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Plant Health
Inspection Service

Veterinary
Services

National
Animal Health
Monitoring
System

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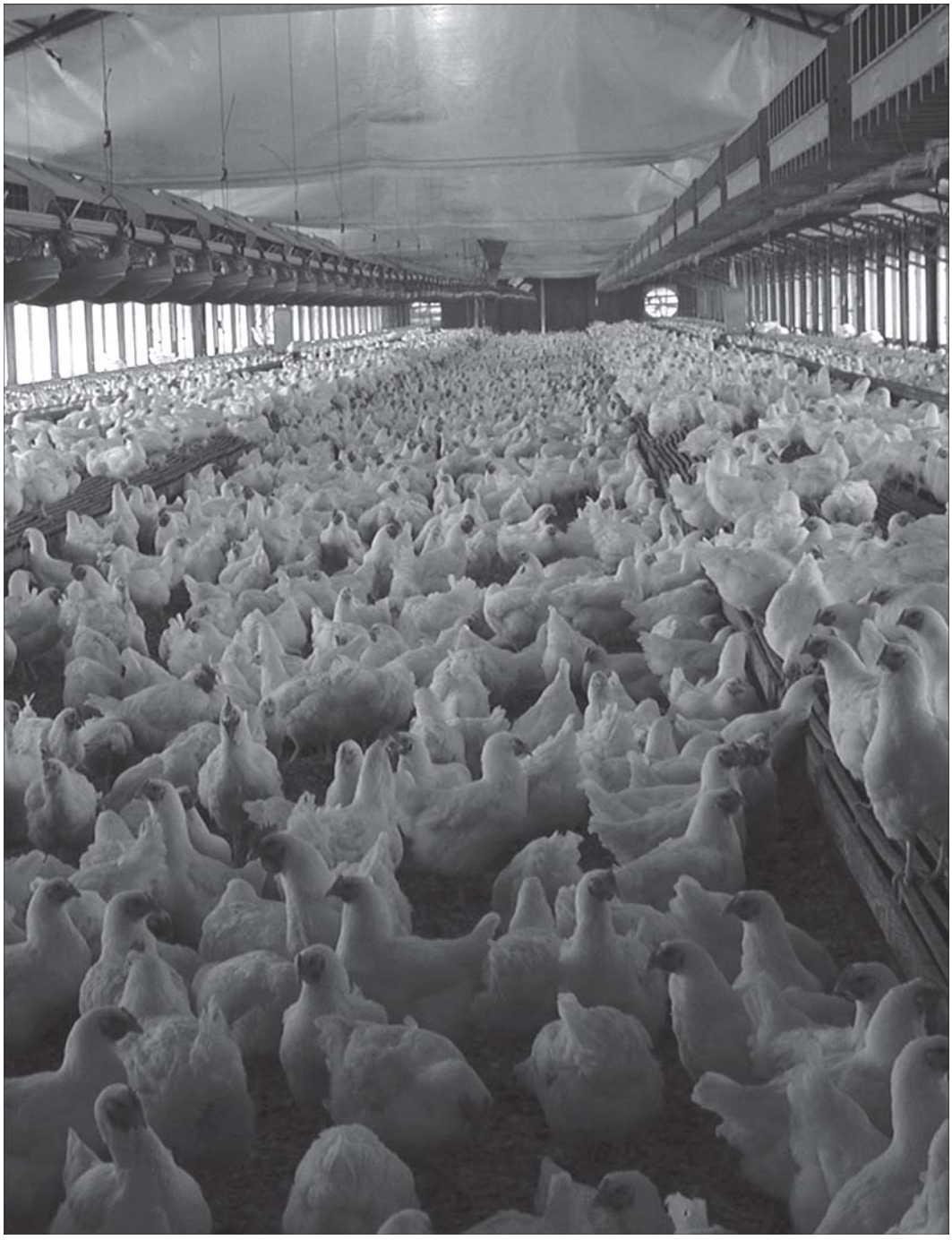
Poultry 2010

Structure of the U.S. Poultry Industry, 2010



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Items of Note

General

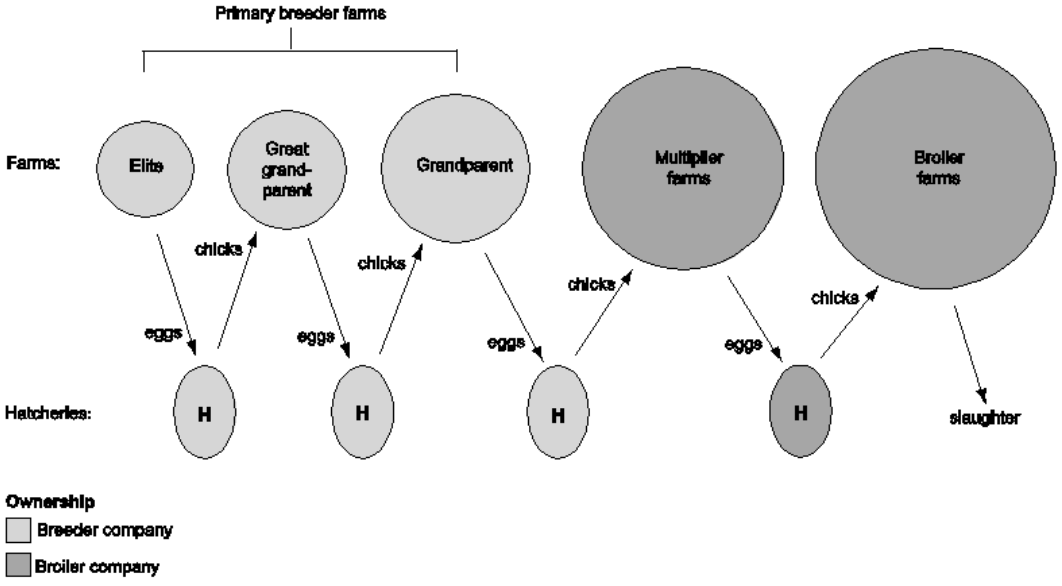
The Poultry 2010 study was administered to the Nation's largest broiler, turkey, table-egg layer, and breeder companies, which accounted for over 70 percent of the respective industries. Estimates generated from this study reflect the practices of these large companies only. Turkey-breeder companies were not included in the study.

Broiler farms accounted for nearly two-thirds of farms (65.6 percent). Table-egg production farms accounted for less than 3 percent of farms. Turkey farms accounted for 16.7 percent of farms, and breeder farms accounted for 15.4 percent of farms.

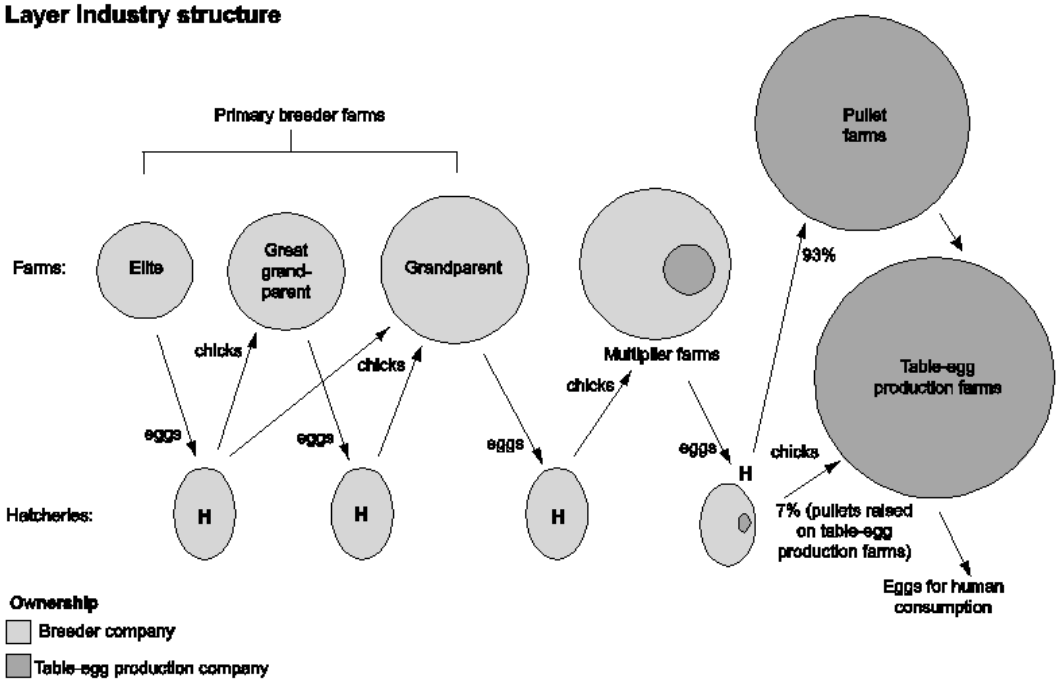
Broiler companies had a median of over 400 farms, whereas table-egg companies had a median of fewer than 10 farms.

Nearly all breeder farms and three-fourths of turkey farms had fewer than 50,000 birds at maximum capacity. The majority of broiler farms had 50,000 to 99,999 birds at maximum capacity, and the majority of table-egg farms had 100,000 or more birds.

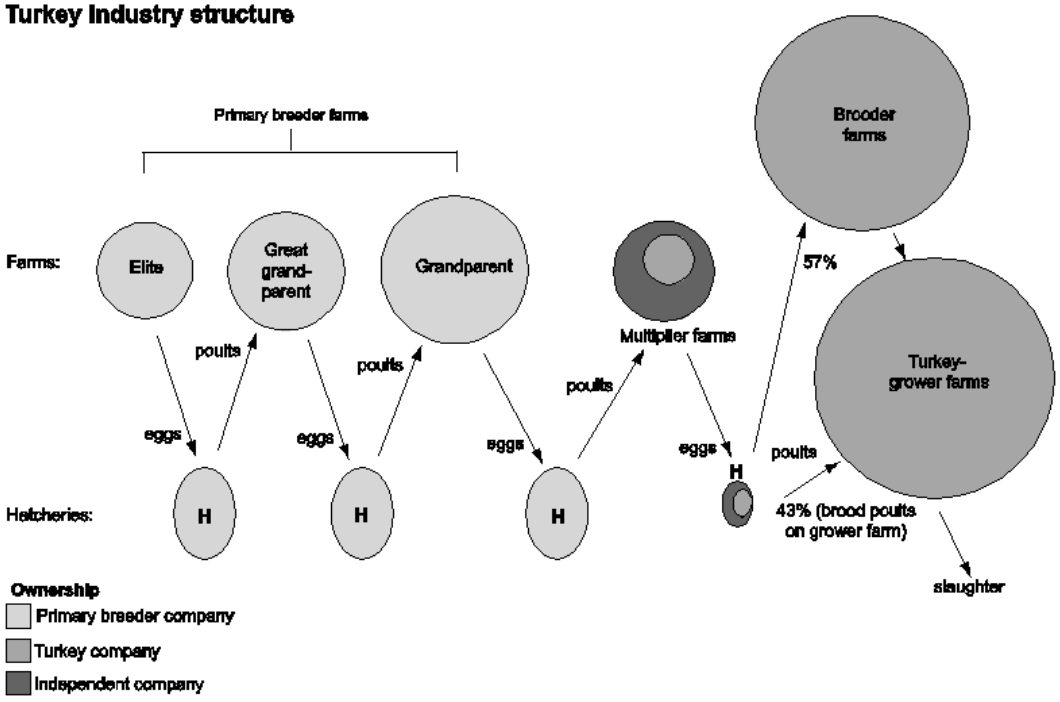
Broiler industry structure



Layer industry structure



Turkey industry structure



Breeding

Poultry production begins with primary breeders, the genetic stock for the industry. Primary breeder flocks consist of elite (pedigree/foundation), great-grandparent, and grandparent birds. Grandparent flocks produce the final generation of breeding birds (multiplier/parent flocks). Eggs from multiplier flocks hatch to become production birds (broilers, market turkeys, table-egg layers) for human consumption.

