

# ECONOMIC IMPACT

— O F T H E —



# MISSISSIPPI POULTRY INDUSTRY

A T T H E Y E A R

# 2002



**Experiment Station**

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# **Economic Impact of the Mississippi Poultry Industry at the Year 2002**

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*This publication examines the Mississippi poultry industry and provides information on the industry's structure, farms, processors, employment, feed purchases, and environmental stewardship. For more information, contact Dr. Morgan by telephone at (662) 325-3416 or by e-mail at [wmorgan@poultry.msstate.edu](mailto:wmorgan@poultry.msstate.edu). Information Bulletin 385 was published by the Office of Agricultural Communications, a unit of the Division of Agriculture, Forestry, and Veterinary Medicine at Mississippi State University.*

## ***Poultry Facts***

- The poultry sector is the first agricultural sector in Mississippi to exceed \$1.5 billion in sales at the farm gate.
- Total sales of poultry products by Mississippi processors in 2000 exceeded \$2.2 billion.
- Mississippi produces 740 million broilers per year or 1,408 broilers per minute.
- On any given day in Mississippi, there are 100 million broilers in broiler houses.
- A chicken can convert 2 pounds of chicken feed into 1 pound of body weight.
- The average Mississippi chicken weighs 5 pounds when slaughtered.
- Chicken feed is 68% corn and 26% soy meal. (Mississippi chickens consumed 7.3 billion pounds of feed in 2000.)
- In 2000, 38.5 million bushels of corn were raised in Mississippi. Mississippi broilers consumed more than 89 million bushels of corn in 2000.
- In 2000, China was the largest purchaser of U.S. poultry. However, through August 2001, Russia was once again the leading importer of U.S. chicken. The return of the Russian market is important for Mississippi because most chicken bound for Russia is shipped through ports in the southern U.S.
- The tonnage of poultry shipped from ports at Gulfport and Pascagoula in 2000 was 35% greater than in 1999. Through September 2001, more poultry had been shipped through Gulfport and Pascagoula than in the entire year of 2000.

# Economic Impact of the Mississippi Poultry Industry at the Year 2002

## *Overview of the U.S. Chicken Industry*

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The U.S. poultry industry suffered from overexpansion in the last half of the 1990s. Broiler production increased from 12.5 million metric tons in 1998 to 13.7 million metric tons in 2000, an increase of 9.4% in only 2 years. During the same period, value of production decreased from \$15.1 billion to \$14 billion, a decrease of 7.9%. The industry responded by slowing its growth in 2001. While information on the exact financial condition of most poultry companies is unavailable because most are privately held, almost all poultry processors lost money in 2000 and only in the last half of 2001 began to recover.

The U.S. poultry industry must serve many markets. The first major market segmentation is between the domestic market and the export market. The American market prefers white meat, leaving most of the dark meat for export. The export market may be affected by conditions, such as oil prices, wars, and currency fluctuations, which are beyond the control of the poultry integrator. Prices received in the domestic market are largely a function of poultry supplies, prices of competing meats, and the condition of the U.S. economy. In 2000, the export market recovered as oil

prices firmed, but overproduction drove prices down for meat sold in the U.S. market.

The U.S. market is also segmented into the demand for chicken to be consumed in the home and that for chicken to be consumed outside the home in restaurants, schools, and other institutions. Most of the white meat must be further processed. Away-from-home meals and snacks captured 45% of the U.S. food dollar in 1997, up from 39% in 1980 and 34% in 1970. The poultry integrators must provide further processed products specifically tailored for each market segment.

The negative impact of lower prices received for poultry meat by poultry integrators was partially offset by lower prices for feed ingredients. Corn and soybean meal make up more than 94% by weight of poultry feed. Prices for feed grains in late 2001 continued to be low by historical standards.

The increase in the number of broilers raised in Mississippi has slowed during the past 2 years. In 1998, production was 722 million birds; this increased by only 2.5% to 740 million birds in 2000. The slower growth primarily reflects the lack of demand in the U.S. market.

## *Structural Evolution of Mississippi's Poultry Industry*

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Mississippi's poultry industry began in the 1940s and 1950s. It evolved following the pattern of the first U.S. poultry enterprises on the eastern shore. This process was a study in economic efficiency and in a number of instances, the evolution was driven by the need for economic stability for all parties involved. Poultry markets have always been cyclical; in other words, poultry is sometimes profitable and sometimes not. This cycle created problems for independent farmers and processors in the early years.

