



United States  
Department of  
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Grain Inspection,  
Packers and  
Stockyards  
Administration



2003 Report

# Assessment of the Cattle, Hog, Poultry, and Sheep Industries

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United States Department of Agriculture  
Grain Inspection, Packers and Stockyards Administration

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## **List of Acronyms and Abbreviations**

AMS	Agricultural Marketing Service
APHIS	Animal and Plant Health Inspection Service
ARS	Agricultural Research Service
ASTM	ASTM International (formerly American Society for Testing and Materials)
BSE	Bovine Spongiform Encephalopathy
cwt.	Hundredweight (100 pounds)
DOC	Department of Commerce
DOJ	U.S. Department of Justice
FTC	Federal Trade Commission
GIPSA	Grain Inspection, Packers and Stockyards Administration
HHI	Herfindahl-Hirschman Index
lbs.	Pounds
LMIC	Livestock Marketing Information Center
MPR	Mandatory price reporting
NA	Not Available
NASS	National Agricultural Statistics Service
NIST	National Institute of Standards and Technology
P&S Act	Packers and Stockyards Act
P&SP	Packers and Stockyards Programs
U.S.	United States of America
USDA	United States Department of Agriculture

## Executive Summary

This report has been prepared in response to a requirement in the Grain Standards and Warehouse Improvement Act of 2000 (Pub. L. No. 106-472), enacted on November 9, 2000. Specifically, the Grain Standards and Warehouse Improvement Act of 2000 states:

[n]ot later than March 1 of each year, the Secretary [of Agriculture] shall submit to Congress and make publicly available a report that—

- (1) assesses the general economic state of the cattle and hog industries;
- (2) describes the changing business practices in those industries; and
- (3) identifies market operations or activities in those industries that appear to raise concerns under this [Packers and Stockyards] Act.

The purpose of the Packers and Stockyards (P&S) Act is to promote fair and competitive marketing for livestock, meat, and poultry for the benefit of American Agriculture.

The Secretary of Agriculture is responsible for administering the P&S Act, and delegated that responsibility to the Administrator of Grain Inspection, Packers and Stockyards Administration (GIPSA). The Packers and Stockyards Programs (P&SP), part of GIPSA, administers and enforces the P&S Act and monitors competitive, financial, and trade practices in the livestock, meatpacking, and poultry industries.

This is GIPSA's third report to Congress on the general economic state of the cattle and hog industries, changing business practices in those industries, and activities that appear to raise concerns under the Packers and Stockyards Act (P&S Act). This is the first report to include the poultry and sheep industries, which are included because these are major industries monitored under the P&S Act. This report also includes responses by the Packers and Stockyards Programs to apparent concerns under the P&S Act. This report encompasses both 2002 and 2003, covering events and data available as of September 30, 2003, the close of the Government's fiscal year.<sup>1</sup>

The cattle, hog, and poultry industries witnessed an increase in demand for their products either domestically or internationally, while the demand for lamb remained stable. Structural changes continued to occur through most livestock and poultry industries with mergers and acquisitions occurring in 2002 and 2003. The livestock and poultry industries also witnessed changes in business practices which in most industries were fueled by consumer demand.

In 2003, United States (U.S.) cattle producers raised fewer cattle than in the past 5 years. The U.S. border was closed to Canadian imports due to the discovery of bovine spongiform encephalopathy (BSE) in Canada. The closing of the border further decreased the U.S. cattle and beef supply. Demand for beef was strong in 2003. Consumer demand was, in part, fueled by high protein and low carbohydrate diets. Merger and acquisition activity in the cattle industry slowed in 2002 and 2003. The report addresses changing business practices associated with the Canadian border closing, the emergence of tuberculosis, and the development of electronic evaluation technology.

U.S. hog slaughter was close to a record high, with an estimated 100.04 million head slaughtered from October 2002 to September 2003. Structural changes in the U.S. hog industry continued over the last

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<sup>1</sup> Fiscal Year 2003: October 1, 2002–September 30, 2003

several years. The report addresses changing business practices associated with vertically coordinated quality controls, electronic evaluation technology, and Canadian hogs. In response to consumer demand for leaner pork, breeders have improved and selected genetic lines to produce leaner hogs. P&SP established a task force to assist in the development of voluntary industry standards to govern the use or accuracy of electronic evaluation devices in the livestock and meatpacking industries because no standards exist. The standards are being developed by ASTM International, a nonprofit organization devoted to development of voluntary full consensus standards. The P&SP task force is working with ASTM, market participants, academicians, NIST<sup>2</sup>, and State and other Federal government agencies (including AMS) to develop voluntary standards.<sup>3</sup>

The poultry industry has witnessed increased demand for its products for several decades; however, there are now indications that this demand is leveling off. Industry growth during the latter part of the 20<sup>th</sup> century occurred primarily through mergers and acquisitions. The industry is changing its business practices in response to the consumer's preference for fresh products that minimize preparation time. The report addresses several of the changing business practices in the poultry industry.