All broiler companies participating in the study had multiplier farms; less than 10 percent of table-egg companies had multiplier farms. About one-half of turkey companies had multiplier farms. Turkey companies that do not have multiplier farms generally receive poults or eggs from independent multiplier flocks. Table-egg companies that do not have multiplier farms will generally receive chicks or pullets from breeder companies.

Hatchery ownership is consistent with companies that have multiplier flocks. All broiler companies participating in the study owned hatcheries; less than 10 percent of table-egg companies owned hatcheries. About one-half of turkey companies owned hatcheries. Nearly all hatcheries that provided chicks to broiler farms were owned by the production company; less than 3 percent of hatcheries that supplied table-egg production farms were owned by the production company.

As suppliers of industry genetics, primary breeder farms commonly shipped eggs outside of their State (74.9 percent of farms) as well as outside of the United States (56.8 percent of farms). Multiplier farms mostly shipped eggs within State (95.2 percent of farms).

Hatcheries belonging to broiler and turkey production companies mostly produced chicks/poults to supply their company only. As producers of the genetics for the rest of the industry, 80.0 percent of breeder companies' hatcheries supplied other companies. Hatcheries belonging to broiler and turkey production companies mostly shipped chicks/poults to farms within the United States, whereas breeder companies' hatcheries commonly shipped chicks outside the United States (54.3 percent).

Ownership of multiplier flocks and hatcheries differed by production type. All broiler farms received chicks produced by company-owned multiplier flocks and hatcheries. Pullets placed on the majority of table-egg farms were produced by multiplier flocks and hatcheries owned by a primary breeder company. Birds placed on the majority of turkey-production farms (67.3 percent) were produced by multiplier flocks owned by an independent operator or another company.

Production

A higher percentage of table-egg farms than broiler or turkey farms were company owned (42.2 versus 0.2 and 8.0 percent of farms, respectively).

Over 8 of 10 turkey-grower farms had toms only; less than 1 percent had both hens and toms. About 4 of 10 turkey-grower farms also had brood birds on the same farm.

Organic farming was most common in table-egg production; 11.2 percent of table-egg farms had at least one house designated as organic.

Table-egg farms most commonly raised pullets on a separate farm belonging to the same company and located within the same State as their farm.

About 9 of 10 table-egg farms collected eggs by belt only.

About 8 of 10 table-egg farms primarily produced shell eggs (not for breaking).

Of farms that produced shell eggs, about one-third had on-farm egg processing facilities and two-thirds sent eggs off-farm for processing. About one-half of farms with on-farm processing processed eggs for other farms.

Nearly all farms with off-farm processing used flats that could go to other farms belonging to the same company. No farms shared flats with other companies. About one-fourth of farms with off-farm processing used racks/pallets that were also used by other companies.

About one-half of table-egg farms molted their last completed flock. Molted flocks were kept in the laying house an average of 88.7 weeks and nonmolted flocks an average of 64.2 weeks. The most common methods of disposal of spent hens were rendering and processing (47.0 and 38.8 percent of farms, respectively).

On average, broilers were marketed or slaughtered at 7.2 weeks of age, turkey hens at 14.2 weeks, and turkey toms at 19.7 weeks.

All broiler slaughter facilities and three-fourths of the turkey slaughter facilities that slaughtered birds for the participating companies were owned by their respective production companies. About one-half of the company-owned turkey slaughter facilities, but none of the company-owned broiler slaughter facilities, also slaughtered birds for other companies. None of the slaughter facilities slaughtered other species of poultry or species other than poultry.

No broiler or turkey farms marketed birds via a live-bird market.

The feed mill that produced feed for the farm also produced feed for other companies for over 50 percent of broiler, table-egg, and breeder farms but for only 20 percent of turkey farms.

A vehicle dedicated to the company only was the most common method for bringing birds onto broiler and turkey farms. Almost one-half of table-egg farms belonged to companies in which vehicles used to bring birds onto the farm were also used on other farms not from their company.

Broiler and turkey farms most commonly used vehicles dedicated to the company only to transport birds to slaughter. Over 80 percent of table-egg companies used vehicles that were also used by other companies.

Acknowledgments

The Poultry 2010 study was a cooperative effort among animal health officials, university researchers, extension personnel, and poultry producers. We want to thank industry members who helped determine the direction and objectives of this study. Recognition also goes to the personnel at the Centers for Epidemiology and Animal Health for their efforts in generating reports from Poultry 2010 data and to our reviewers for providing valuable expertise and guidance through their comments.

All participants are to be commended, particularly the industry veterinarians whose voluntary efforts made this component of the Poultry 2010 study possible.

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Director
Centers for Epidemiology and Animal Health

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Feedback, comments, and suggestions regarding Poultry 2010 study reports are welcomed. Please forward correspondence via email at: NAHMS@aphis.usda.gov, or you may submit feedback via online survey at: http://nahms.aphis.usda.gov (Click on “FEEDBACK on NAHMS reports.”)

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Introduction

The National Animal Health Monitoring System (NAHMS) is a nonregulatory program of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service. NAHMS is designed to help meet the Nation's animal-health information needs.

Layers '99 was NAHMS' first national study of U.S. poultry and provided baseline health and management information on the table-egg industry. Layers '99 estimated the prevalence and associated risk factors of *Salmonella enterica* enteritidis in U.S. layer flocks.

Poultry 2004 was NAHMS' second study of the U.S. poultry industry. Poultry 2004 provided information regarding bird health, bird movement, and biosecurity practices of backyard flocks, gamefowl breeder flocks, and live-poultry markets.

The Small-Enterprise Chicken study was NAHMS' third study of the poultry industry and focused on biosecurity and bird movement on operations with 1,000 to 19,999 chickens.

Poultry 2010 is NAHMS' fourth study of the U.S. poultry industry. For Poultry 2010, NAHMS conducted an extensive assessment to determine the information needs of the poultry industry, researchers, and Federal and State governments. This needs assessment resulted in three study objectives:

1. Describe the structure of commercial poultry industries, including interactions among poultry industry segments, movements, and biosecurity practices. Describe farm-level practices for chicken primary breeder and multiplier flocks. Identify critical factors for exclusion of disease (such as *Mycoplasma*).
2. Estimate the prevalence and investigate risk factors associated with clostridial dermatitis (cellulitis/gangrenous dermatitis) on turkey-grower farms.
3. Describe bird health, movement, and biosecurity practices of urban chicken flocks in four U.S. cities—Miami, Denver, Los Angeles, and New York City.

"Structure of the U.S. Poultry Industry, 2010", is the third in a series of reports containing information from the Poultry 2010 study and focuses on company practices as well as the industry's structure. Information for this report was provided by poultry company veterinarians or representatives from the Nation's largest breeder, broiler, table-egg layer, and turkey companies. The selected companies represent all chicken primary breeders, 81.2 percent of broilers produced during 2009,[1] 71.7 percent of table-egg layers in production on December 31, 2009,[1] and 76.8 percent of turkeys slaughtered in 2009[2] in the United States.

[1]www.WattAgNet.com, February 2010. WATT PoultryUSA survey.
[2] WATT PoultryUSA Turkey Profiles, February 2010
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The methods used and the number of respondents in the study can be found at the end of this report.

Further information on NAHMS studies and reports is available at:
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Terms Used in This Report

Breeder-hen candidate: A young female turkey intended for breeding.

Company-owned farm: Operations that own and raise their own birds.

Company type:

Breeder company: A company that owns only breeder flocks.

Production company: A company that produces broilers, turkeys, or table eggs for human consumption. Production companies may or may not also have multiplier/parent flocks.

Contract farm: Operations under contract with a poultry company, whereby the poultry company owns the birds and provides feed and other services, and the operation provides housing and labor.

Farm: A premises with one or more poultry houses under common management, including company-owned and contract farms.

Farm type:

Breeder farm: Produces eggs for hatching.

Primary breeder: Breeding birds whose offspring are used as breeding birds. These include pedigree (elite/foundation), great-grandparent, and grandparent flocks. Only broiler and table-egg primary breeder farms are included.

Multiplier/parent: Breeding birds whose offspring are used as production birds (broilers, market turkeys, table-egg layers). Includes broiler, table-egg and turkey multiplier farms.

Production farm: Produces final product for human consumption.

Broiler farm: Produces chickens for meat.

Table-egg farm: Produces eggs for human consumption.

Turkey-grower farm: Produces turkeys for meat.

Brooder farm: Raises young turkeys that will be placed on turkey-grower farms.

Pullet farm: Raises young female birds that will be placed on laying farms (either breeder farms or table-egg farms). A pullet farm does not have adult breeding hens.

Flat: A tray holding eggs for storage and transport.

Flock: A group of birds of the same age housed together in one house (or multiple houses on a farm) and managed as a unit.

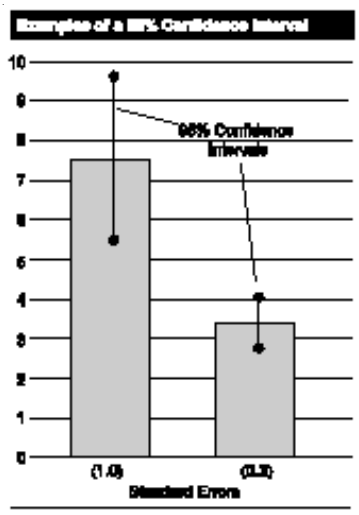
Hatchery: Facility where eggs are hatched.

Hen: Female turkey or chicken.

Molt: The period when birds are taken out of production (usually around 65 weeks of age) until they return approximately to their 18-week weight. After a rest period, they are returned to production for another laying cycle.

Median: The value of the middle item after the data are sorted by size.

Operation average: The average value for all operations. A single value for each operation is summed over all operations reporting divided by the number of operations reporting. For example, operation average age birds are marketed or slaughtered (see table c., p 31) is calculated by summing reported average age over all operations divided by the number of operations.



Population estimates: Estimates in this report are provided with a measure of precision called the standard error. A 95-percent confidence interval can be created with bounds equal to the estimate, plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population mean 95 out of 100 times. In the example to the left, an estimate of 7.5 with a standard error of 1.0 results in limits of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of 0.3 and results in limits of 2.8 and 4.0. Alternatively, the 90-percent confidence interval would be created by multiplying the standard error by 1.65 instead of 2. Most estimates in this report are rounded to the nearest tenth. If rounded to 0, the standard error was reported (0.0). If there were no reports of the event, no standard error was reported (—).

Parent flock: See multiplier/parent flock.

Poult: A young turkey.

Pullet: A young female chicken.

Rack/pallet: Holder for multiple egg flats.