In the early days, independent farmers owned the chickens and bought feed from local mills. Farmers sold the live chickens to a processor. If the markets were good, the farmer, the feed mill, and the processor all did well. However, when the markets were bad and the farmers lost money, they generally lost interest in continuing to produce chickens. When farmers stopped raising chickens, feed mills lost their customers and processors had no birds to process and market.

The poultry business, under those circumstances, could not develop the stability necessary to grow and prosper. Therefore, the feed mills and/or processors learned that in order to keep farmers interested in growing poultry, it was necessary to reduce the effects of these cycles on the farmer. Thus, the practice of the processor owning the poultry (the farmer did not have to purchase young chicks) and supplying the feed (the farmer did not have to purchase feed) became a common practice.

This effort to ensure a constant supply of poultry for processing plants was the first major step in a process referred to as “vertical integration.” In this new structure, individual growers build houses and provide the labor under contract to poultry companies. The companies provide technical assistance, baby chicks, feed, medication, etc. They catch and transport the birds to the processing plant and then process, further process, and market the consumer products. In this system, each segment is responsible for doing its part, and each segment is dependent upon the other.

The process of vertical integration allowed the industry to have a consistent production pattern, and

this was essential for the industry to grow, prosper, and become economically stable. This process created a situation allowing per capita poultry consumption in the U.S. to grow from 8 pounds in 1950 to 98 pounds in 2001. This included 80 pounds of chicken and 18 pounds of turkey. No other food commodity has seen this degree of success. This unparalleled growth has been most apparent in Mississippi.

Unlike some agricultural enterprises, poultry production has shown consistent growth from year to year. In Mississippi, poultry and cotton are the only two agricultural commodities, by value, that have been in the top five every year since 1975. **Poultry has been the top agricultural income producer in Mississippi at the farm gate for the past 8 years.**

Mississippi’s poultry industry is making progress with better communication among all of its facets, from growers through marketing. This can only make the industry stronger and more responsive to current and new issues. Future successes for this industry will be directly proportional to its ability to improve internal communication and cooperation.

## ***Who Owns Poultry Companies in Mississippi?***

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There are several forms of ownership of poultry companies in Mississippi. Sanderson Farms and Cal-Maine Foods are corporations with headquarters in Mississippi whose shares are publicly traded on the NASDAQ exchange. Although controlling interests in these firms are held by the founders’ families, anyone may purchase stock and participate in the success of the companies. Mutual funds and other institutional investment groups hold some of the stock. Tyson Foods is another publicly traded corporation whose headquarters is in Arkansas. BCR Foods is an employee-owned corporation organized under provisions of the ESOP (Employee Stock Ownership Plan).

Lady Forest Farms and Choctaw Maid Farms are owned by families from Mississippi. Peco Foods and Marshall Durbin are owned by Alabama families.

Wayne Farms, LLC, operates a plant in Laurel. It is a division of ContiGroup Companies, Inc., one of the largest privately held companies in the United States.

Southern Hens, whose plant is in Moselle, is owned by a consortium of Mississippi poultry companies and was created to process their spent hens. No one company had enough hens to supply a plant, but by cooperating, the companies were able to get enough birds to make the plant feasible.

# ***A Responsive and Changing Industry***

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As the poultry industry has responded to customers, new technology, new roles in food safety, and the desire to be environmentally friendly and conserve energy, the face of the industry has changed.

## **Customers**

At first, the industry just produced whole chickens for consumers. The most frequent form was whole, ice-packed broilers, and all companies produced them. As customers demonstrated an increasing appetite for more convenient and tasty forms of chicken products, the industry became one of value-added products. Broiler companies today produce a vast variety of poultry products for a diverse market: cut up parts, fresh and frozen, cooked and raw, bone-in and deboned, breaded and battered, marinated, ground and reformed, and many others. Many companies no longer produce a single, whole, ice-packed broiler. Commonly, poultry companies are highly specialized. For example, a company may specialize in “mass producing deboned breast meat” sold to other food companies in bulk. Another may supply one or more huge fast food chains. Some sell name branded products, while others prepare for export.