Sheep and lamb inventories in the U.S. have declined over the last 10 years, falling from 9.8 million head in 1994 to 6.7 million head in 2002. Demand for lamb remained stable in 2003. Members of the U.S. lamb industry are focusing on differentiating and marketing those qualities of U.S. lamb that they believe make it more desirable than imported lamb. For example, the Sheep Industry Development Council developed the Certified Fresh American Lamb brand to position U.S. lamb as the premium product available to consumers. The report addresses changing business practices associated with the Lamb Checkoff program, electronic evaluation technology, product development, and innovations in production and distribution.

Finally, the report concludes by identifying activities that appear to raise concerns under the Packers and Stockyards Act (P&S Act) and, when appropriate, what actions P&SP intends to take in response to those concerns. These concerns include captive supply; contract terms; specific contract terms; formula pricing; joint livestock purchasing; livestock, meat, and poultry evaluation; and vertical coordination.

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<sup>2</sup> NIST, National Institute of Standards and Technology, was founded in 1901, NIST is a non-regulatory federal agency within the U.S. Commerce Department's Technology Administration.

<sup>3</sup> The Electronic Evaluation Device committee is open to everyone interested in participating. Interested parties can contact either P&SP's Office of the Deputy Administrator at (202) 720-7051 or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 at (610) 832-9714 for additional information.

## Section 1: Cattle Industry

### General Economic State of the Cattle Industry

The cattle feeding industry turned the corner from a long period of unprofitable operations during the end of 2002. Fed cattle prices climbed above the \$70 per cwt. range from late November to early December 2002.<sup>4</sup> This was the breakeven figure for some feeders.

In 2003, U.S. cattle producers raised fewer cattle than in the past 5 years.<sup>5</sup> The U.S. border was closed to Canadian imports due to the discovery of bovine spongiform encephalopathy (BSE) in Canada. The closing of the border further decreased the U.S. cattle and beef supply. Cattle slaughter remained high as U.S. cattle producers moved to decrease the size of their existing herds. The year 2003 marked the eighth consecutive yearly decrease in herd size, with total cattle inventory 1 percent below the last low reached in 1990.<sup>6</sup> U.S. fed cattle prices averaged in the upper \$70 per cwt. during the first half of 2003 and by early September 2003, averaged in the upper \$80 per cwt.<sup>7</sup> As a result of the high prices, cattle remained on feed for fewer days as owners sold at lower weights to capitalize on the high prices. The average steer and heifer carcass weight was 800 lbs. entering 2003, and by April 2003 the average carcass weight had dropped to 744 lbs.<sup>8</sup> Cattle carcass weights were lower, as was the percentage grading Choice and Prime. Approximately 57 percent of the steer and heifer slaughter graded Choice and Prime in October 2002 and in September 2003 the proportion dropped to 52 percent.<sup>9</sup>

Demand for beef was strong in 2003. Consumer demand was, in part, fueled by high-protein and low-carbohydrate diets. At the retail level, competition for the reduced supply of choice and prime cuts, combined with strong domestic and international demand, pushed retail beef prices to record levels. Choice boxed beef prices averaged approximately 40 percent higher than the previous year.<sup>10</sup>

### Concentration and Integration

Concentration of the top-four-firm steer and heifer slaughterers increased from 1980 to 2000; however, over the last 2 years it decreased from 81.4 to 79.6 percent (Table 1). The Department of Justice and the Federal Trade Commission consider markets with Herfindahl-Hirschman Index (HHI) values below 1,000 to be unconcentrated, and markets with HHI values over 1,800 to be highly concentrated.<sup>11</sup> The HHI value in 1995 was 2,036 and declined to 1,839 in 2002. Although the HHI declined over the last several years, concentration of the top four-firm steer and heifer slaughterers is considered highly concentrated since the HHI is above 1,800.

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<sup>4</sup> USDA, AMS, Market News, 5 Area Weekly Weighted Average Direct Slaughter Cattle, LM\_CT150.

<sup>5</sup> USDA, NASS, Agricultural Statistics Data Base, Cattle and Calves Inventory – January 1.

<sup>6</sup> USDA, NASS, Cattle, Mt An 2.