Rooster: Adult male chicken.

Tom: Male turkey.

Section I: Population Estimates

Note: Unless otherwise specified, breeder farms include breeder farms belonging to breeder companies as well as breeder farms belonging to production companies.

A. General Information

1. Farm type

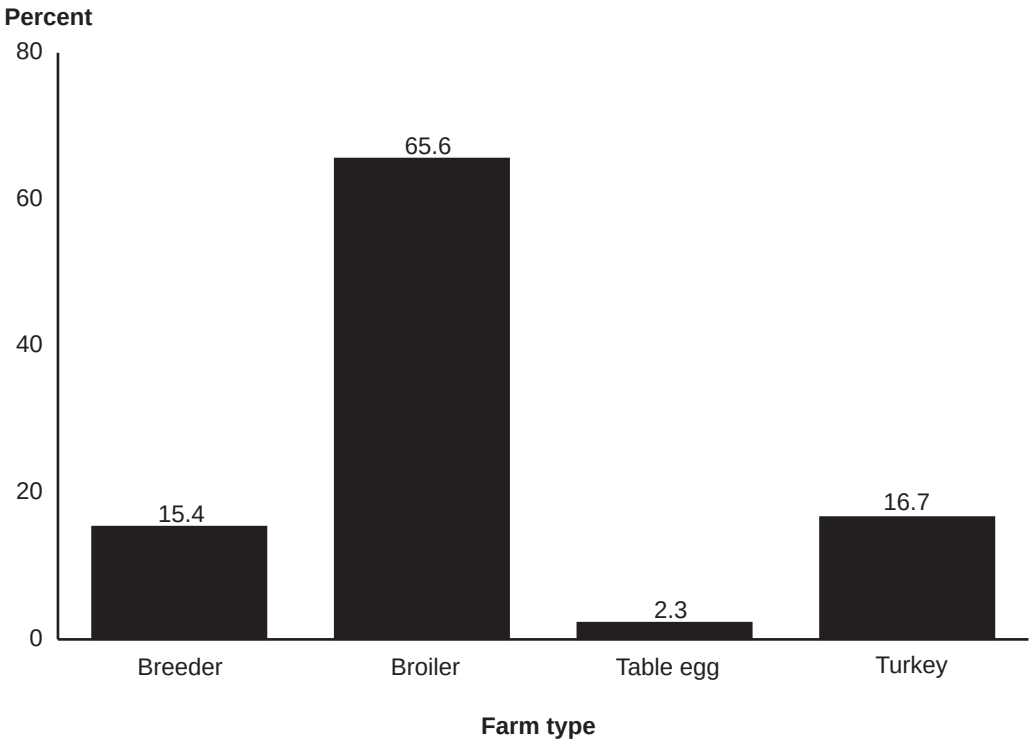
Nearly two-thirds of farms (65.6 percent) were broiler farms. Table-egg production farms accounted for less than 3 percent of farms. Breeder farms accounted for 15.4 percent of farms.

Percentage of farms by farm type:

Farm type	Percent farms	Std. error
Breeder	15.4	(0.3)
Broiler	65.6	(0.3)
Table egg	2.3	(0.0)
Turkey	16.7	(0.1)
Total	100.0	

Photograph courtesy of Frank T. Jones

Percentage of farms by farm type



2. Company type

Broiler companies had a median of over 400 farms, whereas table-egg companies had a median of fewer than 10 farms.

a. Median number of farms* per company, by company type:

Company type	Median
Breeder	27
Broiler	464
Table egg	8
Turkey	141

*For breeder companies includes primary and multiplier breeder farms; for production companies includes production farms and multiplier farms (if any).

Nearly all breeder farms and three-fourths of turkey farms (98.8 and 73.4 percent, respectively) had fewer than 50,000 birds when at maximum capacity. The majority of broiler farms had 50,000 to 99,999 birds at maximum capacity, and the majority of table-egg farms had 100,000 or more birds.

b. Percentage of farms by number of birds present when at maximum capacity, and by farm type:

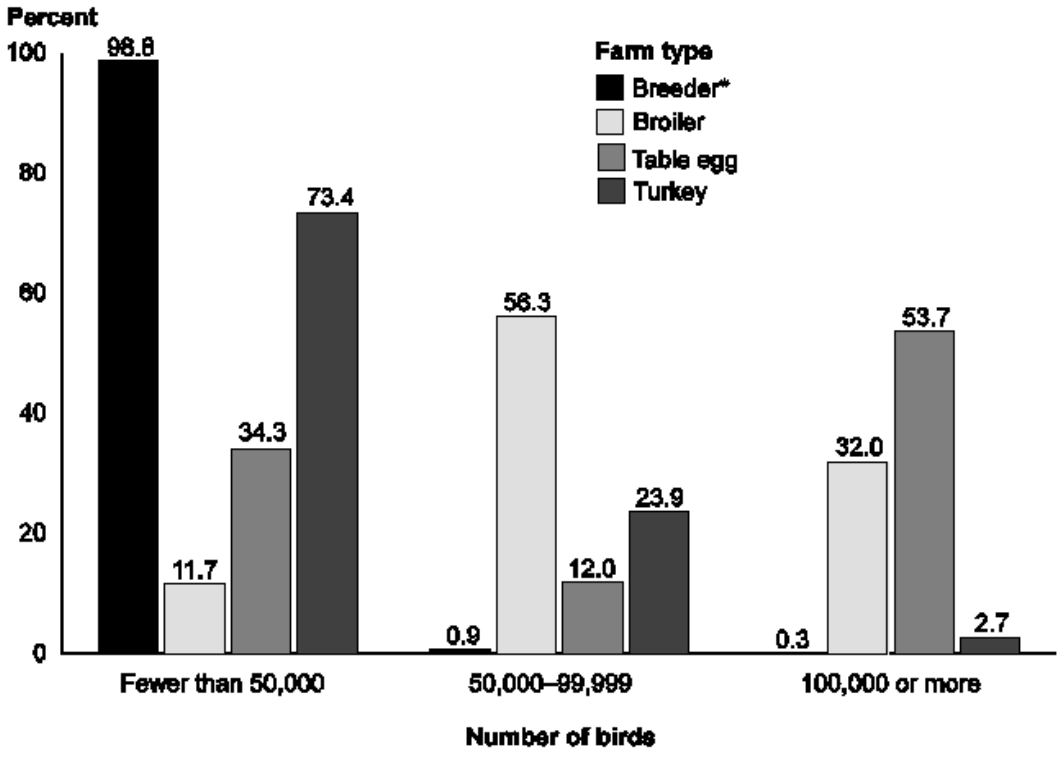
Percent Farms

Farm Type

	Breeder*		Broiler		Table egg		Turkey	
Number of birds	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Fewer than 50,000	98.8	(0.6)	11.7	(0.4)	34.3	(2.5)	73.4	(0.5)
50,000 to 99,999	0.9	(0.5)	56.3	(0.6)	12.0	(1.9)	23.9	(0.4)
100,000 or more	0.3	(0.3)	32.0	(0.5)	53.7	(2.7)	2.7	(0.3)
Total	100.0		100.0		100.0		100.0	

*Limited to breeder farms belonging to breeder companies.

Percentage of farms by number of birds present when at maximum capacity, and by farm type



*Limited to breeder farms belonging to breeder companies.

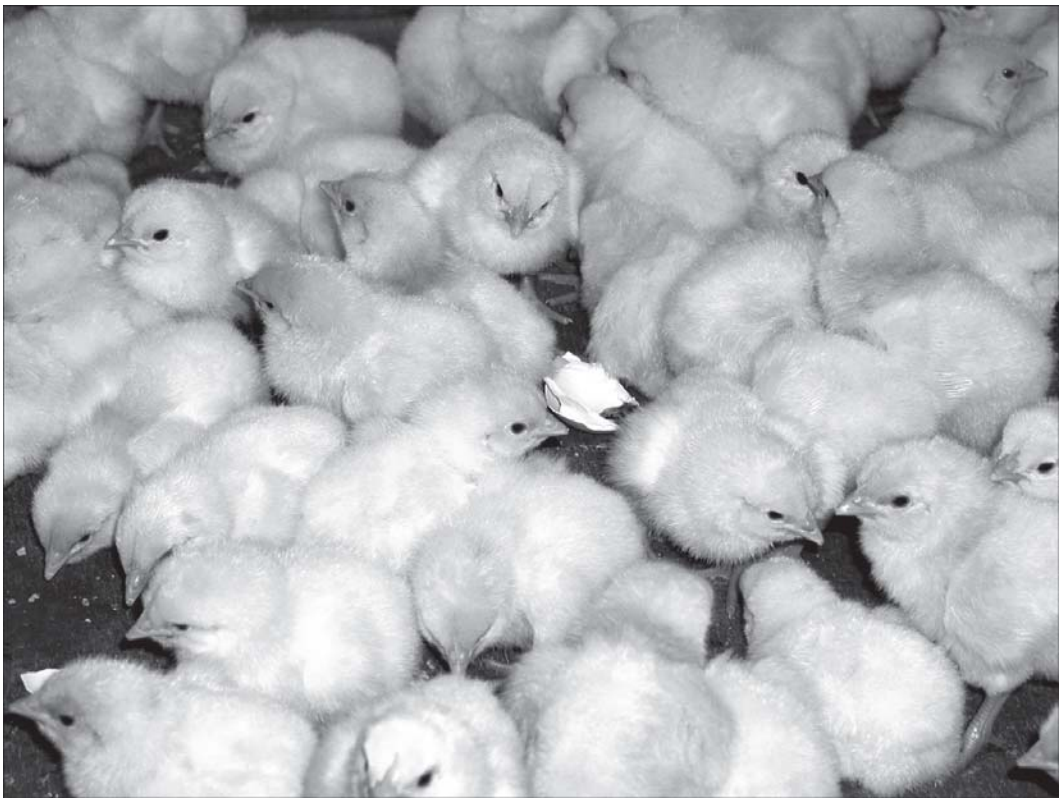
B. Breeder Farms and Hatcheries

1. Breeder farms

All broiler companies participating in the study had multiplier farms; less than 10 percent of table-egg companies had multiplier farms. About one-half of turkey companies had multiplier farms. Turkey companies that do not have multiplier farms generally receive poults or eggs from independent multiplier flocks. Table-egg companies that do not have multiplier farms generally receive chicks or pullets from breeder companies.

a. Percentage of production companies that had multiplier/parent farms (either company owned or contract), by company type:

Percent Production Companies					
Company Type					
Broiler		Table egg		Turkey	
Percent	Std. error	Percent	Std. error	Percent	Std. error
100.0	(—)	8.7	(6.1)	58.3	(14.4)



Photograph courtesy of Frank T. Jones

About 9 of 10 breeder farms were multiplier/parent farms and 1 of 10 were primary breeder farms (grandparent or higher category).

b. Percentage of breeder farms by breeder farm type:

Breeder farm type	Percent breeder farms	Std. error
Primary breeder	11.0	(0.2)
Multiplier/parent	89.0	(0.2)
Total	100.0	

The majority of turkey multiplier farms were company owned while most broiler and table-egg multiplier farms were contract.

