



U.S. Broiler and Egg Production Cycles

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General

Broilers (chicken for meat) and market eggs (table eggs) are both produced for human consumption. This special report follows the production of both commodities and graphically explains NASS published estimates by providing production cycle flowcharts and historical relationships. The terminology and definitions used in NASS chicken publications appear on page 9 of this report.

An explanation of the two cycles for the production of broiler meat and table eggs are shown in Flowcharts 1 and 2, respectively. NASS publishes estimates for each stage of the cycles in at least one of the publications listed on page 10.

Surveys are conducted to obtain information for publication. Approximately 900 contractors and independent egg producers are contacted monthly to obtain layers and eggs data included in the monthly *Chickens and Eggs* report. The sample consists of those owning at least 30,000 table egg layers, flocks of hatchery supply layers, or pullet only operations with at least 500 pullets. All known hatcheries, approximately 330, are contacted for information on a weekly or monthly basis to obtain hatchery data to be included in the weekly *Broiler Hatchery* and monthly *Chickens and Eggs* reports. Revisions are made on an annual basis and published in the respective annual reports (shown on page 10).

Chicken Hatcheries

For over 50 years, the number of operations with chicken hatcheries in the U.S. has dramatically declined, however the incubator egg capacity has significantly increased (Graph 1). The chicken industry has changed from many smaller-sized hatcheries to a few larger-sized hatcheries. In the past 10 years, as the number of chicken hatcheries decreased, the average incubator egg capacity per hatchery increased (Graph 2).

Eggs set in incubators are fertile eggs layed by hatchery supply layers. Over the past few years, eggs set in incubators have more closely approached full capacity (Graph 3). This trend indicates a more efficient industry, which makes better use of their facilities.

Graph 4 depicts that the broiler-type eggs hatched far out number the egg-type eggs hatched (corresponding to item 4 in Flowcharts 1 and 2). The U.S. hatches less egg-type eggs (which become table egg producing layers) compared to broiler-type eggs (which become broilers for meat production).

Production

For the purposes of this report, eggs are hatched for either consumption or regeneration, as displayed in Flowcharts 1 and 2. Consumption refers to production; broilers or table eggs. Regeneration refers to replenishing the supply flock.

Hatchery supply flocks are layers which produce fertile eggs that could potentially be set in an incubator. These include all generations (grandparents, great grandparents, pedigree, etc.), research flocks, vaccine egg producers, pure “breeder”, and production or multiplier. Graphs 5 and 7 show the relationship between potential placements and actual inventory (for one laying cycle) for both broiler-type (7-15 month laying cycle) and egg-type (7-18 month laying cycle), respectively.

Young chicken slaughter is an indicator of broiler production, however capons and other young chickens are also included. The number of head for young chicken slaughter has been steadily increasing over the past ten years. Likewise, the average live weight per bird has also been increasing (Graph 6).

The rate-of-lay of table eggs has been increasing when comparing December 1 estimates. Similarly, the percentage during the year of eggs broken compared with table egg production has been rising (eggs broken may include some hatching eggs). These relationships are visually displayed in Graph 8. The percent of eggs going to the breaker has been increasing at a greater rate than the rate-of-lay, possibly indicating a move towards convenience, i.e. pre-made commercial foods.

Value of Production

Graph 9 represents the value of production for broilers, eggs, and chickens (excluding commercial broilers). Broiler prices per pound are live weight equivalent prices and are used to calculate the value of production. The price is derived by the following formula: ready-to-cook (RTC) price minus processing cost multiplied by dressing percentage equals live weight equivalent prices.

The value of production of table eggs and chickens (excluding commercial broilers) has remained fairly constant over the past ten years. Broiler production has been increasing due partly to exports; however, the unsteady export market results in price fluctuations and shift in value.

Graphs 10, 11, and 12 display the leading states in value of production for broilers, eggs, and chickens (excluding commercial broilers), respectively.

Puerto Rico

Puerto Rico was added to the NASS annual Chickens and Eggs program in 2004. However, Puerto Rico has not been added to the Hatchery program at this time. Published data for Puerto Rico includes chicken inventory (excluding commercial broilers), egg production, layer disposition, value of eggs, and value of chickens (excluding commercial broilers).