## **Technology**

As the poultry company specializes in marketing certain products, the farmer must produce chickens of a specific size and type. This is necessary because the various sizes and strains of chickens are each suited for different final products. If the marketing situation for that company has to change, often the farmer and plant must also adjust. Over the last two decades, the technology available to the farmer has increased dramatically. There are now broiler houses that are entirely computerized. The technology is truly “space age,” and as those changes occur, so must the technical capabilities of the grower. Growers are almost as unique as are the poultry companies.

## **Food Safety**

As consumers have demanded more and more attention to the issue of food safety, poultry companies have developed a multitude of practices designed to decrease opportunities for food-borne pathogens to survive in their products. As this process continues to move forward, more opportunities in the arena of live production are identified that can have a positive impact. This adds to the sophistication required, not just in the processing plant, but in the hatchery, feed mill, and chicken house. Communications related to food safety throughout the production and processing chain have become of critical importance.

## **Environmental Stewardship**

Farmers are becoming more acutely aware of their central role in protecting the land and watersheds they influence. Mississippi poultry farmers now develop nutrient management plans consistent with recommendations of the USDA Natural Resources Conservation Service to ensure that the environment is protected during the disposal of litter and dead birds. Modern poultry farmers in our state accomplish these goals under permits from the Mississippi Department of Environmental Quality and the Mississippi Department of Agriculture and Commerce.

## **Energy Conservation**

Mississippi poultry farmers use large amounts of energy in the form of electricity and gas. Baby chicks must be kept warm during the first weeks of life, so poultry farmers are greatly affected when gas prices surge, as was the case in the winter of 2001. In addition, during summer months, the farmer must run large fans to keep the bigger chickens cool. Because energy costs are a major cost component in poultry production, energy conservation is a targeted research and extension program at Mississippi State University.

## Size of the Mississippi Poultry Industry

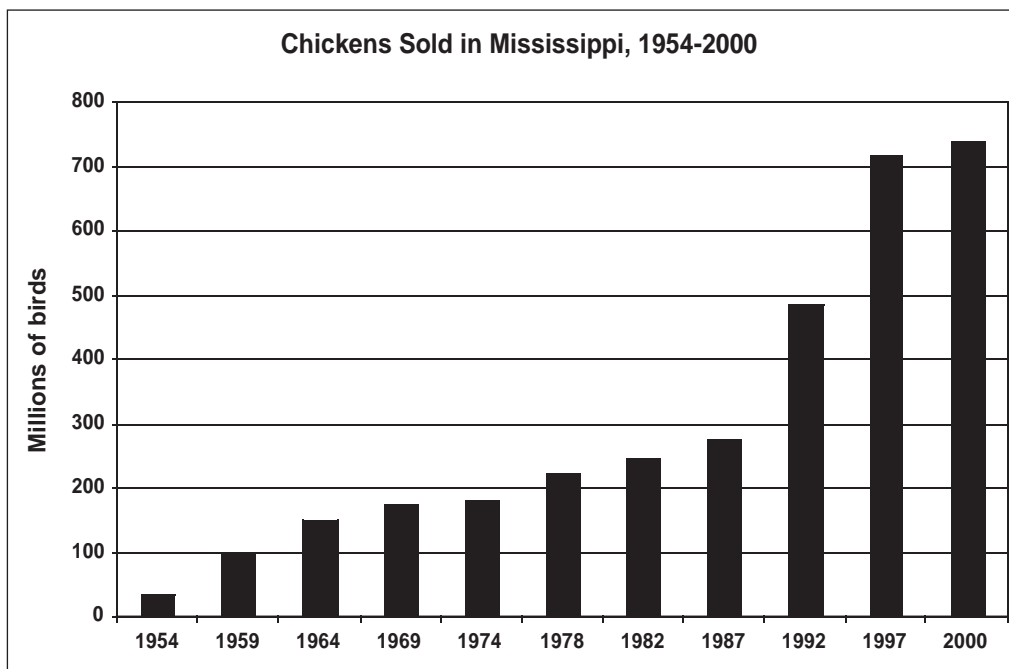
The modern chicken industry began in Mississippi in the early 1950s. The 1954 Census of Agriculture reported that Mississippi farmers raised 35 million broilers. In 2001, Mississippi farmers produced more than 740 million broilers.