Note: Turkey breeder companies were not included in the study and their farm ownership may differ from production companies' flocks.

c. Percentage of breeder farms by ownership and by breeder farm type:

Percent Breeder Farms

Breeder Farm Type

	Broiler multiplier		Table-egg multiplier		Turkey multiplier[1]		All multiplier farms		Primary breeder[2]	
Ownership	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Company owned	0.1	(0.1)	13.4	(3.8)	88.1	(3.9)	3.9	(0.4)	7.7	(1.6)
Contract	99.9	(0.1)	86.6	(3.8)	11.9	(3.9)	96.1	(0.4)	92.3	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

[1] Multiplier flocks belonging to turkey production companies only. No turkey breeder companies participated in the study.
[2] Limited to broiler and table-egg primary breeder farms.

The majority of broiler primary breeder farms (77.1 percent) had grandparent stock only, whereas over one-half of table-egg primary breeder farms (53.8 percent) contained great-grandparent and grandparent stock.

d. Percentage of broiler and table-egg primary breeder farms, by bird type:

	Percent Primary Breeder Farms					
	Broiler		Table egg		All farms	
Bird type	Pct.	Std. Error	Pct.	Std. error	Pct.	Std. error
Pedigree (Elite/ Foundation) only	5.4	(1.4)	0.0	(—)	5.2	(1.3)
Elite and other breeders	0.0	(—)	7.7	(7.7)	0.4	(0.4)
Great grandparent only	14.4	(2.1)	0.0	(—)	13.6	(2.0)
Great grandparent and grandparent	3.1	(1.1)	53.8	(14.3)	5.5	(1.3)
Grandparent only	77.1	(2.5)	38.5	(14.0)	75.3	(2.5)
Other	0.0	(—)	0.0	(—)	0.0	(—)
Total	100.0		100.0		100.0	

A low percentage of multiplier farms raised pullets or breeder-hen candidates on farm.

e. Percentage of breeder farms that raised pullets/breeder-hen candidates on farm:

Percent Breeder Farms									
Breeder Farm Type									
Broiler multiplier		Table-egg multiplier		Turkey multiplier		All multiplier farms		Primary breeder*	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
0.0	(—)	1.5	(1.5)	5.7	(2.5)	0.3	(0.1)	15.1	(2.1)

*Limited to broiler and table-egg primary breeder farms.

About one-half of primary breeder farms received any birds from outside their State but within the United States during the previous 12 months. Less than 1 percent of breeder farms received birds from outside the United States.

f. Percentage of breeder farms that received any birds during the previous 12 months, by source of birds:

Percent Breeder Farms

Breeder Farm Type

	Broiler multiplier		Table-egg multiplier		Turkey multiplier		All multiplier farms		Primary breeder[1]	
Source	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Within State	87.1	(0.9)	71.6	(5.3)	61.2	(5.8)	85.5	(0.9)	84.5	(2.0)
Outside State but within the United States	14.3	(1.0)	28.4	(5.3)	38.8	(5.8)	15.9	(1.0)	52.0	(2.5)
Outside the United States	0.0	(—)	0.0	(—)	9.2[2]	(3.0)	0.5	(0.2)	0.4[3]	(0.4)

[1]Limited to broiler and table-egg primary breeder farms. [2]Canada. [3]Europe.

As suppliers of the industry genetics, primary breeder farms commonly shipped eggs outside of their State as well as outside of the United States. Multiplier farms mostly shipped eggs within their State.

g. Percentage of breeder farms that shipped any **eggs** during the previous 12 months, by shipping destination:

Percent Breeder Farms

Breeder Farm Type

	Broiler multiplier		Table-egg multiplier		Turkey multiplier		All multiplier farms		Primary breeder[1]	
Destination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Within State	95.6	(0.6)	88.1	(2.3)	92.5	(3.2)	95.2	(0.6)	76.8	(2.2)
Outside State but within the United States	10.6	(0.9)	55.2	(6.1)	44.8	(6.1)	13.7	(0.9)	74.9	(2.1)
Outside the United States	1.0[2]	(0.2)	7.5[3]	(3.0)	20.7[4]	(4.3)	2.2	(0.3)	56.8[5]	(2.0)

[1]Limited to broiler and table-egg primary breeder farms. [2]Mexico. [3]Canada and Mexico. [4]Canada, Mexico, and Central/South America. [5]Worldwide.

Turkeys are bred using artificial insemination. Over one-half of turkey multiplier farms had hens only, and about one-fourth had both hens and toms.

h. Percentage of turkey multiplier farms by gender of breeding birds:

Gender of breeding birds	Percent turkey multiplier farms*	Std. error
Hens only	56.1	(4.2)
Toms only	18.3	(4.2)
Both hens and toms	25.6	(1.7)
Total	100.0	

*As a percentage of breeder farms with hens only, toms only, and both hens and toms.

2. Hatcheries

All broiler companies and less than 10 percent of table-egg companies owned hatcheries. About one-half of turkey companies owned hatcheries. Hatchery ownership is consistent with companies having multiplier flocks (see table a., p 8).

a. Percentage of production companies that owned hatcheries, by company type:

Percent Production Companies					
Company Type					
Broiler		Table egg		Turkey	
Percent	Std. error	Percent	Std. error	Percent	Std. error
100.0	(—)	8.7	(6.1)	58.3	(14.4)

Nearly all hatcheries that provided chicks to broiler farms during the previous 12 months (92.2 percent) were owned by the production company, compared with less than 3 percent of hatcheries that supplied chicks to table-egg production farms.

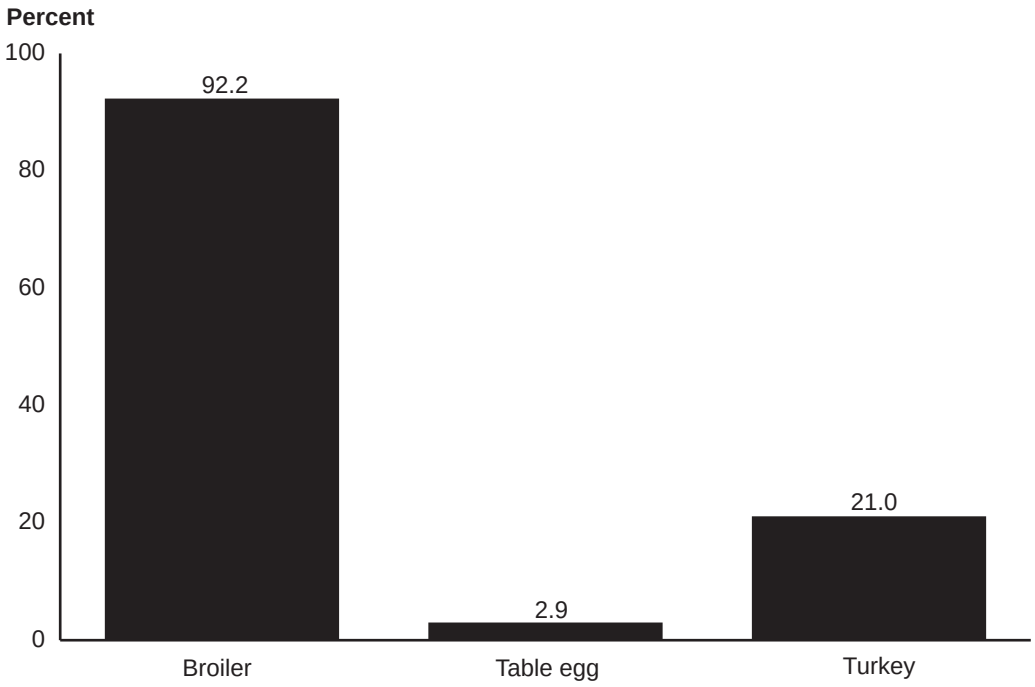
b. Of hatcheries that supplied chicks/poults to production farms during the previous 12 months, percentage owned by the production company, by company type:

Percent Hatcheries

Company Type

Broiler		Table egg		Turkey	
Percent	**Std. error**	**Percent**	**Std. error**	**Percent**	**Std. error**
92.2	(2.8)	2.9	(1.0)	21.0	(4.2)

Of hatcheries that supplied chicks/poults to the production farms during the previous 12 months, percentage owned by the production company, by company type



About 9 of 10 hatcheries belonging to turkey production companies hatched eggs for other companies during the previous 12 months, compared with about 1 of 10 hatcheries belonging to broiler or breeder companies.

c. Percentage of company-owned hatcheries that hatched eggs from other companies or independent producers during the previous 12 months, by hatchery ownership:

Percent Hatcheries

Hatchery Ownership									
Breeder company		Broiler company		Table-egg company		Turkey company		All hatcheries	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
2.9	(2.9)	7.6	(4.3)	*		90.9	(8.5)	16.1	(3.3)

*Too few respondents to estimate.

About three-fourths of hatcheries received eggs from outside the hatchery's State, and 10 percent received eggs from outside the United States. About three-fourths of turkey hatcheries received eggs from outside the United States.

d. Percentage of company-owned hatcheries that received any eggs from the following sources during the previous 12 months, by hatchery ownership:

Percent Hatcheries

	Hatchery Ownership									
	Breeder company		Broiler company		Table-egg company		Turkey company		All hatcheries	
Source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Within State	90.0	(5.4)	92.0	(4.0)	*		100.0	(—)	91.7	(2.9)
Outside State but within the United States	93.3	(4.7)	70.6	(11.0)	*		63.6	(14.2)	76.7	(5.9)
Outside the United States	6.7[1]	(4.6)	0.0		*		72.7[2]	(15.0)	10.0	(1.5)

*Too few respondents to estimate. [1]Europe and Canada. [2]Canada.

The majority of hatcheries belonging to broiler and turkey production companies produced chicks/poults to supply their company only. Breeder company hatcheries produce the genetics for the rest of the industry; 80.0 percent of breeder companies' hatcheries supplied chicks to other companies.

e. Percentage of company-owned hatcheries that supplied chicks/poults during the previous 12 months to the following farms, by hatchery ownership:

Percent Hatcheries

	Hatchery Ownership									
	Breeder company		**Broiler company**		**Table-egg company**		**Turkey company**		**All hatcheries**	
Farm	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Owned by or contracting with this company **only**	20.0	(7.1)	92.0	(3.5)	*		63.6	(12.2)	68.9	(3.0)
Belonging to other companies or independent producers **only**	54.3	(7.3)	2.7	(1.9)	*		0.0	(—)	16.8	(2.4)
Owned by or contracting with this company **and** other companies	25.7	(7.2)	5.3	(3.1)	*		36.4	(12.2)	14.3	(2.9)
Total	100.0		100.0				100.0		100.0	

*Too few respondents to estimate.