Note

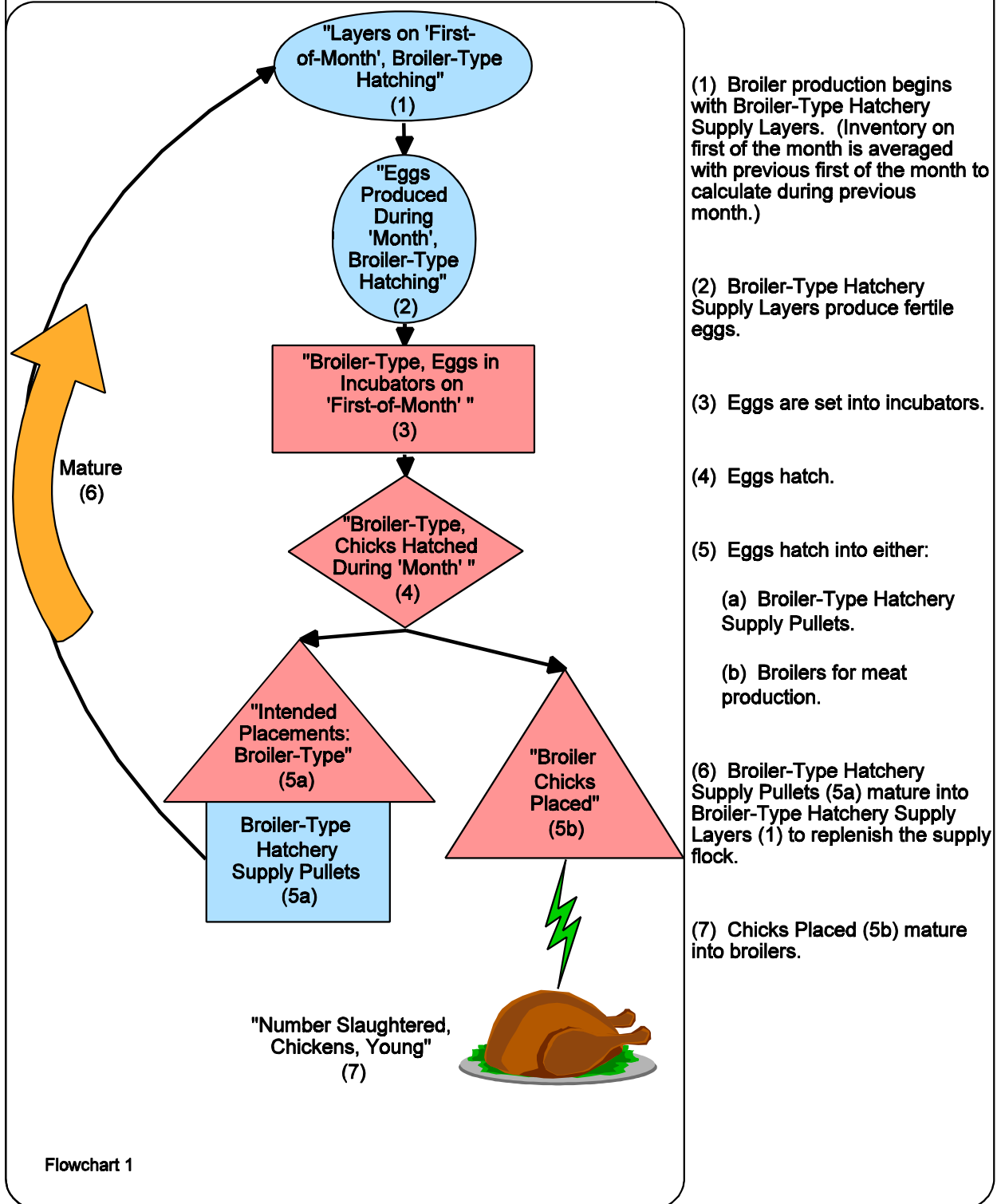
This special report is only available on the NASS website at www.usda.gov/nass/

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Cycle of Broiler Production



(1) Broiler production begins with Broiler-Type Hatchery Supply Layers. (Inventory on first of the month is averaged with previous first of the month to calculate during previous month.)

(2) Broiler-Type Hatchery Supply Layers produce fertile eggs.

(3) Eggs are set into incubators.

(4) Eggs hatch.

(5) Eggs hatch into either:

(a) Broiler-Type Hatchery Supply Pullets.

(b) Broilers for meat production.

(6) Broiler-Type Hatchery Supply Pullets (5a) mature into Broiler-Type Hatchery Supply Layers (1) to replenish the supply flock.

(7) Chicks Placed (5b) mature into broilers.

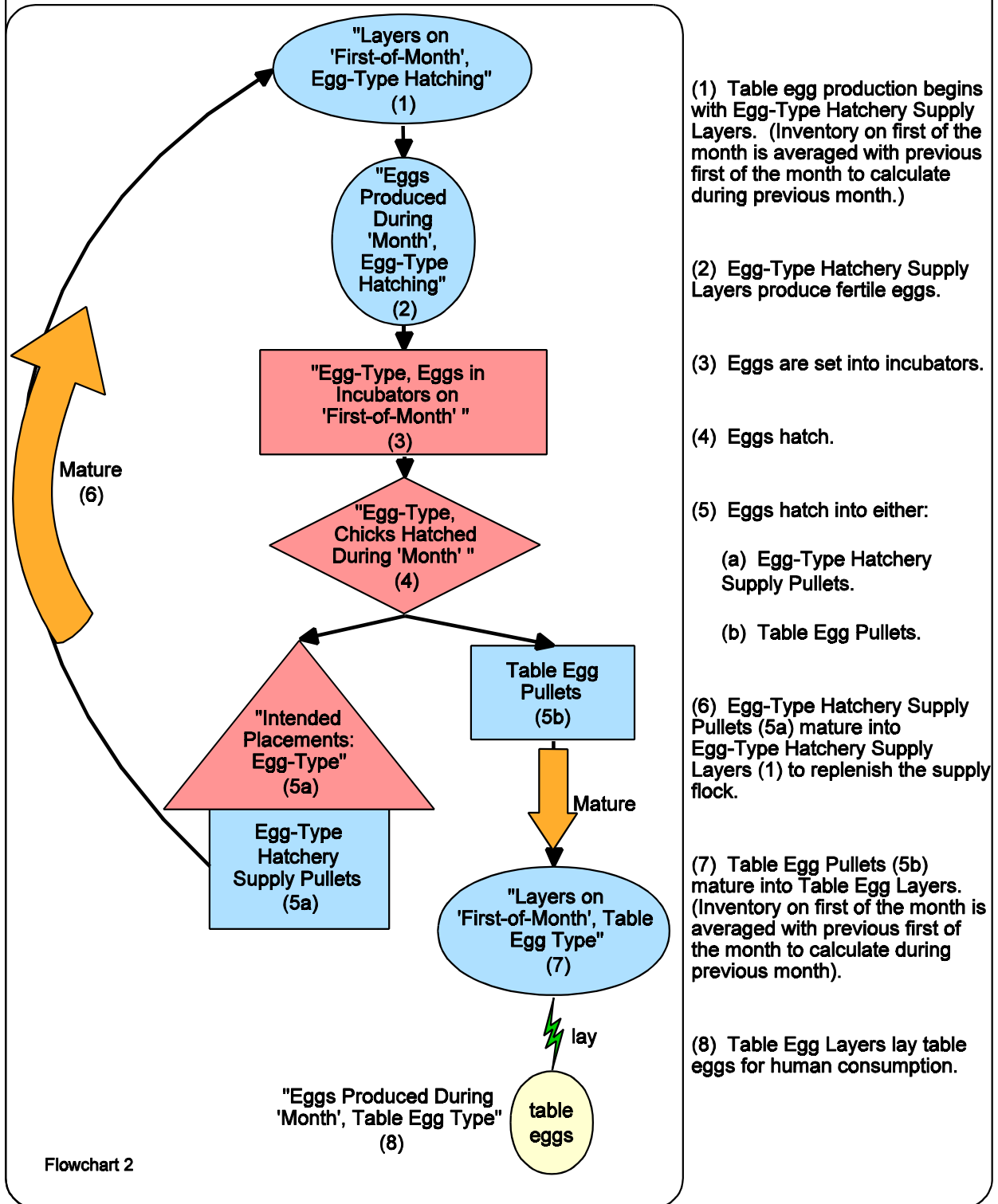
Footnotes:

(i) Intended Placements (5a) are the cumulative potential placements relative to current supply flocks 7-15 months earlier.

(ii) Broiler-Type Pullets are included in all "Pullets on 'First-of-Month' " and all "Pullets Added During 'Month' " (pullet chicks less than 3 days old added to pullet flocks).

(iii) Potential Placements and Broiler-Type Hatchery Supply Pullets (5a) are not necessarily equal. Potential Placements are chicks available to be placed in the hatchery supply flock. Broiler-Type Hatchery Supply Pullets are the birds which were placed in the hatchery supply flock.

Cycle of Table Egg Production



(1) Table egg production begins with Egg-Type Hatchery Supply Layers. (Inventory on first of the month is averaged with previous first of the month to calculate during previous month.)

(2) Egg-Type Hatchery Supply Layers produce fertile eggs.

(3) Eggs are set into incubators.

(4) Eggs hatch.

(5) Eggs hatch into either:

(a) Egg-Type Hatchery Supply Pullets.

(b) Table Egg Pullets.

(6) Egg-Type Hatchery Supply Pullets (5a) mature into Egg-Type Hatchery Supply Layers (1) to replenish the supply flock.

(7) Table Egg Pullets (5b) mature into Table Egg Layers. (Inventory on first of the month is averaged with previous first of the month to calculate during previous month).

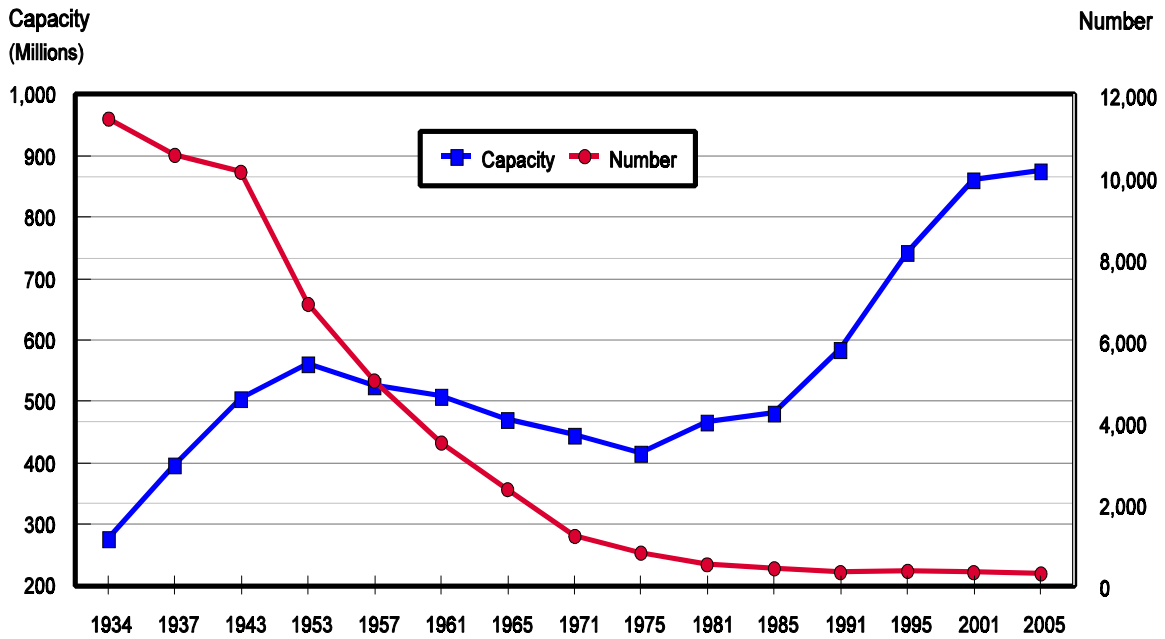
(8) Table Egg Layers lay table eggs for human consumption.