Mississippi ranked 4th in the nation in 2000 based on number of broilers produced. However, the average broiler produced in Mississippi is smaller than that produced in North Carolina, so Mississippi ranked 5th in total pounds of broilers produced.

**Table 1. Broiler Production, 2000.**

State	Head	Pounds
Georgia	1,229,700,000	6,148,500,000
Arkansas	1,191,700,000	5,839,300,000
Alabama	1,038,700,000	5,297,400,000
Mississippi	739,900,000	3,699,500,000
North Carolina	698,400,000	4,050,700,000
Texas	551,000,000	2,589,700,000
Maryland	283,300,000	1,359,800,000
Virginia	264,900,000	1,298,000,000
Delaware	247,700,000	1,461,400,000
Missouri	240,000,000	1,080,000,000

Source: Economic Research Service, USDA.



## Economic Impact of the Mississippi Poultry Industry

The Mississippi broiler industry affects many groups in the state. Small farmers grow broilers in Mississippi. Broilers are processed in Mississippi factories. Corn grown on Mississippi farms is a major ingredient in broiler rations. Mississippi corn farmers receive higher prices for their corn because they can sell it to poultry integrators. Mississippi construction

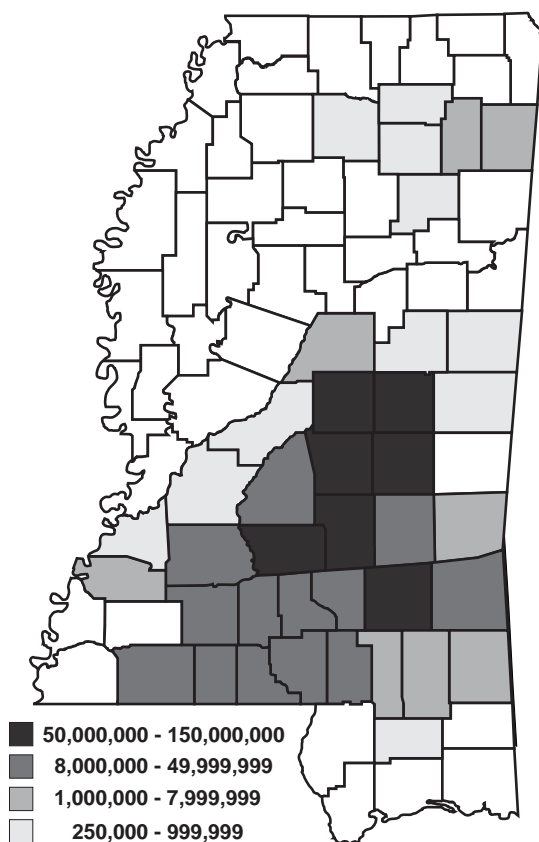
workers are employed building broiler houses and processing plants. Broiler exports, especially through the ports of Gulfport and Pascagoula, create jobs for Mississippi truckers and dock workers and generate income for stevedoring firms and state-owned ports. The broiler industry has a significant direct impact in more than half of Mississippi's counties.

# Broiler Production in Mississippi

In 2000, Mississippi farmers grew almost 740 million broilers. The farm-gate value was about 33 cents per pound, for a total of \$1.22 billion. Farmers contract with broiler companies, known as integrators, to raise broilers. Under this arrangement, the integrator supplies the chicks, feed, and veterinary supplies to the farmer at no cost. The farmer provides labor, utilities, and the broiler houses.

Farmers are paid about 4 cents per pound (live weight) for the broilers they raise. The total paid by integrators to Mississippi farmers exceeded \$144 million in 2000. A typical farmer has three or four houses. Each house holds about 23,000 birds. As a rule of thumb, one person can manage three houses if working full-time. A flock of chickens reaches a 5-pound market size in about 6 weeks. The replacement value of a modern broiler house is about \$125,000.

Broiler production is concentrated in central Mississippi. In 2001, about 2,000 farmers in 39 counties contracted with broiler integrators. The exact number is hard to determine because some contract farmers own many houses and hire family members or other individuals to manage groups of houses.