Hatcheries belonging to broiler and turkey production companies mostly shipped chicks/poults to farms within the United States, whereas about one-half of breeder companies' hatcheries (54.3 percent) shipped chicks outside the United States.

f. Percentage of company-owned hatcheries that shipped any chicks/poults to the following destinations during the previous 12 months, by hatchery ownership:

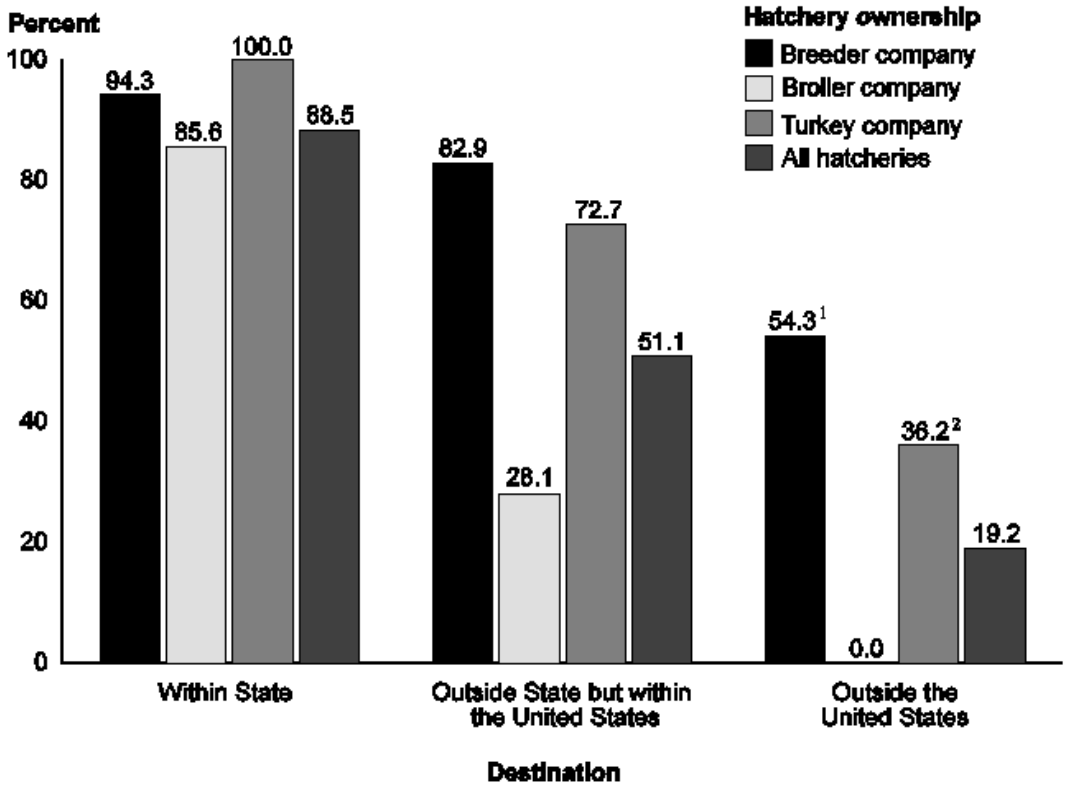
Percent Hatcheries

Hatchery Ownership

	Breeder company		Broiler company		Table-egg company		Turkey company		All hatcheries	
Destination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Within State	94.3	(4.0)	85.6	(4.4)	*		100.0	(—)	88.5	(2.8)
Outside State but within the United States	82.9	(6.5)	28.1	(5.5)	*		72.7	(8.6)	51.1	(3.8)
Outside the United States	54.3[1]	(7.7)	0.0	(—)	*		36.2[2]	(12.2)	19.2	(2.5)

*Too few respondents to estimate. [1]Worldwide. [2]Canada, Mexico, Central/South America.

Percentage of company-owned hatcheries that shipped any chicks/poults to the following destinations during the previous 12 months, by hatchery ownership



Too few table-egg companies to estimate. [1]Worldwide. [2]Canada, Mexico, Central/South America.

C. Production Farms

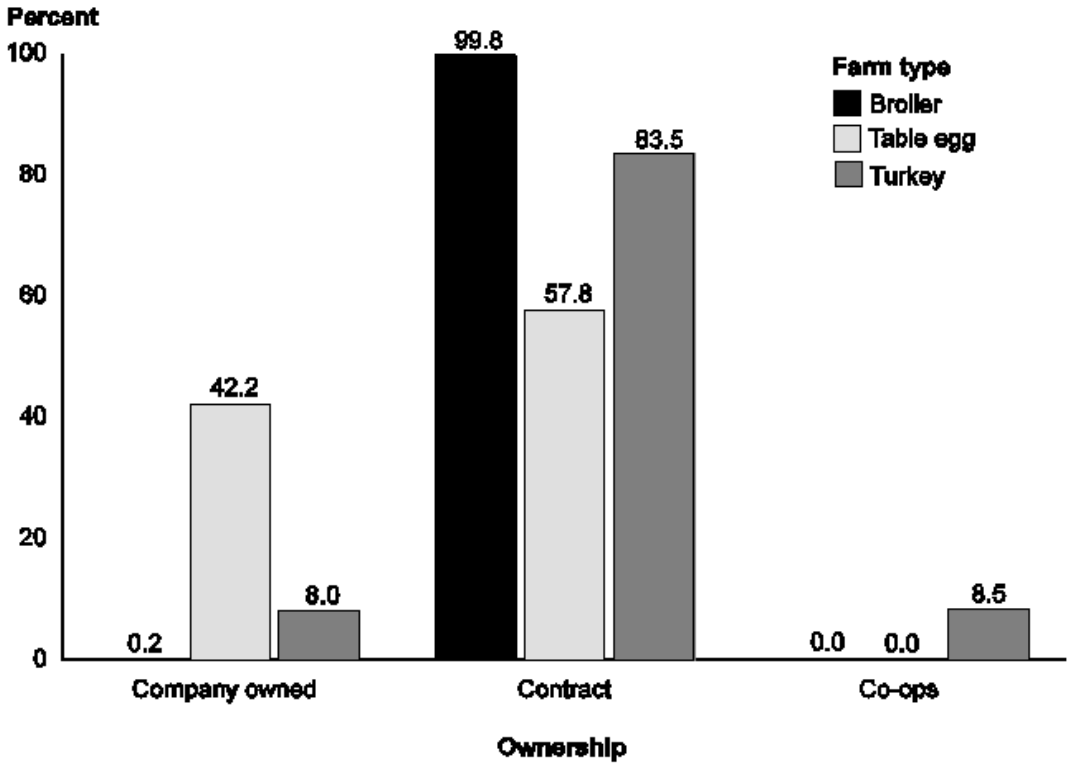
1. General production farm characteristics

A higher percentage of table-egg farms than broiler or turkey farms were company owned (42.2, 0.2 and 8.0 percent, respectively).

a. Percentage of production farms by ownership and by farm type:

	Percent Farms					
	Farm Type					
	Broiler		Table egg		Turkey	
Ownership	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Company owned	0.2	(0.1)	42.2	(2.7)	8.0	(0.4)
Contract	99.8	(0.1)	57.8	(2.7)	83.5	(0.4)
Co-ops	0.0	(—)	0.0	(—)	8.5	(0.0)
Total	100.0		100.0		100.0	

Percentage of production farms by ownership and by farm type



Over 8 of 10 turkey-grower farms had toms only, and less than 1 percent had both hens and toms.

b. Percentage of turkey-grower farms by gender makeup:

Gender makeup	Percent farms	Std. error
Hens only	16.4	(0.6)
Toms only	82.8	(0.6)
Hens and toms	0.8	(0.2)
Total	100.0	

About 4 of 10 turkey-grower farms brood birds on the same farm.

c. Percentage of turkey-grower farms by source of birds:

Source	Percent farms	Std. error
Brood birds on the same farm	43.4	(1.0)
Receive birds from a brooder farm	56.8	(1.0)

Organic farming was most common in table-egg production; 11.2 percent of table-egg farms had at least one house designated as organic.

d. Percentage of production farms that had at least one house designated as organic (certified, USDA National Organic Program), by production farm type:

Percent Farms					
Production Farm Type					
Broiler		Table egg		Turkey	
Percent	Std. error	Percent	Std. error	Percent	Std. error
0.0	(—)	11.2	(1.9)	0.1	(0.1)

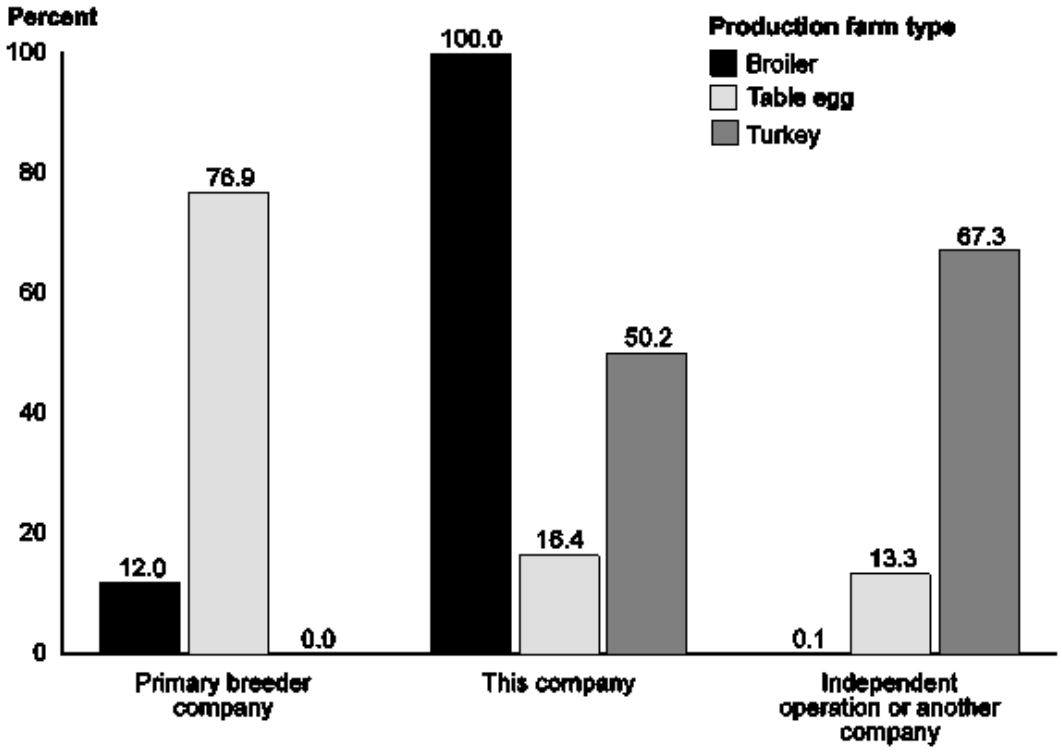
2. Bird sources

Ownership of multiplier flocks differed by production farm type. All broiler farms received chicks produced by company-owned multiplier flocks during the previous 12 months, but a low percentage (12.0 percent) also received some from a primary breeder company. Pullets placed on the majority of table-egg farms (76.9 percent) were produced by multiplier flocks owned by a primary breeder company. The majority of turkey-production farms (67.3 percent) placed birds that were produced by multiplier flocks owned by an independent operator or another company.

a. Percentage of production farms by ownership of the multiplier (parent) flock that supplied the chicks/poults/pullets placed on the farm during the previous 12 months, and by production farm type:

	Percent Farms					
	Production Farm Type					
	Broiler		Table egg		Turkey	
Multiplier flock ownership	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Primary breeder company	12.0	(0.3)	76.9	(1.4)	0.0	(—)
This company	100.0	(—)	16.4	(1.2)	50.2	(0.3)
Independent operation or another company	0.1	(0.0)	13.3	(0.7)	67.3	(0.5)

Percentage of production farms by ownership of the multiplier (parent) flock that supplied the chicks/poults/pullets placed on the farm during the previous 12 months, and by production farm type



For over 9 of 10 broiler production farms, the multiplier farms that supplied their chicks during the previous 12 months were located in the same State. About one-half of turkey farms received poults supplied by out-of-State multiplier farms.

b. Percentage of production farms by location of multiplier farm that supplied chicks/poults during the previous 12 months, and by production farm type:

	Percent Farms			
	Production Farm Type			
	Broiler		Turkey	
Multiplier farm location	**Percent**	**Std. error**	**Percent**	**Std. error**
Within State	93.5	(0.3)	59.1	(0.7)
Outside State but within the United States	21.9	(0.5)	49.8	(0.8)
Outside the United States	0.0	(—)	0.7*	(0.2)

*Canada.