Footnotes:

- (i) Intended Placements (5a) are the cumulative potential placements relative to current supply flocks 7-18 months earlier. Molting and additional laying cycles will increase the cumulative potential placements.
- (ii) Egg-Type Pullets and Table Egg Pullets are both included in all "Pullets on 'First-of-Month' " and all "Pullets Added During 'Month' " (pullet chicks less than 3 days old added to pullet flocks).
- (iii) Potential Placements and Egg-Type Hatchery Supply Pullets (5a) are not necessarily equal. Potential Placements are chicks available to be placed in the hatchery supply flock. Egg-Type Hatchery Supply Pullets are the birds which were placed in the hatchery supply flock.

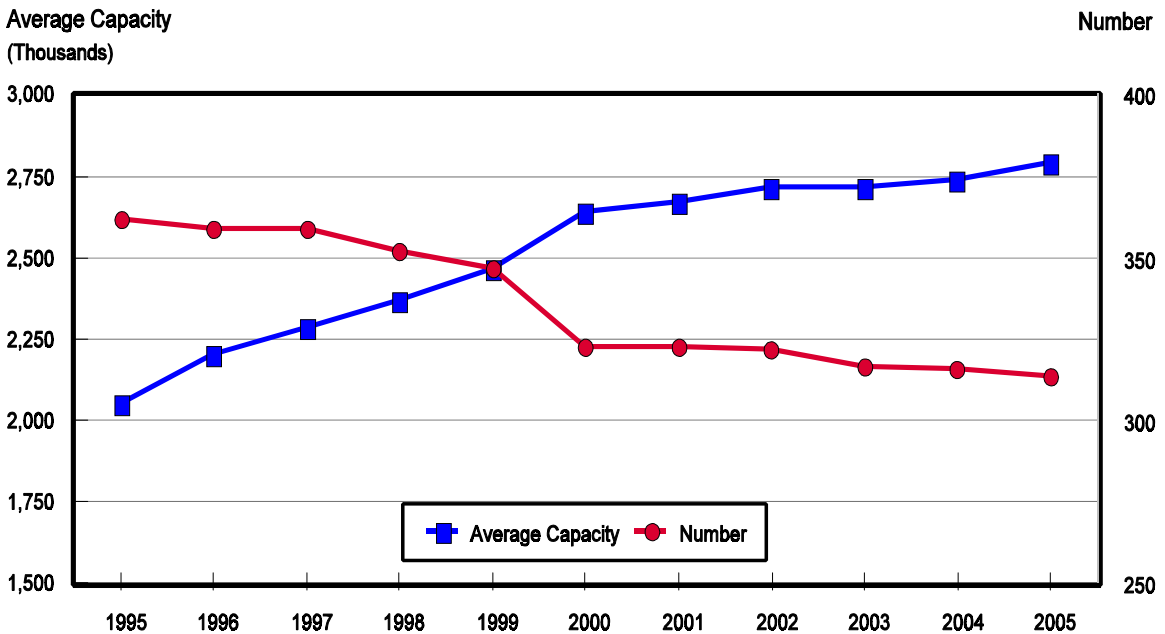
Graph 1

U.S. Chicken Hatcheries Incubator Egg Capacity versus Number of Hatcheries



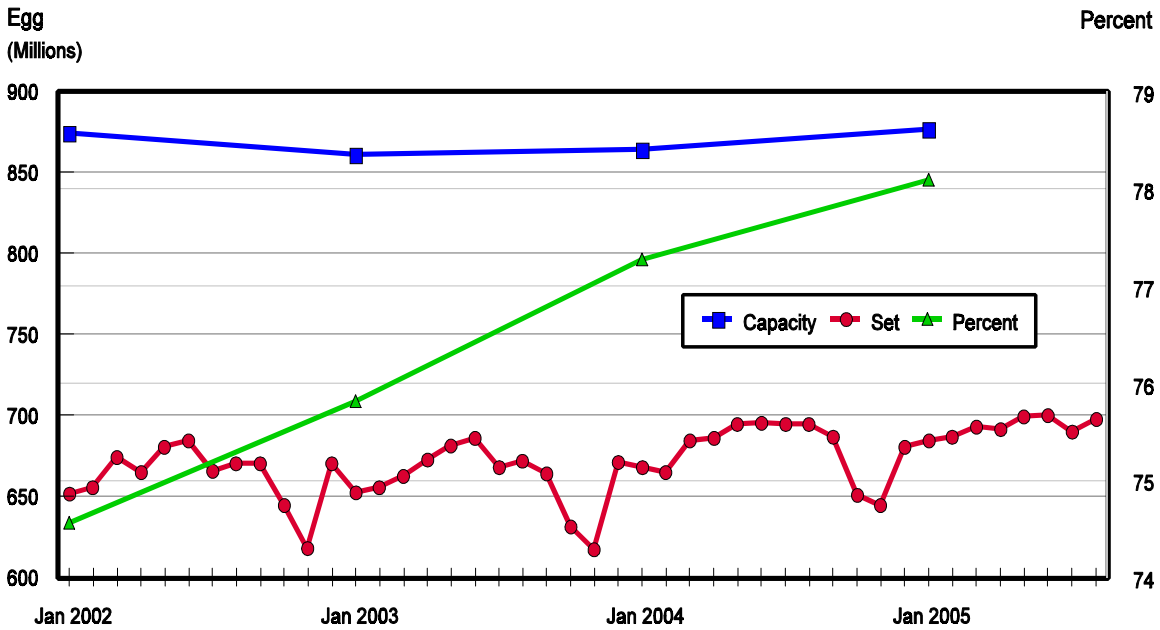
Graph 2

U.S. Chicken Hatcheries Average Capacity per Hatchery versus Number of Hatcheries