**Map 1. Number of Broilers Produced by County, 2001. Source: Mississippi Agricultural Statistics Service and Mississippi State University Department of Agricultural Economics.**

**Table 2. County Estimates of 2000 Broiler Production.**

County	Broilers produced	Farm gate value
Amite	13,413,950	22,133,000
Attala	1,851,517	3,055,000
Chickasaw	(D)	(D)
Claiborne	(D)	(D)
Clarke	2,025,456	3,342,000
Copiah	17,031,529	28,102,000
Covington	13,073,950	21,572,000
Forrest	5,658,793	9,337,000
Greene	6,243,035	10,301,000
Hinds	(D)	(D)
Itawamba	7,107,885	11,728,000
Jasper	18,155,166	29,956,000
Jefferson	2,012,729	3,321,000
Jefferson Davis	8,129,704	13,414,000
Jones	52,626,710	86,834,000
Kemper	(D)	(D)
Lamar	10,008,493	16,514,000
Lawrence	13,453,950	22,199,000
Leake	51,979,437	85,766,000
Lee	1,746,062	2,881,000
Lincoln	14,795,770	24,413,000
Madison	(D)	(D)
Marion	12,252,131	20,216,000
Neshoba	55,191,560	91,066,000
Newton	50,235,799	82,889,000
Noxubee	(D)	(D)
Pearl River	(D)	(D)
Perry	5,154,550	8,505,000
Pike	15,437,588	25,472,000
Pontotoc	480,000	792,000
Rankin	31,254,571	51,570,000
Scott	111,456,455	183,903,000
Simpson	60,701,868	100,158,000
Smith	91,466,742	150,920,000
Stone	(D)	(D)
Union	(D)	(D)
Walthall	23,093,352	38,104,000
Wayne	38,218,213	63,060,000
Winston	906,061	1,495,000
<b>Total</b>	<b>739,900,000</b>	<b>1,220,834,000</b>

(D) Not disclosed.  
 Source: Mississippi Agricultural Statistics Service and Mississippi State University Department of Agricultural Economics.



# Broiler Processing and Further Processing

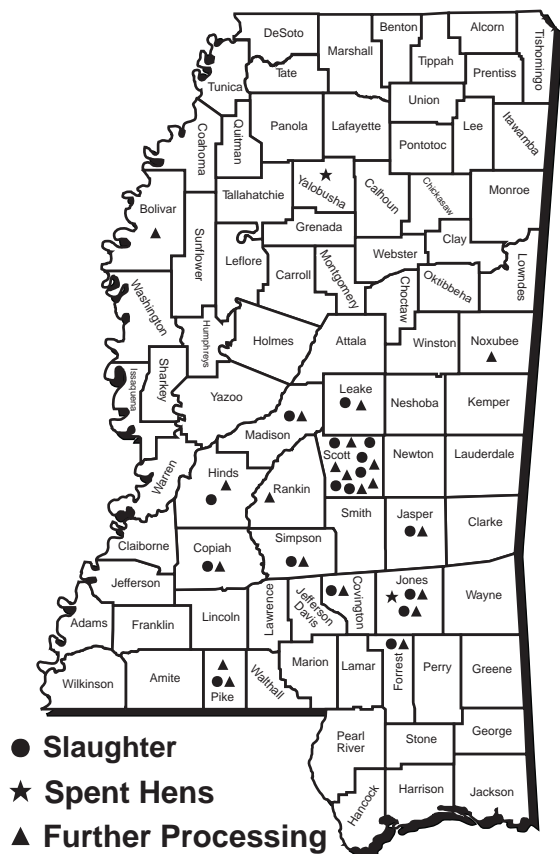
Most broilers grown in Mississippi are processed in one of Mississippi's 22 plants. Fifteen plants in Mississippi slaughter broilers. Very few broilers are sold as whole birds to the final consumer. Most undergo "further processing," which may include cut-up, deboning, forming, marinating, breading, cooking, and specialty packaging. Although all slaughter plants do some further processing, some plants in Mississippi do only further processing.

Exact data on poultry sales by plants are not available because many companies are privately held. However, the industry average for sales revenue per bird processed ranges from \$2.75 to \$3. Using these figures, the total sales from Mississippi processing plants are roughly \$2.2 billion.