Hatchery ownership was similar to multiplier flock ownership. All broiler farms received chicks produced by company-owned hatcheries during the previous 12 months. The majority of table-egg farms (76.9 percent) received pullets that originated from hatcheries owned by a primary breeder company (76.9 percent).

c. Percentage of production farms by ownership of the hatchery that supplied the chicks/ poults/pullets placed on the farm during the previous 12 months, and by production farm type:

	Percent Farms					
	Production Farm Type					
	Broiler		Table egg*		Turkey	
Hatchery ownership	**Pct.**	**Std. Error**	**Pct.**	**Std. error**	**Pct.**	**Std. Error**
Primary breeder company	12.2	(0.3)	76.9	(1.4)	0.0	(—)
This company	100.0	(—)	15.0	(1.3)	50.2	(0.3)
Independent operation or another company	0.0	(—)	14.9	(0.8)	60.4	(0.5)

*Hatcheries from which pullets originated.

The majority of table-egg production farms (86.6 percent) raised pullets on a separate farm belonging to the same company.

d. Percentage of table-egg production farms by source of pullets:

Pullet source	Percent farms	Std. error
Egg production farm	7.2	(1.4)
Separate farm, same company	86.6	(1.4)
Separate farm, different company	13.1	(1.1)

The majority of table-egg production farms (77.0 percent) received pullets from pullet farms located within the same State as their farms during the previous 12 months.

e. Percentage of table-egg production farms by location of pullet farm that supplied pullets to the farm during the previous 12 months:

Pullet farm location	Percent farms	Std. error
Within the farm's State	77.0	(2.2)
Outside the farm's State but within the United States	36.9	(2.3)
Outside the United States	0.0	(—)

3. Table-egg production farms

Most table-egg production farms cage-reared their layers.

a. Percentage of table-egg production farms by caging method:

Caging method	Percent farms	Std. error
All caged	62.0	(2.4)
All cage-free	34.0	(2.4)
Mixed (some caged and some cage-free)	4.0	(1.2)
Total	100.0	

Most table-egg production farms (60.7 percent) housed birds of different ages in different houses; less than 1 percent of farms housed birds of different ages in the same house.

b. Percentage of table-egg production farms by age grouping and by caging method:

	Percent Farms							
	Caging Method							
	All caged		All cage-free		Mixed		All farms	
Age grouping	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Different aged birds in same house	1.5	(1.0)	0.0	(—)	*		0.9	(0.6)
Different aged birds in different houses	67.8	(3.3)	43.1	(4.8)	*		60.7	(2.7)
Whole farm one age	30.7	(3.3)	56.9	(4.8)	*		38.4	(2.7)
Total	100.0		100.0				100.0	

*Too few respondents to estimate.

About 9 of 10 table-egg production farms (87.5 percent) collected eggs by belt only.

c. Percentage of table-egg production farms by egg-gathering method and by caging method:

	Percent Farms							
	Caging Method							
	All caged		All cage-free		Mixed		All farms	
Egg-gathering method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Belt only	89.4	(0.9)	82.5	(3.1)	*		87.5	(1.3)
Hand only	10.0	(0.7)	8.0	(2.3)	*		8.9	(0.9)
Belt and hand	0.6	(0.6)	9.5	(2.6)	*		3.6	(1.0)
Total	100.0		100.0				100.0	

*Too few respondents to estimate.

About 8 of 10 table-egg production farms primarily produced shell eggs (not for breaking).

d. Percentage of table-egg production farms by **primary** type of eggs produced:

Type of eggs	Percent farms	Std. error
Eggs for breaking	17.6	(1.3)
Shell eggs (whole eggs for packing, not for breaking)	82.4	(1.3)
Total	100.0	

Of farms that produced shell eggs, 35.4 percent had on-farm processing facilities.

e. Percentage of shell-egg production farms with on-farm processing facilities:

Percent farms	Std. error
35.4	(2.9)

About one-half of the farms with on-farm processing processed eggs for other farms.

f. Of shell-egg production farms with **on-farm processing**, percentage of farms that also processed eggs for other farms (including other farms from this company and/or farms from other companies):

Percent farms	Std. error
45.3	(5.1)

About 9 of 10 farms with on-farm processing (87.8 percent) primarily used a vehicle dedicated to their company only to remove processed eggs during the previous 12 months.

g. Of shell-egg production farms with **on-farm processing**, percentage of farms by vehicle used most often to remove processed eggs during the previous 12 months:

Vehicle	Percent farms	Std. error
Dedicated to a single farm	0.0	(—)
Dedicated to this company only	87.8	(3.2)
Also used on other companies' farms or independent farms	4.0	(1.3)
Did not know, vehicle owned by an independent company	8.2	(3.0)
Total	100.0	

Two-thirds of shell-egg production farms sent eggs off farm for processing.

h. Percentage of shell-egg production farms that sent eggs off farm for processing (including farms that sent eggs to a company-owned processing plant):

Percent farms	Std. error
68.0	(2.9)

Nearly all farms with off-farm processing most often used a vehicle dedicated to the company only to remove unprocessed eggs during the previous 12 months.

i. For shell-egg production farms with **off-farm processing**, percentage of farms by vehicle used most often to remove unprocessed eggs during the previous 12 months:

Vehicle	Percent farms	Std. error
Dedicated to a single farm	0.0	(—)
Dedicated to this company only	97.4	(1.4)
Also used on other companies' farms or independent farms	0.0	(—)
Did not know, vehicle owned by an independent company	2.6	(1.4)
Total	100.0	

Nearly all farms with off-farm processing used flats that could go to other farms belonging to the same company. No farms shared flats with other companies.

j. For shell-egg production farms with **off-farm processing**, percentage of farms by method usually used to handle flats:

Method	Percent farms	Std. error
Flats disposable	0.0	(—)
Flats returned to the same farm	0.8	(0.7)
Flats may go to other farms, this company only	99.2	(0.7)
Flats may go to other farms, other companies	0.0	(—)
No flats	0.0	(—)
Total	100.0	

All farms usually cleaned and disinfected flats before returning them to the farm.

k. For shell-egg production farms with **off-farm processing**, percentage of farms in which flats were usually cleaned and disinfected before being returned to the farm:

Percent farms	Std. error
100.0	(—)

About one-fourth of farms with off-farm processing (27.4 percent) used racks/pallets that were also used by other companies.

l. For shell-egg production farms with **off-farm processing**, percentage of farms by method usually used to handle racks/pallets:

Method	Percent farms	Std. error
Racks/pallets returned to the same farm	0.0	(—)
Racks/pallets may go to other farms, this company only	72.6	(1.8)
Racks/pallets may go to other farms, other companies	27.4	(1.8)
No racks/pallets	0.0	(—)
Total	100.0	

About 6 of 10 farms with off-farm processing (58.5 percent) usually cleaned and disinfected racks and pallets before returning to the farm.

m. For shell-egg production farms with **off-farm processing**, percentage of farms in which racks/pallets were usually cleaned and disinfected before being returned to the farm:

Percent farms	Std. error
58.5	(2.2)

About one-half of table-egg production farms molted their last completed flock.

n. Percentage of table-egg production farms that molted their last completed flock:

Percent farms	Std. error
54.6	(2.2)

Molted flocks were kept in the laying house an average of 88.7 weeks. Nonmolted flocks were kept in the laying house an average of 64.2 weeks.

o. Operation average length of time (weeks) from placing birds in the laying house until removal, by flock type:

Flock type	Operation average time* (weeks)	Std. error
Molted flocks	88.7	(0.0)
Nonmolted flocks	64.2	(0.0)

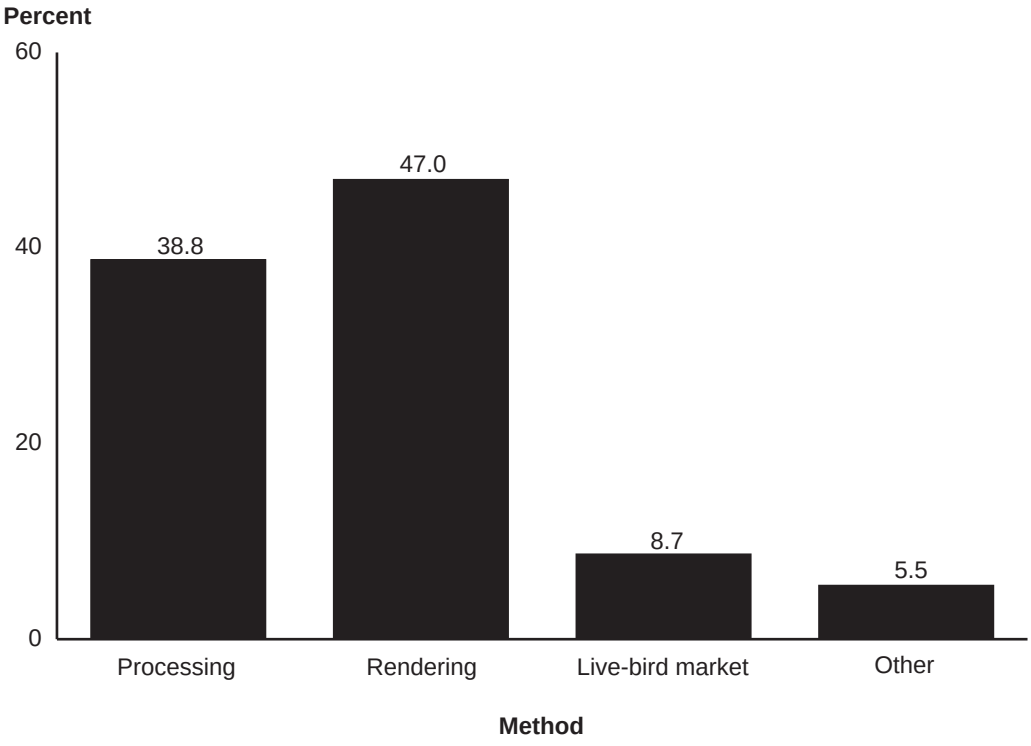
*A single response from each company was weighted by the number of farms belonging to the company.