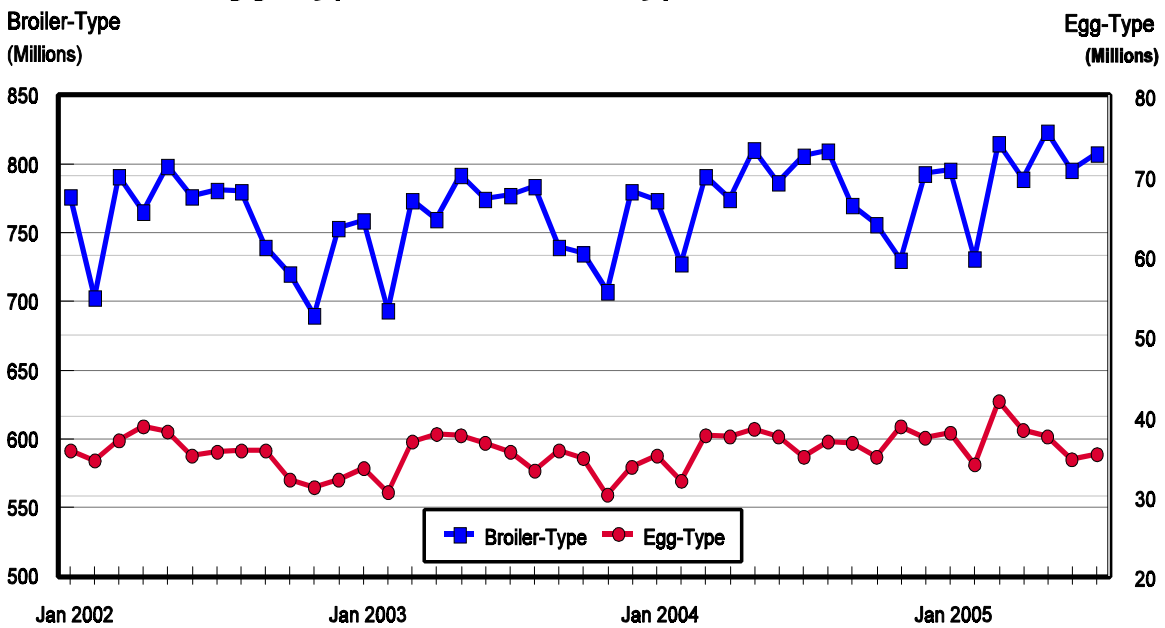
Graph 3

U.S. Chicken Hatcheries Egg Capacity and Eggs Set versus Percent of Capacity Used



Graph 4

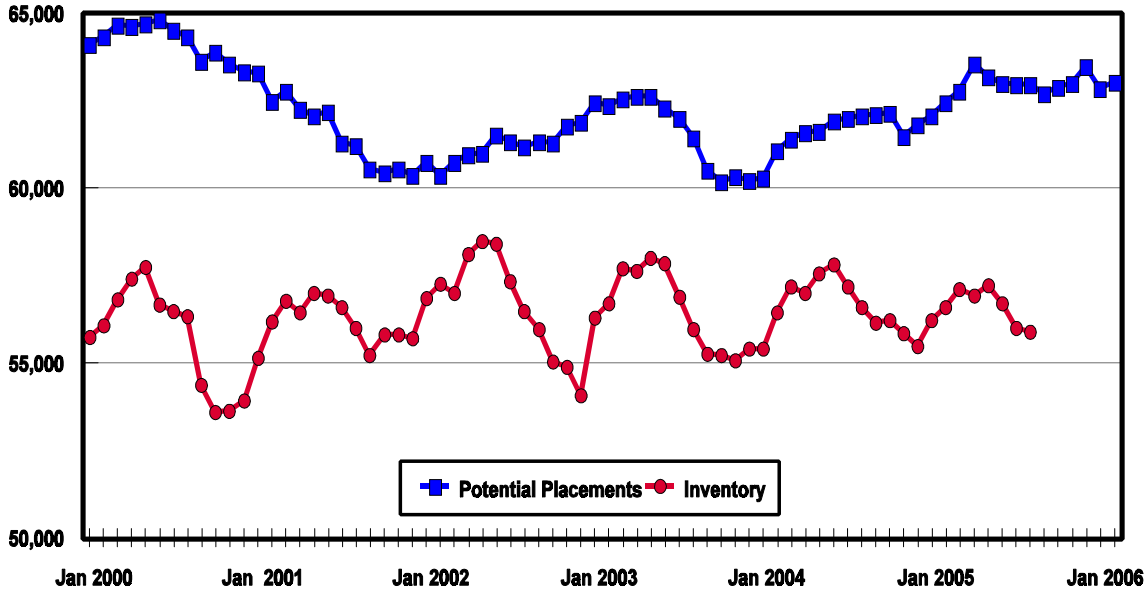
U.S. Chicken Hatcheries Egg-Type and Broiler-Type Chicks Hatched



