.8
Six houses	722,530	4,079,423	38.7
Eight houses	896,440	5,229,069	36.9
All operations:			
Mean	483,600	2,615,251	36.8
Median	402,500	2,211,600	36.5

[1]Capacity utilization equals pounds removed per square foot of housing capacity. The table lists the five most common classes, according to the number of houses.
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

D. Size of broiler operations

Among farms with production contracts, average production in 2006 was 483,600 broilers and 2.65 million pounds of chicken meat (Table 2.6). Because averages were influenced by a few very large operations, the median (half of operations produced more and half less) is often used. The median production in 2006 was 402,500 broilers and 2.2 million pounds of chicken meat (Table 2.6).

Looking at farm size according to the number of houses they had (Table 2.7), most of the farms surveyed had only a few houses – 70% had 1-4 houses, and together they accounted for just under half of the broiler production. Operations with 5-6 houses and operations with 7 or more houses each accounted for just over a quarter of the production. The largest operations responding to the survey had 18 houses, although enterprises of that size are not common.

Although production is shifting to large operations, **family farms still dominate**. Integrators directly owned farms that account for only 1% of production. Among farms with production contracts, 88% were sole proprietorships (Table 2.8). While corporation accounted for just over 10% of production, most were family corporations in which more than half of the stock was owned by people related by blood or marriage. Large family farms often seek to incorporate, and that pattern holds among broiler operations – 35% of those with 13-18 houses are incorporated, compared with only 6% of those with 3-4 houses (Table 2.9).

Table 2.7 - Size distribution of broiler operations.

Number of houses	Farms	Broilers removed	Pounds removed	Capacity (sq. ft.)
	Percent of total[1]			
NR[2]	0.5	0.2	0.2	0
1-2	27.3	11.6	10.7	11.0
3-4	43.1	38.0	37.4	38.0
5-6	18.7	25.4	26.0	25.0
7-8	6.1	10.9	11.3	11.8
9-10	1.7	4.2	4.2	4.2
11-12	1.2	3.4	3.6	3.5
13-80	1.6	6.4	6.7	6.6
All farms	100.0	100.0	100.0	100.0
	----------Millions----------			
Totals	17,186	8,310	44,815	1,221

[1]Columns may not add to 100 because of rounding.
[2]Some operations did not report the number of houses or had none and they are designated with an 'NR'.
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

Table 2.8 - Legal organization of contract broiler operations.

Type of organization	Farms	Broilers
	Percent	
Individual (sole/family proprietorship)	87.9	83.6
Legal partnerships	4.6	5.8
Family corporation[1]	5.2	7.2
Non-family corporation	2.2	3.2
Other[2]	0.1	0.2
Total	100.0	100.0

[1]Family corporations are those in which more than half of the voting stock is held by people related to one another by blood or marriage.
[2]Other includes estates, trusts, and cooperatives
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

Table 2.9 - Farm organization, by size of broiler operation

Number of houses	Percent of farms that are incorporated	Share of gross cash income from broiler contract fees[1]
1-2	4	68
3-4	6	88
5-6	8	87
7-8	15	87
9-10	10	88
11-12	28	79
13-18	35	75
All farms	7	85

[1] Gross cash farm income includes fees from production contracts, revenues from cash sales and marketing contracts, government payments, land rents received, and revenues from other farm activities, such as grazing, custom work, and machine hire.
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

E. Expenses on broiler operations

The size of a broiler operation affects the types of expenses they have. For example, large and small operations provide labor in different ways (Table 2.10). For the smallest enterprises (1-2 houses) the primary operator reported providing the broiler enterprise with, on average, 25 hours of labor per week. For those with 1-2 houses the broiler operation is unlikely to be the primary source of income for the family. Operator hours rise steadily with farm size. For 3-4 houses operators typically worked 35 hours per week. Those farms with 9 or more houses required operators to work 45 hours per week with some additional hours provided by other family members and/or hired workers.

Smaller broiler farms use virtually no hired labor (Table 2.10). In contrast, larger operations rely on considerable amounts of hired labor, which allows for greatly expanded production for a given time commitment by the operators. For the large operations, payment for hired labor amounts to 0.45 to 0.60 ¢/lb produced or about 10% of average production contract fees.

Table 2.10 - Labor commitments in contract broiler production expressed as median values in each class (i.e., half of farms in a class have greater values and half have smaller).