<sup>7</sup> USDA, AMS, Market News, 5 Area Weekly Weighted Average Direct Slaughter Cattle, LM\_CT150.

<sup>8</sup> Livestock Marketing Information Center (LMIC), Monthly Cattle Slaughter By Class, Weights, Etc.

<sup>9</sup> USDA, AMS, Market News, USDA National Steer & Heifer Estimated Grading Percent Report, NW\_LS196.

<sup>10</sup> USDA, AMS, Market News, USDA Estimated Composite of Boxed Beef Cut-Out Values, NW\_LS411.

<sup>11</sup> “Mergers producing an increase in the HHI of less than 50 points, even in highly concentrated markets post-merger, are unlikely to have adverse competitive consequences and ordinarily require no further analysis. Mergers producing an increase in the HHI of more than 50 points in highly concentrated markets post-merger potentially raise significant competitive concerns, depending on the factors set forth in Sections 2-5 of the Guidelines.” Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, [http://www.usdoj.gov/atr/public/guidelines/horiz\\_book/15.html](http://www.usdoj.gov/atr/public/guidelines/horiz_book/15.html), April 2, 1992 (as amended April 8, 1997).

Table 1.— Concentration of the top-four-firm steer and heifer slaughterers<sup>1</sup>

	1980	1985	1990	1995	2000	2001	2002
Four-firm							
Concentration (percent) <sup>2</sup>	35.7	50.2	71.6	80.8	81.4	80.4	79.6
HHI <sup>3</sup>	561	999	1,661	2,036	1,939	1,909	1,839

<sup>1</sup> Data for 1980, 1985, and 1990 are based on firms' fiscal years as reported to P&SP. Data for 1995–2002 are based on calendar year for federally inspected slaughter.

<sup>2</sup> Percentage of total commercial slaughter accounted for by the four largest firms.

<sup>3</sup> Based on federally inspected slaughter data, all reporting firms.

Source: Grain Inspection, Packers and Stockyards Administration.

Merger and acquisition activity in the cattle industry slowed in 2002 and 2003. In September 2002, ConAgra Foods sold a majority interest in its red meats business to investment firm Hicks, Muse, Tate, and Furst and other investors, including Booth Creek Management Corporation (Booth Creek). The new firm is operating under the name Swift and Company (Swift). Booth Creek separately acquired two smaller packers (Coleman Natural Products, Denver, Colorado; and B3R Country Meats, Childress, Texas) and a meat processor (Gerhard's Napa Valley Sausage, Napa, California). In 2003, Creekstone Farms, a cattle raiser and beef marketer, acquired the processing plant built by Future Beef located in Arkansas City, Kansas. Agri Beef Company, a privately held company with interests in ranching and cattle feeding, acquired Washington Beef also in 2003.

### Captive Supply Marketing Methods

In this report, captive supply transactions for fed cattle refer to all transactions in which fed cattle are committed to a packer more than 14 days before the cattle are ready for slaughter. Three common types of captive supply are marketing agreements, forward contracts, and packer-fed cattle.

Marketing agreements, which may be written or verbal, establish an ongoing relationship for trading multiple lots of fed cattle, rather than negotiating single lots of cattle.<sup>12</sup> Forward contracts refer to agreements between packers and sellers for future delivery of a specific lot or quantity of slaughter livestock. Many packers own and feed some of the cattle they slaughter. P&SP defines packer-fed livestock as all livestock obtained for slaughter that are owned, in whole or part, by a packer or the packer's parent firm or its subsidiary more than 14 days before the livestock are slaughtered. In 2002, 44.4 percent of the four largest steer and heifer packers' slaughter was procured through captive supply, with 32.4 percent acquired through marketing agreements, 2.4 percent through forward contracts, and 9.6 percent packer fed.

## Changing Business Practices in the Cattle Industry

### Electronic Evaluation Technology

Technological advances remain important to the cattle industry. In the cattle and meatpacking industries, packers and producers are expanding beyond USDA grading to determine the value and appropriate prices to pay for livestock purchased on a carcass merit basis. In the cattle industry, some producers are paid based on the yield grade of their cattle – as determined by advanced electronic evaluation devices during the slaughter process. Ultrasonic technology is used on fed steers and heifers for sorting purposes to determine when the livestock are at the optimal slaughter point. Some contracts now specify the

<sup>12</sup> The term "lot" is commonly used to represent a group of cattle purchased as a unit in a transaction.



electronic evaluation device to be used to evaluate carcasses, and AMS is considering use of electronic evaluation devices instead of USDA graders in some of its approved branded programs.