Graph 5

U.S. Broiler-Type Chickens Potential Chick Placements versus Layer Inventory

Hatchery Supply Layers

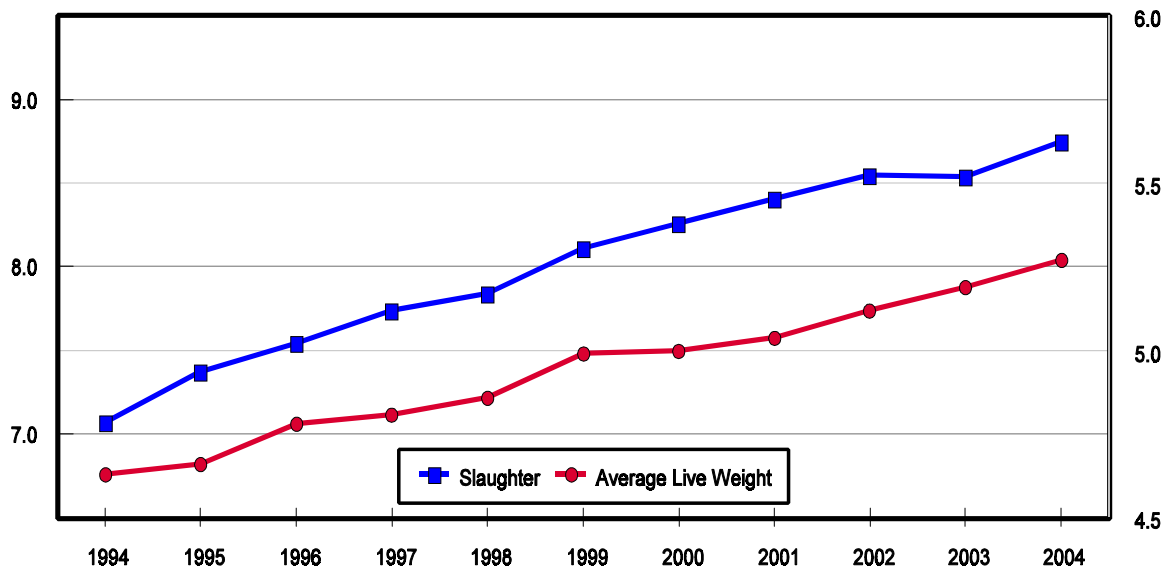


Graph 6

U.S. Broilers Young Chicken Slaughter versus Average Live Weight Per Bird

Number of Head
(Billions)