Choctaw Maid operates the largest broiler processing plant in the U.S. at Carthage. This

state-of-the-art plant is capable of processing 2.5 million chickens per week. Choctaw Maid also suffered the loss of its Forest processing plant in 2001 to a fire. However, the company has purchased a plant in Forest formerly operated by Sara Lee and will resume operation sometime in 2002. Tyson Foods announced in November 2001 its intention to close a further processing plant in Cleveland and move the operations to other company-owned plants.

Two plants in the state process spent hens. Spent hens are females that are used to lay eggs for broilers or for table eggs. Valley Fresh in Water Valley employs about 300 people and produces canned chicken meat. In addition, there are many hatcheries and feed mills in the poultry-growing areas that are not shown in Table 3.



Map 2. Location of Mississippi Poultry Processing Plants

Table 3. Mississippi Poultry Processing Plants.

Company	Location	Type
BCR Foods	Forest	FP
BCR Foods	Morton	S,FP
Choctaw Maid	Carthage	S, FP
Choctaw Maid	Forest	S, FP
Lady Forest Farms	Forest	S, FP
Marshall Durbin	Hattiesburg	S, FP
Valley Fresh	Water Valley	Spent Hens
Peco Foods	Bay Springs	S, FP
Peco Foods	Brooksville	FP
Peco Foods	Canton	S, FP
Peco Foods	Canton	FP
Peco Foods	Sebastopol	S, FP
Sanderson Farms	Collins	S, FP
Sanderson Farms	Hazlehurst	S, FP
Sanderson Farms	Laurel	S, FP
Sanderson Farms	McComb	S, FP
Sanderson Farms	Flowood	FP
Southern Hens	Moselle	Spent Hens
Tyson Foods	Forest	S, FP
Tyson Foods	Jackson	S, FP
Tyson Foods	Vicksburg	FP
Wayne Farms	Laurel	S, FP

S = slaughter; FP = further processing.

# Employment in the Mississippi Poultry Industry

In 2000, integrated poultry firms in Mississippi directly employed almost 19,000 people in processing, feed manufacture, and hatchery operation. Data were obtained from the Labor Market Information Section of the Mississippi Employment Security Commission for firms that report their activity as poultry-related. The total payroll for these jobs was more than \$413 million.

These data are presented in Table 4. Of special significance is average annual wage reported under SIC 2015, poultry slaughtering and dressing, which is \$17,033. This represents employment in processing plants. Wages paid in poultry-related industries other than processing are higher.

**Table 4. Employment in the Mississippi Poultry Industry, 2000.**

SIC Code	Industry	Average monthly employment	Average annual wage
254	Poultry Hatcheries	432	\$24,446
2015	Poultry: Slaughtering and Dressing	17,451	\$17,033
2048	Poultry Feeds and Feed Ingredients	623	\$28,908
3523	Farm Machinery and Equipment	653	\$29,634
5083	Farm and Garden Machinery and Equipment	1,752	\$31,303
5142	Packaged Frozen Foods	197	\$33,498
5144	Poultry and Poultry Product Wholesalers	187	\$36,019

Source: Mississippi Employment Security Commission, November 2001.

## Egg Production in Mississippi

The largest U.S. company involved in the production, cleaning, grading, packaging, and sale of fresh shell eggs established its corporate headquarters in Hinds County, Mississippi, in 1963. At that time, the company employed about 200 people. Today, Cal-Maine employs more than 1,800 people and maintains facilities in 15 states. Under the leadership of Chairman and CEO Fred Adams, Jr., Cal-Maine has experienced steady growth and now produces 426 million dozen eggs per year. These eggs are produced by some 18.4 million laying hens. The hens are predominantly Single Comb White Leghorns, the favorite breed for production of table eggs in the U.S.

Cal-Maine is a fully integrated producer and controls every aspect of production, processing, and

distribution in its modern facilities, where the company carefully controls temperature, lighting, and humidity. At its in-line processing and distribution plants, Cal-Maine gathers, cleans, grades, and packages the eggs mechanically, so that no human hands touch them. On a normal day, the company processes about 6,160 cases (30 dozen per case) each hour.

To ensure freshness and quality, Cal-Maine has a large fleet of trucks that delivers eggs to customers in 26 states in the Southeast, Southwest, Midwest, and mid-Atlantic regions of the U.S. Cal-Maine is a quality Mississippi-based corporation, and it is determined to maintain its leadership position in the egg industry.