P&SP established a task force to assist in the development of voluntary industry standards to govern the use or accuracy of electronic evaluation devices in the livestock and meatpacking industries because no standards exist. The standards are being developed by ASTM International, a nonprofit organization devoted to development of voluntary, full-consensus standards. The P&SP task force is working with ASTM, market participants, academicians, NIST, and State and other Federal government agencies (including AMS) to develop voluntary standards.<sup>13</sup>

### **Tuberculosis in Cattle**

In June 2002, the State of Texas lost its tuberculosis accredited-free status. In 2003, the States of California and New Mexico also lost their accredited-free status. For States that hold accredited-free status, testing is not required for out-of-State shipment of cattle.<sup>14</sup> When a State has two or more infected herds within a 48-month period, it can no longer retain its accredited-free status.<sup>15</sup> There are five different levels of status based on the number of herds infected, with the highest status being accredited-free, and the lowest status being non-accredited. Currently, no States are classified as non-accredited. California and New Mexico joined Texas as the only States classified as modified accredited advanced, the second highest status. Under that status, for movement to certain destinations, animals must test negative to an official tuberculin test and/or be officially identified by premises-of-origin identification before interstate movement.<sup>16,17</sup>

Restrictions on the interstate movement of cattle due to tuberculosis fears created many changes in the operations of interstate dealers. If cattle in restricted States are not tested prior to being consigned to a market, provisions must be made for testing and holding livestock until the tests are received. Any dealer, broker, or auction operator who purchases or sells cattle must be registered with the appropriate State agency and maintain records that will facilitate traceback of affected, exposed, or reactor animals by State authorities to the herd of origin or other point of original infection.<sup>18</sup>

### **Canadian Border Closing**

On May 20, 2003, the USDA temporarily closed the U.S.-Canadian border to imports of live ruminants and most ruminant products after a single cow in Alberta, Canada, was found to have BSE. In recent years, 8 to 10 percent of the U.S. beef supply was imported from Canada either as boxed beef or live animals (cattle and calves). The BSE finding occurred at a time when cattle supplies in the U.S. were low.

U.S. packing firms that purchased Canadian fed cattle and cull cows had to find alternative sources of supply or decrease slaughter numbers. Additionally, U.S. cattle producers that purchased calves from Canada had to find alternative domestic supplies of calves or reduce their herd sizes. While U.S. fed cattle prices soared, Canadian prices reached record lows.

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<sup>13</sup> The Electronic Evaluation Device committee is open to everyone interested in participating. Interested parties can contact either P&SP's Office of the Deputy Administrator at (202) 720-7051 or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 at (610) 832-9714 for additional information.

<sup>14</sup> Code of Federal Regulations, Title 9, CFR, Sec. 77.8, <http://www.gpoaccess.gov>.

<sup>15</sup> Code of Federal Regulations, Title 9, CFR, Sec. 77.7 (c), <http://www.gpoaccess.gov>.

<sup>16</sup> Code of Federal Regulations, Title 9, CFR, Sec. 77.10 for the specific restrictions, <http://www.gpoaccess.gov>.

<sup>17</sup> Federal Register, April 25, 2003 (volume 86, Number 80), pages 20333-20336, Federal Register Online, <http://www.gpoaccess.gov>, DOCID: fr25ap03-2.

<sup>18</sup> "Bovine Tuberculosis Eradication, Uniform Methods and Rules Effective January 22, 1999" (UMR), USDA/APHIS, Part II (k). <http://www.aphis.usda.gov/oa/pubs/bovtbumr/bovtbumr.pdf>

## Section 2: Hog Industry

### General Economic State of the Hog Industry

During 2003, hog market prices continued to rise. In late 2002, prices (live per hundredweight) were around \$30 and steadily increased to around \$45 in the late spring and summer of 2003.<sup>19</sup> In August 2003, live prices took a dip as hog numbers unexpectedly increased, but recovered in September at about \$41 per hundredweight. On average, prices were 4.5 percent higher for the period October 2002 to September 2003, compared to the same period a year earlier. Similarly, in the first seven months of the 2003, producers steadily lost money on hogs, with estimated losses ranging from \$10 to \$25 per head. Due to losses in early 2003 the U.S. sow herd declined by an estimated 250,000 head or 4.4 percent.<sup>20</sup> The number of sows continued to decline in the Eastern cornbelt, while sow numbers in Oklahoma and Texas increased.<sup>21</sup>

Hog prices held up better than expected as the number of hogs slaughtered from October 2002 to September 2003 was at or close to a record high of 100.04 million head.<sup>22</sup> For this same period of 2003, 19.701 billion pounds of pork were produced, up over 5.3 million pounds from the previous year.<sup>23</sup> Some of the increase in pork production was due to an increase in average carcass weight of 194.1 pounds, up slightly from the 193.6 pounds in fiscal year 2002.<sup>24</sup>

Despite higher pork production in fiscal 2003, retail pork prices changed little, averaging \$2.63 per pound, down about 1 percent from the previous year.<sup>25</sup> Retail pork prices were supported due to stronger pork export sales and higher beef prices.