Number of houses	Weekly hours		Labor inputs to production	
	Primary operator	All operators	Unpaid hours	Paid labor compensation ($)
			Per 1,000 pounds produced	
1-2	25	30	1.72	0.00
2-4	35	40	0.97	0.09
5-6	40	49	0.67	1.01
7-8	40	50	0.53	2.44
9-10	45	45	0.41	2.65
11-12	45	50	0.35	4.42
13-18	45	45	0.27	5.97
All farms	32	40	0.96	0.15

Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

For the farms surveyed, utilities were the major operating cost and amounted to 1.1-1.2¢ per pound, a significant cost when production contract fees average about 5¢ per pound (Table 2.11). Electricity expenses varied from 0.36-0.41¢ per pound of meat produced, with no apparent advantage for the larger operations. Most growers spent more on fuel with expenses ranging from 0.6¢ to 0.8¢ per pound, although the largest operations realized noticeably lower expenses in 2006.

Fuel expense can also be an important feature in contracts – three-quarters of the smallest producers surveyed received some fuel assistance from integrators, compared with 40% of the largest operation. The level of assistance declined as the farm operation increased in size. Assistance took two primary forms: reimbursement for fuel expenses or adjustment of compensation to reflect seasonal changes in fuel prices.

Table 2.11 - Utility expenses in contract broiler production.

Houses	Fuels & oils	Electricity
	Cents per pound produced	
1-2	0.760	0.395
3-4	0.753	0.395
5-6	0.684	0.396
7-8	0.679	0.378
9-10	0.802	0.363
11-12	0.760	0.367
13-18	0.572	0.405
All farms	0.735	0.394

Note: Estimates are median values among operations in each size class.
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

F. Litter management practices

Poultry litter is defined as bedding material, such as wood shavings, sawdust, or straw, spread on broiler house floors. After being used, litter consists mostly of poultry manure, along with the original bedding, feathers, and spilled feed. The manure contains nutrients, including nitrogen (N), phosphorus (P), potassium (K), and calcium (Ca) that can be used to fertilize cropland. Excessive applications of nutrients, however, can create environmental risks to water and air resources. Litter management, therefore, becomes an important issue.

Farms may apply used litter to their own cropland or they can remove it to other farms or for other uses. For the broiler farms surveyed, most farms (about 71%) removed at least some litter from the farm, and a little over half of those removed all of it (Table 2.12). In terms of the total amount produced, 61% of all broiler manure produced on the farms surveyed was removed and used off the farm. Thirty-six percent of the litter removed from farms was sold. Revenue from litter sales, about 0.2¢ per pound of live weight production, added about 4% to the operation's gross income for growers who could find buyers for their litter.

About 60% of the farms surveyed applied litter to their own fields (Table 2.12), and about half of those were able to field-apply all of their litter. Thirty-nine percent of all litter stayed on the farm and was applied to the fields on the operation. For those that did so, survey responses indicated that about 1 acre of cropland was fertilized for every 4,000 broilers produced (for 'average' size broilers). For an operation that removed 400,000 broilers in a year, and aimed to field-apply all litter, on average 100 acres would be required.

Table 2.12 - Methods of managing litter.

Methods of litter management	Percent of farms	Percent of litter[1]
Methods of litter disposal:		
Applied to fields on the operation	60.2	39.0
Removed from the operation	70.8	60.7
Other	2.5	0.3
		100.0
Method by which litter was removed:		
Sold by the operation	33.4	36.3
Hauled off operation for a fee	4.5	4.2
Exchanged for clean-out and hauling	33.9	33.8
Exchanged for other services	5.8	5.2
Given away free of charge	21.9	20.5
		100.0

[1]Some farms have more than one method of litter disposal or removal, so the 'percent of farms' column will not add to 100.

Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

G. Farm operators and their households

Farm operators are those that make the day-to-day management decisions for the farm. Until a few years ago, USDA surveys only gathered information for one operator per farm – the primary operator. But many farms have more than one operator and only a limited amount of personal information is available for farms with up to three operators.

Operator characteristics for family-owned broiler farms surveyed are summarized in Table 2.13 and compared to operators of all family farms with at least $50,000 in gross cash farm income. Many farms, as defined in USDA statistics, are 'extremely small', with very little farming activity or income derived from farming. Almost all commercial broiler operations meet the $50,000 sales cutoff, so this cutoff was chosen as a useful comparison.

Table 2.13 - Operator characteristics, contract broiler farms vs. all commercial farms.