## Major Poultry-Producing Countries

Because Mississippi's poultry industry is a major player on the world poultry market, events occurring in foreign countries affect the state's industry. The U.S. led the world in poultry production with more than 16.6 million metric tons in 2001. China was second to the U.S., and its production is increasing. While China is a relatively poor country, its population is more than 1 billion, and its people eat chicken whenever it is avail-

able. Even small increases in per capita consumption in China cause large changes in demand for chicken.

Brazil, which is the third largest poultry producer, is a major player in the world poultry market. It has the needed grain production to feed chickens and has an ample supply of labor to grow and process the birds. It also has access to the same technology found in U.S. plants.

**Table 5. Total Poultry Meat Production by Country.**

Production	1997	1998	1999	2000	2001
United States	14,952	15,128	15,990	16,362	16,611
Canada	916	962	1,012	1,053	1,085
Mexico	1,615	1,710	1,922	2,082	2,139
Brazil	4,562	4,627	5,641	6,117	6,445
Argentina	780	875	910	895	895
European Union	8,177	8,489	8,444	8,394	8,599
Russian Federation	630	640	640	660	700
China (PRC)	10,400	10,700	11,150	11,960	12,285
Japan	1,234	1,221	1,189	1,196	1,180
India	630	665	690	710	735
Thailand	955	980	1,025	1,117	1,255
Other Countries	8,7451	8,541	8,948	9,092	9,428
<b>TOTAL</b>	<b>53,591</b>	<b>54,537</b>	<b>57,561</b>	<b>59,638</b>	<b>61,357</b>

These figures represent thousands of metric tons of ready-to-cook (RTC) equivalent products.  
Source: USDA Foreign Agriculture Service.

## U.S. Broiler Exports

The U.S. consumer usually prefers white chicken meat. Dark chicken meat is often sold on the export market. Prices of the two products are different. For example, on Nov. 7, 2001, the Georgia dock price of whole breasts was 64 cents per pound. The selling price of leg quarters was 33 cents per pound.

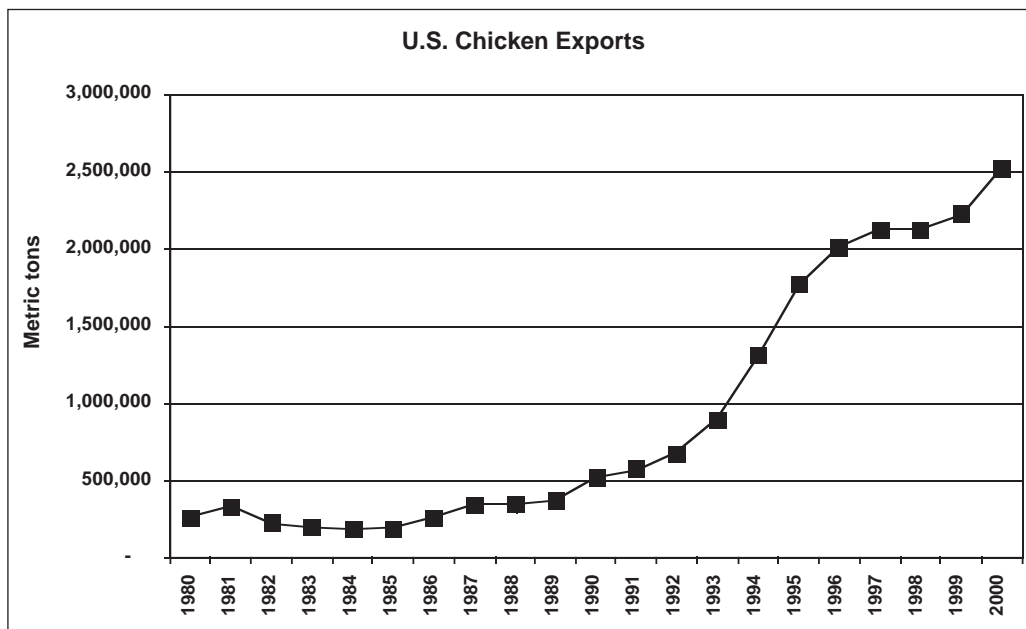
During 2001, the export market improved dramatically. Leg quarters, which sold for just 20 cents per

pound in November 1999, had increased to 33 cents. Much of this can be attributed to the increase in oil prices, which allowed Russia, a major U.S. customer, to once again import large quantities of chicken leg quarters.