From 2002 to 2003, the decline in the number of hogs priced in the spot market continued. In January 2003, 13.5 percent of hogs purchased for slaughter were priced in the spot market, down from 16.7 percent in January 2002.<sup>26</sup>

#### Concentration

Concentration of the top-four-firm hog slaughterers stabilized. The four-firm concentration remained constant at 56.7 percent in both 2001 and 2002. The HHI value rose from 436 in 1980 to 1,033 in 2000; the HHI value rose to 1,035 in 2001 and 1,046 in 2002 (Table 2). Concentration of the top-four-firm hog slaughterers is considered moderately concentrated under Department of Justice merger guidelines.

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<sup>19</sup> Livestock Marketing Information Center (LMIC), USDA Pork Price Spread, 51-52 Leans Hogs \$/cwt.

<sup>20</sup> Ron Plain, University of Missouri, "Hog Market Forecast" <http://www.ssu.missouri.edu/faculty/RPlain/PowerPointlist.html>.

<sup>21</sup> The Eastern cornbelt includes the States of Ohio, Indiana, Michigan, Illinois, and Wisconsin

<sup>22</sup> Livestock Marketing Information Center (LMIC), Monthly Hog Slaughter by Class, Weights, Etc., Commercial hog slaughter.

<sup>23</sup> Livestock Marketing Information Center (LMIC), Monthly Hog Slaughter by Class, Weights, Etc., Commercial pork production.

<sup>24</sup> Livestock Marketing Information Center (LMIC), Monthly Hog Slaughter by Class, Weights, Etc., Federal Inspection weight hogs.

<sup>25</sup> Livestock Marketing Information Center (LMIC), USDA Pork Price Spread, Retail price.

<sup>26</sup> Grimes, Glenn; Plain, Ron; and Meyer, Steve. University of Missouri and Paragon Economics. "U.S. Hog Marketing Contract Study," January 2003.

Table 2.—Concentration of the top-four-firm hog slaughterers<sup>1</sup>

	1980	1985	1990	1995	2000	2001	2002
Four-firm Concentration (percent) <sup>2</sup>	33.6	32.2	40.3	45.7	56.4	56.7	56.7
HHI <sup>3</sup>	436	456	593	769	1,033	1,035	1,046

<sup>1</sup> Data for 1980, 1985, and 1990 are based on firms' fiscal years as reported to P&SP. Data for 1995–2002 are based on calendar year for federally inspected slaughter.

<sup>2</sup> Percentage of total commercial slaughter accounted for by the four largest firms.

<sup>3</sup> Based on federally inspected slaughter data, all reporting firms.

Source: Grain Inspection, Packers and Stockyards Administration.

While concentration of the top-four-firm hog slaughterers stabilized, hog slaughter capacity declined from 408,520 hogs per day in February 1997 to 376,520 hogs per day in the fall of 2002 (Table 3).

Table 3.—Hog slaughter capacity, U.S. hog slaughter plants<sup>3</sup>

	February 1997	February 1998	February <sup>1</sup> 999	Fall 2000	Fall 2001	Fall 2002
Estimated Daily Slaughter Capacity	408,520	415,520	381,920	381,370	381,120	376,520

<sup>3</sup> Capacity figures are for firms that account for approximately 96 percent of daily slaughter.

Source: National Pork Board, *Pork Facts 2001/2002* and *2002/2003*

### Methods to Secure Market Hogs: Production and Marketing Agreements

The use of production and marketing agreements are now the most common methods used by packers to secure a consistent supply of hogs. In production contracts, contractors provide hogs, retain ownership, and contract with growers to care for and raise hogs according to contract standards. In marketing agreements, producers who own the hogs contract with a packer to purchase them under agreed-upon terms.