Item	Broiler farms[1]		All farms[2], gcfi > $49,999	
	Primary operator	Operator-spouses	Primary operators	Operator-spouses
Number of farms	17,005	8,280	488,716	188,386
Operator age				
Average age (years)	55	53	55	54
Percent under age 40	8.5	10.4	11.2	10.1
Percent 65 or older	20.6	13.9	21.9	16.4
Gender and ethnicity		*Percent*		
Female	8.0	92.2	4.4	93.0
Hispanic	0.7	0.5	1.8	1.8
African American	1.1	0.3	0.2	0.1
American Indian	1.2	0.1	0.9	0.03
Asian	1.1	1.7	0.4	0.3
Education		*Percent*		
Less than high school	13.5	9.9	7.3	8.0
High school only	49.6	52.5	38.9	35.9
Some college	24.9	24.5	25.3	29.1
College	12.0	13.0	28.4	26.8

[1]Non-family farms are excluded.
Gcfi = gross cash farm income
[2]Table compares broiler operations with production contracts to all family farms with gross cash farm income of at least $50,000
Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

The typical operator for the family-farm broiler operations surveyed was a white male in his 50s whose formal education ended after completing high school (Table 2.13) – much like other family-farm operators. Operators of broiler farms differed from other operators in two important dimensions: more of them were women and fewer of them had graduated from college. Eight percent of the broiler primary operators were women, compared with just over 4% of all family farms, but this only captures part of the story.

Most spouse-operators were women, and respondents usually report the male as the primary operator when a husband and wife team operated the farm. When we include all operators of a broiler farm, 54% of broiler farms reported having at least one female operator, compared with 36% of all family farms.

Survey respondents were asked for the highest level of formal education that they completed and given four response categories to choose from – less than high school, completed high school, completed some college, and a college degree. More than 50% of all family-farm operators had completed at least some college education and less than 10% did not complete high school. Over 60% of broiler farm operators had no more than a high school diploma and 12% completed college, compared with 28% of all small-farm operators (Table 2.13).

H. Farm household income

Farming is not typically the only source of household income for a broiler operator, which also includes off-farm income whether earned (wages and salaries) or unearned (such as pensions or returns on financial assets). Household income from the farms surveyed is reported in Table 2.14 for all farm households and the four size-classes used previously.

Table 2.14 - Average household income, primary operator households, 2006.

	Broiler enterprise size class[1]				
	Small	Medium	Large	Very large	All farms
Number of farms	4,251	8,503	2,125	2,126	17,005
Average household income					
Total	$52,717	$64,974	$77,183	$130,819	$71,360
Off-farm	$42,705	$45,233	$36,475	$44,476	$43,717
Farm	$10,012	$19,741	$40,708	$86,343	$27,643

Notes: Non-family farms and farms with more than one household sharing in farm business income are excluded.

[1]Size classes are based on live weight pounds removed. The small class (less than 1.33 million) included the smallest 25% of farms, the medium class (1.33 to 3.30 million) included the next largest 50 percent of farms, and the two largest classes (3.30 to 4.486 and over 4.486) each had an eighth of all farms.

Source: 2006 Agricultural Resource Management Survey, version 4, production contracts only.

Several striking patterns stand out. Off-farm income is important in all size classes. On average, households earned $43,717 in off-farm income, which was substantial even among very large operations ($44,476 on average). Off-farm income accounts for nearly 80% of total household income, on average, for small broiler farms, but still accounts for 34% of the total among very large farms.

As would be expected, total household income and household income from farming rises sharply as farm size increases. While the household's income from farming averages $27,643 across all farms, it ranged from $10,012 in the small class to $86,343 among very large operations. Very large operations averaged nearly eight times as much

production as small operations, and their non-broiler enterprises (crop and livestock cash income) were four times larger.

Average household income for operators of the broiler operations compared favorably to nationwide averages. Mean household income in the United States was $66,570 in 2006, compared with $72,453 for the broiler farm households surveyed (Table 2.14). Median income – half of households earn less and half earn more – was $48,201 for all U.S. households in 2006 and $56,248 among operators of broiler farms.

KENTUCKY POULTRY INDUSTRY FACTS

ECONOMICS

- $814 million industry
- 15.5% of the product being produced is exported, meaning that $108.5 million per year is coming into Kentucky from international trade
- 7,000 industry employees
- Pays out $133.8 million in salaries and wages and over $91 million in grower payments
- 30% of workforce is supervisors, skilled maintenance, professional truck drivers, and quality assurance technicians.

FARMS

- 850 poultry farms, with 2,800 poultry houses in 42 counties
- The average poultry farm is owned and managed by a family farmer and consists of less than five poultry houses
- Many farmers enter the business to diversify their revenue because of their concerns about tobacco's future

POULTRY-RELATED AGRIBUSINESS

- Kentucky's poultry industry uses 29% ($74,709,384) or 35.8 million bushels of Kentucky's corn crop
- 32% or 335,000 tons of it's soybean crop
- Kentucky's grain farmers realize a 10-15 cent per bushel premium from poultry giving them a $10-$15 million bonus for their grain.

INFRASTRUCTURE

The poultry industry has made a large investment in facilities. This investment includes:

- 5 broiler hatcheries
- 2 primary breeder hatcheries
- 6 feed mills
- 4 processing plants
- 3 layer complexes
- A protein conversion plant
- 850 poultry farms with 2,800 poultry houses