In 1999, China was the biggest buyer of U.S. chicken. Chicken reported as imported by Hong Kong is usually bound for China.

**Table 6. U.S. Broiler Exports (Metric Tons).**

	Hong Kong	Russia	Mexico	Latvia	Japan	China	Total
1991	105,251	0	59,749	0	125,453	4,259	571,813
1992	152,602	14,552	72,177	0	118,743	8,960	676,231
1993	218,366	109,854	85,700	5,858	103,118	27,286	890,802
1994	324,107	373,616	100,189	343	115,435	32,731	1,306,623
1995	441,351	670,664	92,355	1,186	114,565	39,869	1,763,805
1996	441,145	861,266	99,167	68,391	111,103	76,242	2,033,712
1997	396,422	929,294	112,839	112,461	91,998	66,373	2,111,195
1998	446,765	684,027	124,777	132,216	103,166	51,457	2,126,943
1999	558,055	321,609	135,459	313,366	99,265	71,589	2,231,065
2000	633,597	613,532	165,110	139,829	104,634	79,630	2,516,405



## Poultry Exports from Mississippi Ports

In 2000, 270,115 tons of poultry were exported through Gulfport, and 255,505 tons were exported through Pascagoula. Much of this poultry was consolidated in Mississippi from other states for export. Through September 2001, poultry shipments were much stronger than in 2000. In 2000, the U.S. exported 2.5 million metric tons. Of this, 389,000 tons were shipped to Mexico and Canada, presumably by truck and rail. This fact implies that 2.4 million metric tons were shipped by sea.

Thus, almost 22% of all poultry exported from the U.S. moved through Gulfport or Pascagoula. This is significant when one considers that Mississippi produced 9.1% of U.S. broilers in 2000.

**Table 7. Poultry Exports Through Mississippi Ports (Metric Tons).**

	Gulfport	Pascagoula	Total
January–December, 2000	270,115	255,505	525,619
January–September, 2001	210,689	239,455	450,145

Source: Port Directors, Gulfport and Pascagoula.

## ***Ancillary Industries***

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### ***Other industries benefit directly from the Mississippi poultry industry:***

- Freezers and refrigerated warehouses that store poultry;
- Trucking firms that transport finished product;
- Railroads and trucking firms that haul corn and other feed ingredients;
- Vendors of farm equipment and plant equipment;
- Vendors of packaging; and
- Construction contractors building plants, plant additions, and chicken houses.

## ***Mississippi State Serves the Poultry Industry***

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### ***Three units at Mississippi State University cooperate to serve Mississippi's poultry industry:***

- The Department of Poultry Science offers bachelor's and master's of science degrees with several areas of specialization. The department also conducts research on issues faced by Mississippi farmers and integrators. Workshops are regularly offered to address specific problems affecting the industry and to keep poultry professionals current on the latest advances in poultry science.
- The USDA South Central Poultry Research Laboratory works closely with Mississippi State University and is providing extremely valuable information on management inside broiler houses to improve production. In addition, the laboratory is providing useful information on environmental influences on production and has a premier program in Mycoplasma research that has the potential to save our industry millions of dollars in losses related to this disease.
- The College of Veterinary Medicine conducts research on diseases affecting poultry flocks and provides assistance to poultry professionals when problems arise. They also conduct workshops to benefit the industry.

### ***Research under way at Mississippi State is focused on several goals important to the poultry industry:***

- Prevention of Coccidiosis;
- Better poultry litter management techniques that allow producers to be good environmental stewards;
- Increased shelf life of poultry and poultry products;
- Improved fertility, hatchability, and chick quality;
- Improved nutrient content of eggs to facilitate better growth of chicks;
- Improved chick quality through feeding programs for breeders;
- Identification of new litter materials;
- Improved yield through improved nutrition;
- Reduced odors through improved nutrition;
- Enhanced basic knowledge in poultry nutrition, physiology, genetics, and management; and
- Production of a more effective vaccine for Mycoplasma.

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