A typical production contract specifies the delivery time and the number of head of finished hogs to be delivered to the contractor. Generally, production contracts outline specific care and feeding requirements, waste disposal, and payment methods. The contractor retains ownership of the hogs and bears any market price risk. Packers, other producers, and agricultural corporations not involved in hog slaughter have entered into production contracts with growers.<sup>27</sup>

Unlike production contracts, marketing agreements specify the terms for the sale of producer-owned hogs to a packer. Marketing agreements frequently specify the types of hogs to be delivered by the producer, the number of hogs to be delivered each month, and the pricing method or formula to be used to determine price. Packers using marketing agreements do not have risks associated with owning hogs and are able to shift more price risk to the producers. Many times marketing agreements offer some price protection to producers in the form of minimum prices. Marketing agreements provide producers an assured outlet for their hogs, reduced marketing costs, and improved access to financing. Marketing agreements may also require producers to implement new production methods with unfamiliar genetics, upgrade facilities at their own expense, and commit to a single packer, foregoing more lucrative marketing opportunities with other packers.

<sup>27</sup> A contractor who is not a packer may also have a marketing contract with a packer to sell its market hogs.

## Changing Business Practices in the Hog Industry

### Electronic Evaluation Technology

In response to consumer demand for leaner pork, hog slaughtering and procurement practices have evolved. Packers decreased pricing of hogs on a liveweight basis in favor of carcass merit programs. Carcass merit pricing provides packers with a mechanism to provide producers an economic incentive to produce and sell hogs that meet desired carcass characteristics. The incentives are applied through a schedule or grid of price premiums and discounts based upon desired carcass characteristics. Carcasses with more desirable characteristics receive a premium, whereas less desirable carcasses receive a discount. Electronic evaluation devices are used to measure the desirable carcass characteristics (for example, loin eye and backfat thickness). These measurements are then used in a formula to calculate one or more carcass characteristics (for example, the percentage of lean meat in a carcass). This measure is then considered with other factors (like carcass weight and base price) to determine the final price paid by the packer.

There are several different electronic evaluation devices in use. Optical devices are utilized by several packers. Optical devices measure loin eye and backfat thickness in each hog carcass. The devices use light reflection to measure both fat and muscle thickness, as fat reflects more light than muscle.<sup>28</sup> Another carcass-evaluation device uses ultrasonic sound waves to measure loin eye area, backfat thickness, and muscle mass. An ultrasonic image is generated that measures every 5 millimeters of the carcass's length and every 25 millimeters of its width.<sup>29</sup> This type of device creates a three-dimensional ultrasonic image to estimate fat and muscle mass.<sup>30</sup> A third type of carcass-evaluation device measures muscle and backfat thickness using pulse echo ultrasound.

A fourth type of carcass evaluation device uses an electromagnetic field, similar to that used in magnetic resonance imaging (MRI) in medicine, to estimate the percentage of a carcass that is lean meat.<sup>31</sup> As a carcass passes through the device, the carcass absorbs electromagnetic energy that allows the device to differentiate between bone, fat, muscle, and skin. The energy absorption is recorded as a bell curve. The developer of the MRI device claims that packers can use the technology to estimate the weight of each primal cut, and calculate the combined weight of all primal cuts to determine premiums and discounts to producers. Although water-holding capacity, color, pH, and tenderness are also important determinants of meat quality, their use as carcass merit measures is still in the experimental stage.

P&SP established a task force to assist in the development of voluntary industry standards to govern the use or accuracy of electronic evaluation devices in the livestock and meatpacking industries because no standards exist. The standards are being developed by ASTM International, a nonprofit organization devoted to development of voluntary, full-consensus standards. The P&SP task force is working with ASTM, market participants, academicians, NIST, and State and other Federal government agencies (including AMS) to develop voluntary standards.<sup>32</sup>

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<sup>28</sup> Berg, Eric P., editor, *Composition and Quality Assessment Procedures*, National Pork Producers Council and American Meat Science Association, Des Moines, IA, 2000.

<sup>29</sup> SFK Technology, "AutoFom Automatic Carcass Grading," <http://www.sfktech.com> (March 6, 2002).

<sup>30</sup> SFK Technology, *Instruction Manual – AutoFom System*, <http://www.sfktech.com> (March 6, 2002).

<sup>31</sup> MQI TOBEC Inc., *MQ1/TOBEC Lean Content Analysis Systems*, Springfield, IL, 1999.

<sup>32</sup> The Electronic Evaluation Device committee is open to everyone interested in participating. Interested parties can contact either P&SP's Office of the Deputy Administrator at (202) 720-7051 or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 at (610) 832-9714 for additional information.

## **Vertically Coordinated Quality Controls**

To be competitive, packers need to produce pork products that meet customer demands. Procuring hogs with desired characteristics is a key element when producing pork to meet customer demands. U.S. packers primarily require hogs that yield a high percentage of lean pork. Other pork characteristics that are important in certain consumer markets include color, pH level, water-holding capacity, firmness, organic certification, and non-confinement production.