The most common methods for disposing of spent hens were rendering (47.0 percent of farms) and processing (38.8 percent of farms). The most common “other” method was composting.

p. Percentage of table-egg production farms by **primary** method used to dispose of spent hens:

Method	Percent farms	Std. error
Processing	38.8	(2.3)
Rendering	47.0	(2.3)
Live-bird market	8.7	(0.5)
Other	5.5	(0.9)
Total	100.0	

Percentage of table-egg production farms by primary method used to dispose of spent hens



4. Marketing and slaughter

All broiler slaughter facilities and three-fourths of the turkey slaughter facilities were owned by their respective production companies.

a. For all slaughter facilities that slaughtered birds for the production company, percentage of slaughter facilities that were owned by the company, by company type:

Percent Facilities			
Company Type			
Broiler		Turkey	
Percent	Std. error	Percent	Std. error
100.0	(—)	77.3	(9.7)

About one-half of the company-owned turkey slaughter facilities but none of the company-owned broiler slaughter facilities also slaughtered birds for other companies. None of the slaughter facilities slaughtered other species of poultry or species other than poultry.

b. Percentage of company-owned slaughter facilities that also slaughter the following animals, by company type:

	Percent Facilities			
	Company Type			
	Broiler		Turkey	
Also slaughtered . . .	**Percent**	**Std. error**	**Percent**	**Std. error**
Birds for other companies	0.0	(—)	47.1	(14.7)
Other species of poultry	0.0	(—)	0.0	(—)
Other species besides poultry	0.0	(—)	0.0	(—)

On average, broilers were marketed or slaughtered at 7.2 weeks of age, turkey hens at 14.2 weeks of age, and turkey toms at 19.7 weeks of age.

c. Operation average age (weeks) birds were marketed or slaughtered, by bird type:

	Operation Average Age* (weeks)				
	Bird Type				
Broilers		**Turkey hens**		**Turkey toms**	
Average	**Std. error**	**Average**	**Std. error**	**Average**	**Std. error**
7.2	(0.0)	14.2	(0.1)	19.7	(0.0)

*A single response from each company was weighted by the number of farms with the bird type belonging to the company.

No broiler or turkey farms marketed birds via a live-bird market.

d. Percentage of production farms that marketed any birds via a live-bird market, by farm type:

Percent Farms			
Farm Type			
Broiler		Turkey	
Percent	Std. error	Percent	Std. error
0.0	(—)	0.0	(—)

Broilers and turkeys were most commonly shipped to a slaughter facility located within the same State as the farm.

e. Percentage of production farms that shipped birds to a slaughter facility during the previous 12 months, by location of slaughter facility and by farm type:

	Percent Farms			
	Farm Type			
	Broiler		Turkey	
Slaughter facility location	Percent	Std. error	Percent	Std. error
Within the farm's State	91.2	(0.4)	88.2	(0.6)
Outside the farm's State but within the United States	18.6	(0.5)	14.3	(0.6)
Outside the United States	0.0	(—)	0.0	(—)

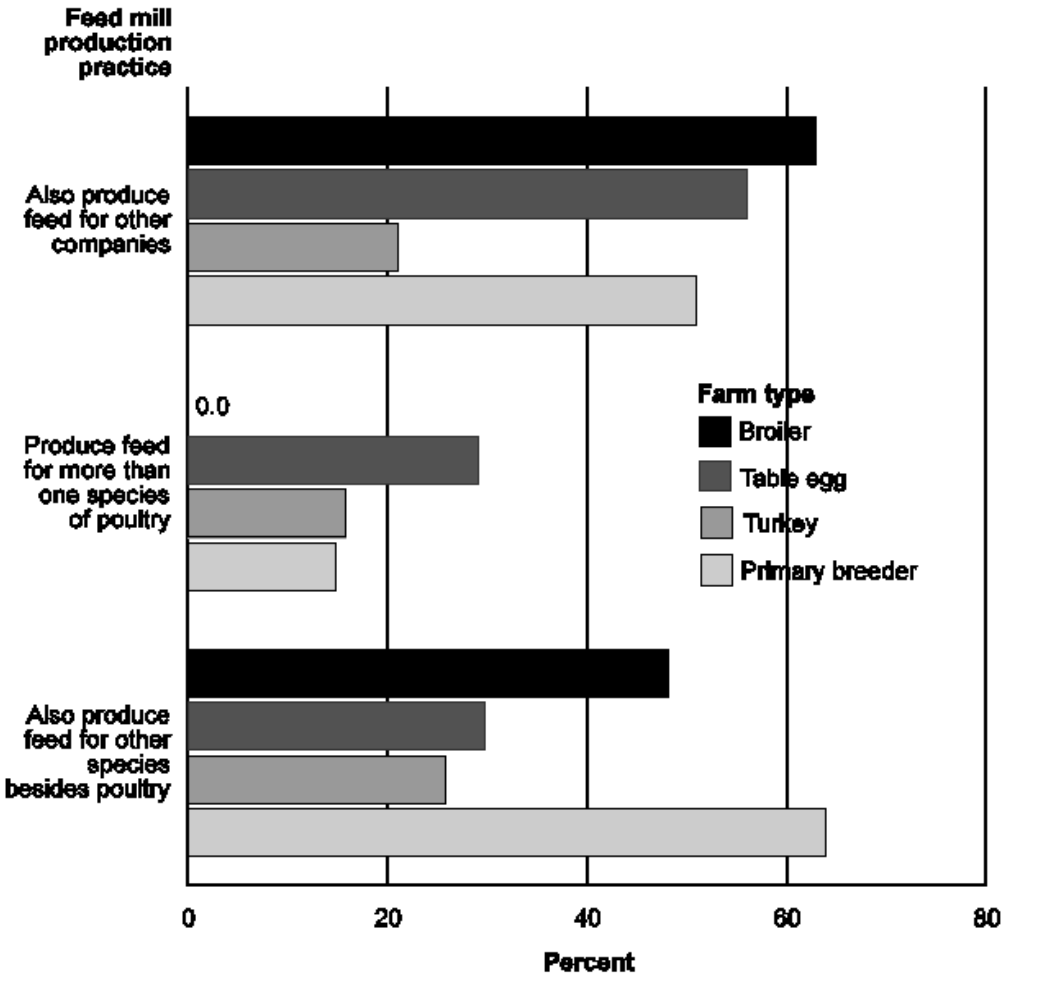
D. Feed and Vehicles

Note: Estimates for this section were generated by applying company practices to all farms within the company. Therefore, figures are used in this section rather than precise numeric estimates.

1. Feed mills

The feed mill that produced feed for the farm also produced feed for other companies for over one-half of broiler, table-egg, and breeder farms but for only one of five turkey farms.

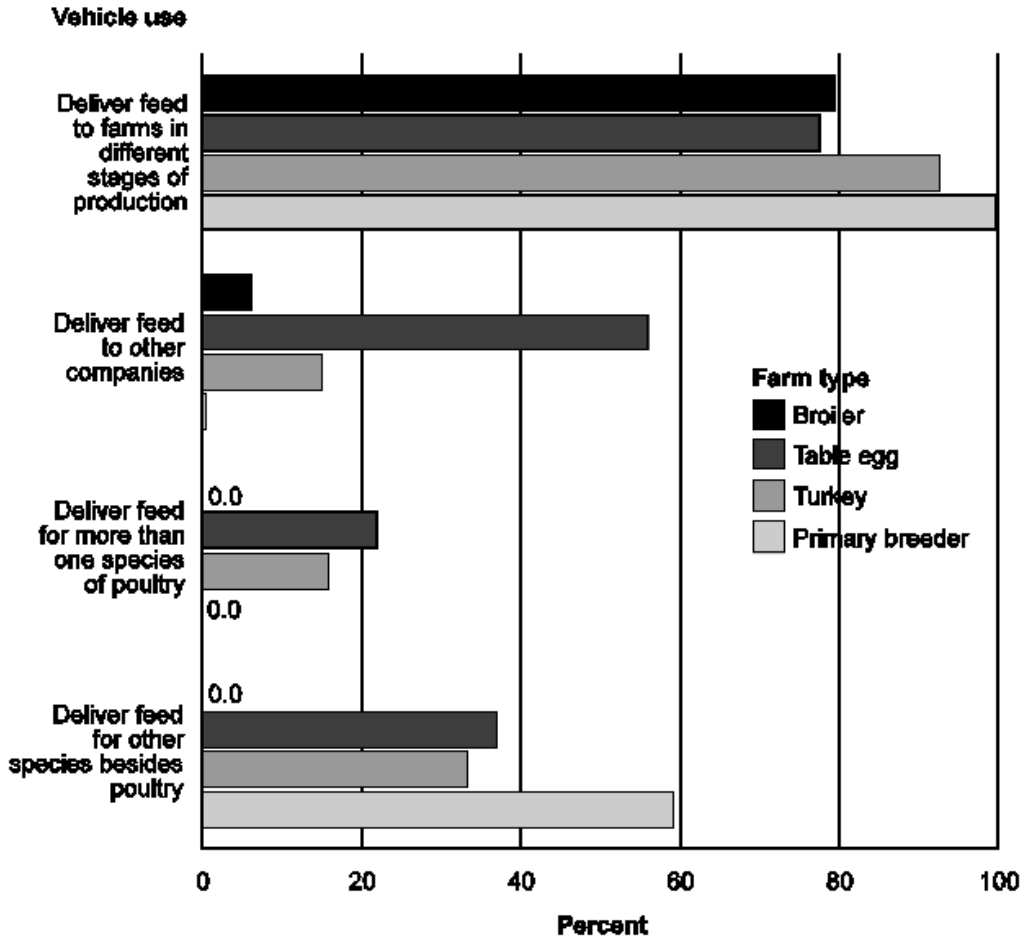
Percentage of farms by feed mill production practice and by farm type



2. Vehicle use for delivering feed

Few farms used feed trucks that delivered feed to more than one species of poultry during the previous 12 months. Over one-half of table-egg farms belonged to companies in which feed trucks delivered feed to other companies.

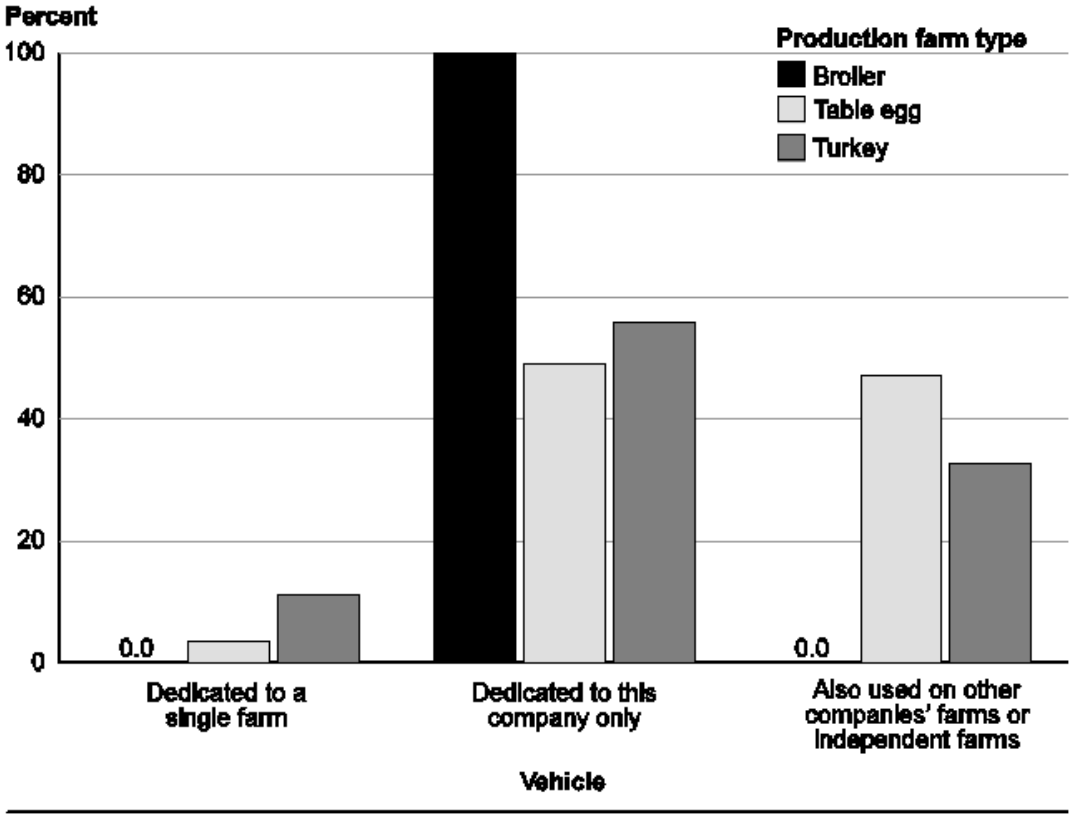
Percentage of farms by use of vehicle that delivered feed to the farm during the previous 12 months, and by farm type



3. Vehicle use for bringing birds onto farm

A vehicle dedicated to the company only was the most common method used to bring birds onto the farm during the previous 12 months; however, almost one-half of table-egg farms belonged to companies that used vehicles on other farms not from their company.