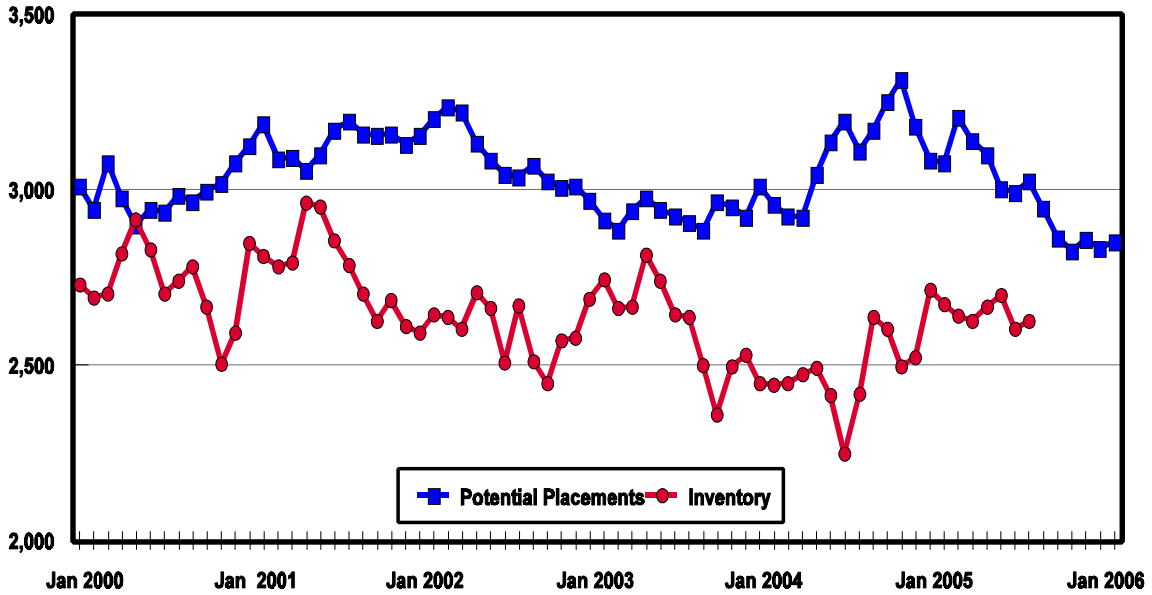
Pounds Per Bird



Graph 7

U.S. Egg-Type Chickens Potential Chick Placements versus Layer Inventory

Hatchery Supply Layers

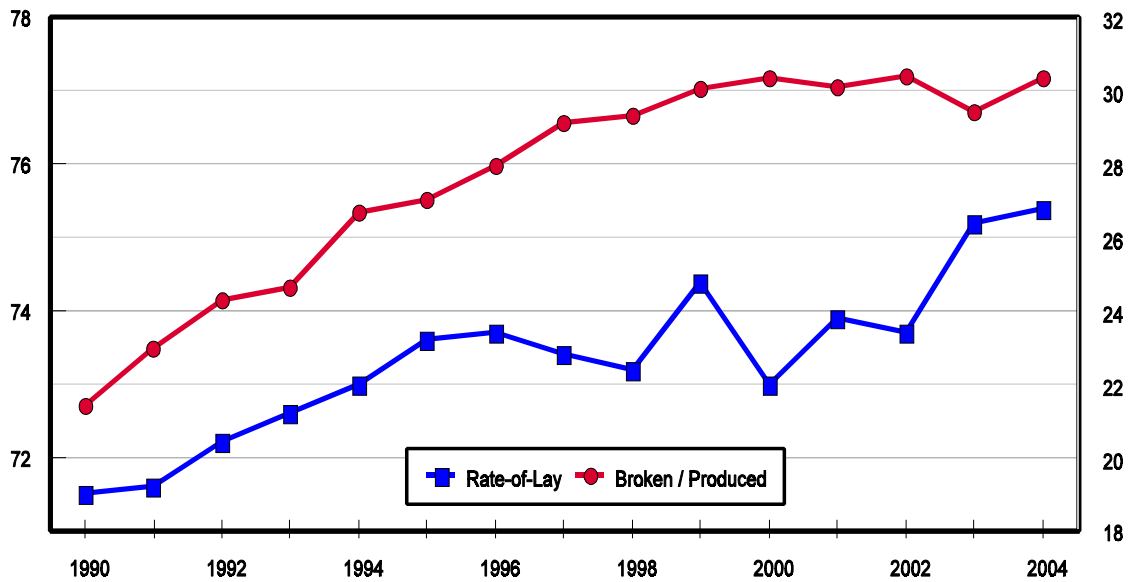


Graph 8

U.S. Table Eggs Rate-of-Lay versus Percent Eggs Broken to Table Eggs Produced

Egg Per 100 Layers

Percent

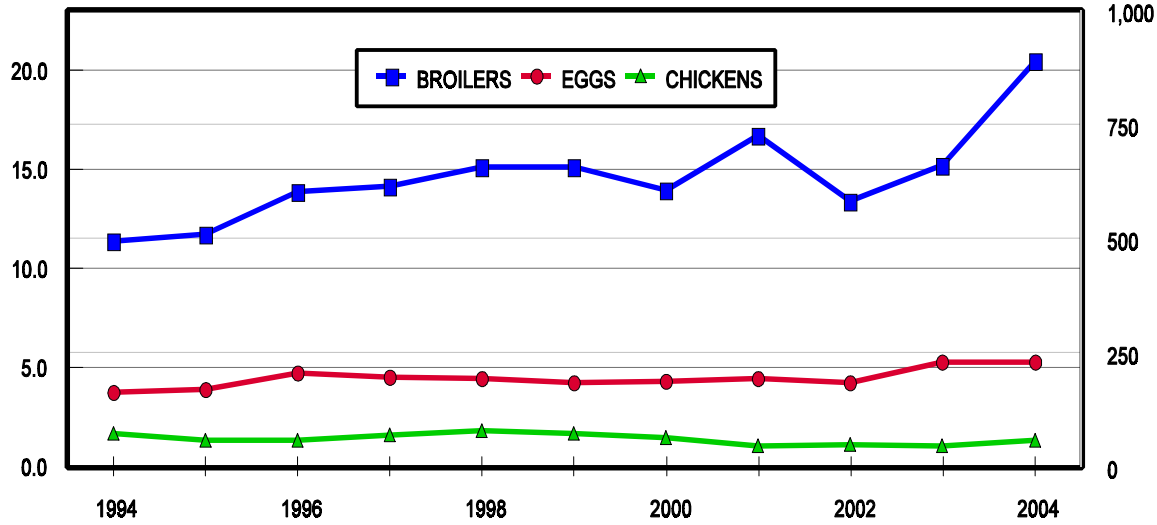


Graph 9

U.S. Broilers, Eggs, and Chickens Value of Production

Dollars, Broilers and Eggs
(Millions)

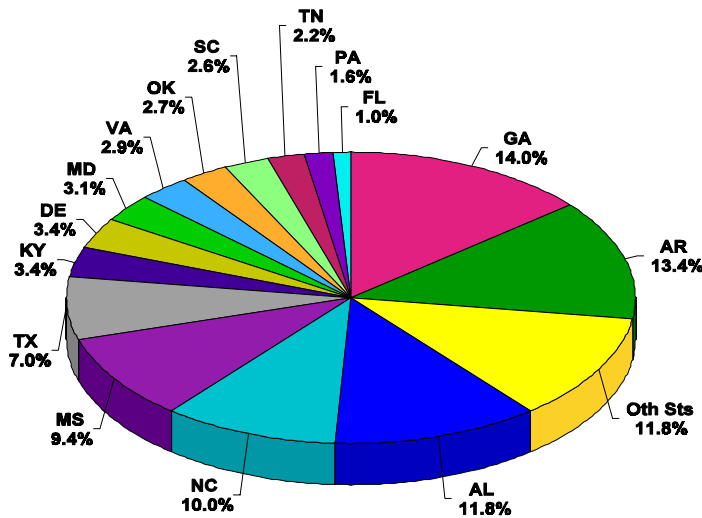
Dollars, Chickens
(Thousands)



Chickens include all chickens sold for slaughter (excluding commercial broilers).