To secure sufficient numbers of hogs with the desired characteristics, packers have increasingly turned to contracting with independent producers. In addition to specifying the number of hogs to be delivered over the life of the contract, packers may specify hog genetics and a feeding program. Packers are also seeking to improve the uniformity of their meat products. A uniform meat product is frequently defined by the percent of lean meat in the carcass (the major determinant in most carcass merit pricing programs), consistent size of meat cuts, and other quality characteristics, including color and pH level. In order to improve meat product uniformity, some vertically integrated or coordinated packing firms use only one or two genetic lines and may require producers to use these genetic lines.<sup>33</sup> Several packers have either purchased or made arrangements with genetic seedstock companies to guarantee a consistent supply of quality hogs.

## **Canadian Hogs**

An important factor driving the Canadian hog industry and exports to the U.S. was the elimination of the Crow Rate grain-transport subsidy in 1995. The elimination of the subsidy resulted in an increase in transportation costs in the Western Prairie Provinces; thus less grain was transported and domestic feed grain became cheaper and more plentiful. The cheaper feed grain encouraged hog production in Canada.

U.S. imports of Canadian live hogs grew quickly in the 1990s. In 2002, the U.S. imported 5.1 million head of hogs from Canada.<sup>34</sup> In recent years, Canadian feeder pigs have accounted for nearly 60 percent of U.S. imports of Canadian hogs.<sup>35</sup> Currently, exports of live hogs to the U.S. account for a substantial share of Canadian hogs produced.<sup>36</sup>

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<sup>33</sup> Vertically integrated hog packing firms own hogs while the hogs are being raised for slaughter and may own the production facilities as well, or may alternatively have the hogs fed by others through the use of production contracts. Vertically integrated packers control quality by selecting hogs to be fed, and by specifying production standards. Vertically coordinated hog packing firms do not own hogs while the hogs are being raised for slaughter, but coordinate with suppliers to procure hogs through the use of marketing agreements or other advance purchase arrangements.

<sup>34</sup> USDA, ERS, Livestock, Dairy, and Poultry Outlook, LDP-M-114.

<sup>35</sup> PigSite.com. Markets & Economics Featured Article. "Canada's Hog Industry Changing Tactics to Capture Export Opportunities." June 2001.

<sup>36</sup> USDA, FAS, Production, Supply & Distribution, [www.fas.usda.gov/psd/complete\\_files/LP-0013000.csv](http://www.fas.usda.gov/psd/complete_files/LP-0013000.csv).

## Section 3: Poultry Industry

This is the first report to include the poultry and sheep industries, which are included because these are major industries monitored under the P&S Act. This section of the report provides a detailed look at poultry industry structure and business practices.

### General Economic State of the Poultry Industry

The poultry industry has witnessed increased demand for its products for several decades; however, there are now indications that this demand is leveling off. Estimates for 2003 indicate broiler production at 32.6 billion pounds and turkey production at 5.7 billion pounds, unchanged from the previous year. Broiler meat consumption increased slightly and turkey consumption remained unchanged from 2002 levels. Lower broiler prices, precipitated in part by the expected decline in export demand, induced growers to hold production constant.<sup>37</sup>

### Industry Structure

Until the early 20<sup>th</sup> century, chickens in the U.S. were raised primarily for egg production. Eggs not consumed on the farm were gathered and sold for “egg money” to supplement farm income. Chickens were hatched from eggs laid on the farm, and the birds were allowed to forage for feed or were fed surplus grain. Chickens intended for egg production were hatched in the early spring, while the young males were raised to market weight and sold, primarily in the spring and early summer, as frying chickens. The young birds not consumed on the farm were often sold locally as “spring chickens.”<sup>38</sup> Young birds yielded more tender meat than old hens that were no longer useful for egg production (spent hens).

In the 1920s, small independent farmers began producing broilers commercially, raising young chickens in the off-season or year-round specifically for consumption as meat.<sup>39</sup> Attracted by the success of these early farmers, producers in the Delmarva Peninsula, Georgia, and Arkansas began producing broilers as a replacement for slumping traditional cash crops such as strawberries, peaches, cotton, and apples. These early commercial producers paid cash for chicks and feed, and they received all the profits from the sale of the birds to live poultry dealers or processors.<sup>40</sup> At that time, commercial production was characterized by high feed conversion (pounds of feed required per pound of live bird), high death losses, and low market weights. Throughout the 1920s and 1930s, many consumers were accustomed to buying live chickens and dressing them at home.<sup>41</sup>

As commercial meat production expanded in the 1940s and early 1950s, larger hatcheries began to specialize in improved breeds of poultry, while feed mills began to develop high-energy feeds specifically for broilers. Improvements in broiler genetics, commercial feeds, and control over diseases resulted in dramatic increases in production efficiencies.<sup>42 43</sup> In 1950, growers produced 95 percent of all broilers in

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<sup>37</sup> A “poultry grower” refers to any person engaged in the business of raising and caring for live poultry for slaughter by another, whether the poultry is owned by such person or by another, but not an employee of the owner of such poultry.