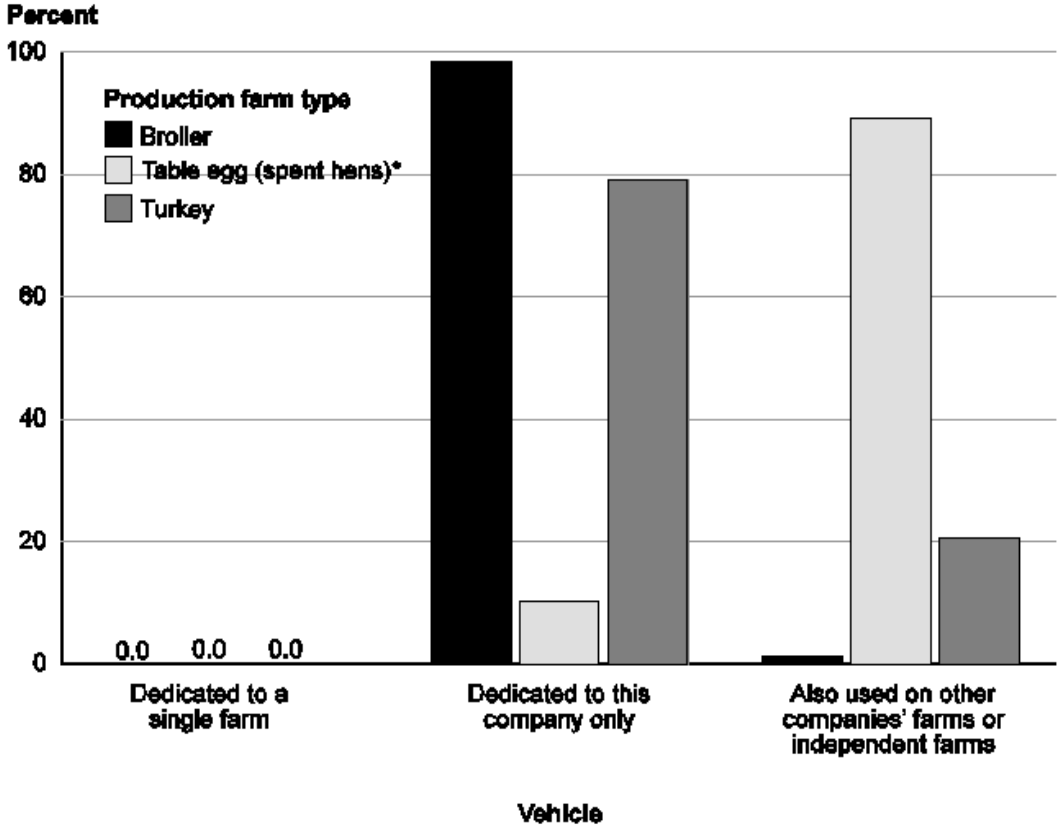
Percentage of production farms by vehicle used most often to bring birds onto the farm during the previous 12 months, and by farm type



4. Vehicle use for transporting birds off farm

Broiler and turkey farms most commonly used vehicles dedicated to the company only to transport birds to slaughter during the previous 12 months. Table-egg companies mostly used vehicles that were also used by other companies.

Percentage of production farms by vehicle used most often to transport birds to slaughter or market during the previous 12 months, and by farm type



*Less than 1 percent of table-egg farms did not remove spent hens (disposed on farm only).

Section II: Methodology

A. Needs Assessment

NAHMS develops study objectives by exploring existing literature and contacting industry members and other stakeholders about their informational needs and priorities during a needs assessment phase. For Poultry 2010, the following activities were conducted:

- A focus group consisting of industry, State, Federal, and university representatives met at the World Poultry Exposition in Atlanta, GA, in January 2008.

- A needs assessment questionnaire was distributed to poultry veterinarians via the presidents of the egg layer, broiler, turkey, and primary breeder veterinary groups. This questionnaire was also distributed to State and Federal veterinarians, and laboratory and research personnel.

- Discussions were held with each of the poultry veterinary groups at the American Association of Avian Pathologists meeting in New Orleans, LA, in July 2008, and in Seattle, WA, in July 2009.

- Additional discussions occurred at the United States Animal Health Association Transmissible Diseases of Poultry Committee.

B. Sampling and Estimation

1. Phase I: Company survey

Phase I of the Poultry 2010 study focused on the industry structure and company practices. The selection unit for Phase I was the poultry company. A total of 6 breeder companies, 14 broiler companies, 23 table-egg layer companies, and 15 turkey companies were selected to participate in Phase I. Turkey breeder companies were not included. Companies that had both broilers and turkeys were considered to be two separate companies. Additionally, subparts of some large turkey companies were considered to be separate companies. Large turkey co-ops were considered to be companies.

2. Phase II: Breeder farm survey

Companies that participated in Phase I, and that had any layer (egg type) or broiler (meat type) breeder farms, were eligible to participate in Phase II (Breeder Farm survey). Turkey breeder farms were not included in Phase II. The Poultry 2010 Breeder Farm survey included farms located in the Central and East regions of the United States. States in these regions account for 98 percent of egg-type breeder flocks, 97 percent of egg-type breeder birds, and over 99 percent of meat-type breeder flocks and birds participating in the National Poultry Improvement Plan.

3. Data collection

Data collection was conducted from May 27 through October 16, 2010. Company veterinarians or representatives completed one company questionnaire per company. Companies that had breeder farms selected a sample of farms for Phase II (Breeder Farm survey), and completed one questionnaire per farm. Some veterinarians elected to complete farm-level questionnaires for all of their breeder farms, while others selected a sample of farms. Breeder companies, broiler companies, and layer companies had a choice of completing the company and farm-level questionnaires either on-line or via hard copy. Turkey company questionnaires were only available via hard copy. The on-line data collection Web site was developed and managed by a private Web site development company. Hard-copy questionnaires were mailed to the NAHMS office and entered into a SAS data file.

4. Data analysis

On-line data (both company and farm level) were forwarded to NAHMS as comma-delimited files. These files were converted to SAS data sets and merged with the SAS data sets that had been entered by NAHMS staff, resulting in one company-level SAS data set and one farm-level SAS data set. Validation checks were performed on these data sets after they were combined. Point estimates were generated using SUDAAN software, which accounts for complex study design.

5. Population inferences

a. Phase I: Company survey

Inferences cover the population of the selected poultry companies. The selected companies represent all chicken primary breeders, 81.2 percent of broilers produced during 2009,[1] 71.7 percent of table-egg layers in production on December 31, 2009,[1] and 76.8 percent of turkeys slaughtered in 2009[2] in the United States. All respondent data were statistically weighted to reflect the population from which they were selected. Because companies were selected with certainty, the initial selection weight was equal to one for all selected companies. This selection weight was adjusted for nonresponse within industry segment and size strata.

[1] www.WattAgNet.com, February 2010. WATT PoultryUSA survey.
[2] WATT PoultryUSA Turkey Profiles, February 2010

b. Phase II: Breeder Farm survey

Companies that had any broiler or layer breeder farms were eligible to continue on to Phase II. The company weight was adjusted for nonresponse within industry segment. This weight was then adjusted by an expansion factor equal to the number of breeder farms that the company had divided by the number of farms for which a questionnaire was completed. The reporting unit for Phase II was the individual farm.

6. Response rate

Overall, 72 percent of selected companies participated in Phase I (company survey). Of companies eligible to continue to Phase II (Breeder Farm survey), 81 percent participated.

Companies	Breeder companies	Broiler companies	Layer companies	Turkey companies	Total
Selected for Phase I[1] (company-level survey)	6	14	23	15[2]	58
Participated in Phase I	6 (100%)	8 (57%)	16 (70%)	12 (80%)	42 (72%)
Eligible for Phase II (Breeder Farm survey)	6	8	2	0	16
Participated in Phase II	5 (83%)	6 (75%)	2 (100%)	0	13 (81%)

[1]For the purpose of this study, subparts of some large turkey companies were considered to be separate (unique) companies. Also, large turkey co-ops were considered to be companies.
[2]Note: Estimates for this report were generated from Phase I (company survey).

Appendix: Study Objective and Related Outputs

1. Describe the structure of commercial poultry industries, including interactions among poultry industry segments, movements, and biosecurity practices. Describe farm-level practices for chicken primary breeder and multiplier flocks. Identify critical factors for exclusion of disease (such as *Mycoplasma*).

- Poultry 2010: Structure of the U.S. Poultry Industry, 2010, descriptive report, December 2011
- Poultry 2010: Reference of Health and Management of Breeder Chicken Flocks in the United States, 2010, descriptive report, expected fall 2011

2. Estimate the prevalence and investigate risk factors associated with clostridial dermatitis (cellulitis/gangrenous dermatitis) on turkey grower farms.

- Clostridial Dermatitis in U.S. Commerical Turkeys and Broilers, info sheet, October 2011
- Poultry 2010: Clostridial dermatitis on United States Turkey Farms, interpretive report, expected spring 2012
- Info sheets, expected spring 2012

3. Describe bird health, movement, and biosecurity practices of urban chicken flocks in four U.S. cities—Miami, Denver, Los Angeles, and New York City. Determine the percentage of households that own chickens and attitudes about chickens in urban settings in Los Angeles.

- Poultry 2010: Reference of the Health and Management of Chicken Flocks in Urban Settings in Four U.S. Cities, descriptive report, May 2011
- Characteristics of Chicken Flocks in Four U.S. Cities, info sheet, April 2011
- Urban Chicken Flocks in Four U.S. Cities: the Human/Chicken Interface, info sheet, April 2011
- Biosecurity of Urban Chicken Flocks in Four U.S. Cities, info sheet, April 2011
- Poultry 2010: Urban-chicken Ownership in Los Angeles County, California, 2010, descriptive report, August 2011
- Urban Chicken Flocks in Los Angeles County, California, 2010, info sheet, August 2011