Graph 10

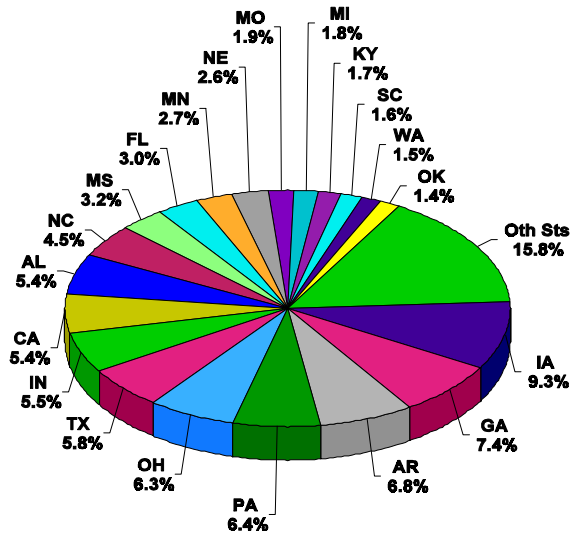
Leading Broiler States Value of Production



U.S. Value of Production
\$20,446,086,000

Graph 11

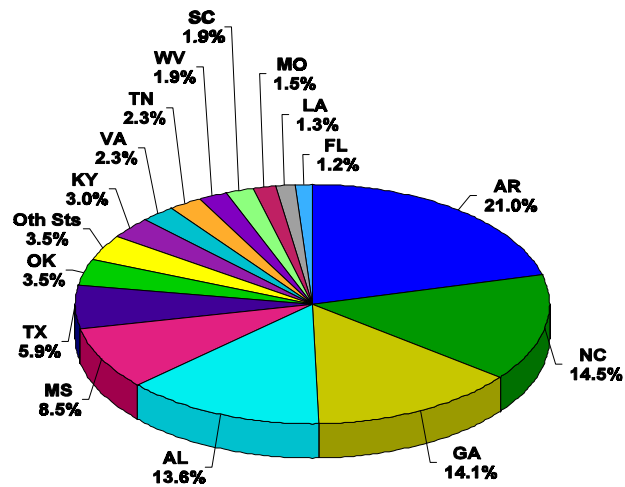
Leading Egg States Value of Production



U.S. Value of Production
\$5,303,244,000

Graph 12

Leading Chicken States Value of Production (excludes commercial broilers)



U.S. Value of Production
\$58,010,000

Terms and Definitions

Broiler: Domesticated chickens of meat-type strains raised for meat production.

Broiler-Type: Chicks or chickens of meat-type strains for meat or other uses, such as breeding or research.

Capon: Castrated male chicken.

Chicks hatched: The live chicks taken from incubators, including chicks later graded out or destroyed. Excludes dead chicks.

Chicks placed: After chicks are hatched they are “placed” in their respective use. When broiler chicks are “placed” it usually means they are placed on feed for meat production. Pullets can be placed in hatchery supply flocks, or placed into laying houses for table eggs.

Eggs Set: Eggs “set” in incubators for hatching. Chicken eggs requires 21 days in the incubator to hatch.

Egg-Type: Domesticated breeds of chickens with the primary purpose of egg production. The most common breeds are White Leghorn and Rhode Island Red.

Hatchery Supply Flocks, or Hatching Egg Flocks: Laying flocks of broiler-type breeds or egg-type breeds which lay fertile eggs to be set in incubators in the hatchery. Hatching egg flocks should not be confused with table egg flocks which lay unfertile eggs for human consumption. Hatching egg flocks include all generations. Common names of generations are: Research, Pedigree (Breeds, Strains), Great-grandparents, Grandparents, Multiplier flocks, Production flocks, Parents.

Hen: Female chicken usually more than one year old.

Incubator: An apparatus or chamber which provides favorable environmental conditions for the development of embryos or the hatching of eggs. Includes hatchers and setters.

Layer: Mature female chicken (including those being molted) producing marketable eggs, usually at least 20 weeks of age.

Molt: A process during which hens stop laying and shed their feathers; occurs naturally every 12 months or may be artificially induced.

Pullet: A female chicken prior to laying the first marketable egg.

Rooster: Male chicken usually kept for breeding purposes.

NASS Poultry Reports

Chickens and Eggs: Published information in this monthly report includes number of layers on hand, eggs per 100 layers, and total eggs produced. This report also includes pullet chicks added, layer disposition, layers being molted and molt completed, and commercial hatchery data on number of broiler-type and egg-type eggs in incubators and chicks hatched.

Chickens and Eggs Summary: The estimates in this annual report are the revisions to the monthly *Chickens and Eggs* report including the number of layers on hand, rate-of-lay, and egg production. Also published are December 1 chicken inventories and values.

Broiler Hatchery: This weekly report contains the number of broiler-type eggs set and broiler chicks placed for 19 selected states.

Hatchery Production Summary: Published information in this annual report include revisions to the monthly *Chickens and Eggs* report, summarizing commercial hatchery data on number of broiler-type and egg-type chicks hatched. This report also contains the number of eggs in incubators and broiler chicks placed for 19 selected States.

Poultry - Production and Value Summary: Estimates published annually include production and value for commercial broilers, eggs, turkeys raised, and chickens (excluding commercial broilers) sold.

U.S. Broiler Industry Structure: This report provides information on the history of the U.S. broiler industry and is available on the Internet only.

Egg Products: This monthly report contains the federally inspected shell eggs broken.

Poultry Slaughter: The information published in this monthly report summarizes the number of head and pounds slaughtered under Federal Inspection by type.

Poultry Slaughter Summary: The information in this annual report are the revisions to the monthly *Poultry Slaughter* report.

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