<sup>38</sup> Rogers, Richard 2002. “Broilers: Differentiating a Commodity,” in *Industry Studies*, 3rd edition, ed. by Larry L. Duetsch (Armonk, NY: M.E. Sharp) pp. 59–95.

<sup>39</sup> A broiler is a young chicken raised for meat and meat products.

<sup>40</sup> A “live poultry dealer” refers to any person engaged in the business of obtaining live poultry by purchase or under a poultry growing arrangement for the purpose of either slaughtering it or selling it for slaughter by another, if poultry is obtained by such person in commerce, or if poultry obtained by such person is sold or shipped in commerce, or if poultry products from poultry obtained by such person are sold or shipped in commerce.

<sup>41</sup> Gordy, J.F. 1974. “Broilers.” In Hanke, O.A. (ed) *American Poultry History 1823–1973*. American Printing and Publishing, Inc., Madison, WI.

<sup>42</sup> Examples of these diseases include pullorum, laryngotracheitis, Mareks disease, and coccidiosis.

<sup>43</sup> Gordy, J.F. 1974. “Broilers.” In Hanke, O.A. (ed) *American Poultry History 1823–1973*. American Printing and Publishing, Inc., Madison, WI, pp. 344-402.

the U.S. independent of contractual arrangements. By 1955, 88 percent were produced under a contractual arrangement and the remaining 2 percent were grown in company-owned facilities. The composition of the industry remains basically the same today, with over 95 percent of broilers produced under production contracts.<sup>44</sup>

Vertical coordination was evident in the poultry industry as early as 1954, when J.D. Jewell of Georgia was reported to be controlling every stage of his integrated poultry operation.<sup>45</sup> After considerable instability in the prices of broilers between 1959 and 1961, many feed companies began to add hatcheries to their operations and to acquire or merge with existing poultry processing firms. Because the independent poultry processing companies were finding fewer markets available to obtain live birds, they established contracts with growers or feed companies to obtain broilers.<sup>46</sup>

Industry growth continued during the last 40 years of the 20<sup>th</sup> century, primarily through mergers and acquisitions. By the summer of 2003, the largest acquisition in the history of the poultry industry occurred when Pilgrim's Pride of Texas purchased ConAgra's chicken operation, making Pilgrim's Pride the second largest poultry company in the U.S., according to industry publications. In 2003 the majority of poultry companies announced ready-to-cook products. As the industry continues to mature, many facilities are becoming obsolete and are being closed. The following plant closings occurred in 2003:

- Tyson Foods, Inc., three broiler slaughter and processing operations: a complex in Jacksonville, Florida, a complex in Berlin, Maryland, and a further processing plant in Stillwell, Oklahoma. Tyson also consolidated all operations in Pine Bluff, Arkansas by permanently closing an older plant and moving all activities to the more modern facility.
- Perdue Farms, Inc., a broiler slaughter and processing facility in Robbins, North Carolina.
- ConAgra Foods, Inc., a turkey processing plant in Wallace, North Carolina.
- Gold Kist, Inc., a processing facility in Trussville, Alabama and consolidated all operations in Boaz, Guntersville and Russellville, Alabama.
- Perdue, processing facility in Robersonville, North Carolina and a de-boning facility in Emporia, Virginia, in an ongoing initiative to streamline and consolidate operations.

Broiler production in the U.S. is concentrated in five southern States: Alabama, Arkansas, Georgia, Mississippi, and North Carolina. These States account for over 70 percent of all broilers produced. Poultry production alone accounts for more than half of overall farm receipts in these States. As many as 11 broiler integrators and 23 processing plants operate in Georgia, Arkansas, and Alabama.

Twenty-four major turkey slaughter and processing companies nationwide process up to 7 billion pounds of turkey on a liveweight basis per year. The size of these firms, in terms of the amount of turkey meat they process, varies from 12 million to 1 billion pounds per year. They operate 38 slaughter plants throughout the country.

Turkey production is not as geographically concentrated as broiler production. The top turkey-producing States are North Carolina, Minnesota, Arkansas, Virginia, and Missouri. These States account for roughly 60 percent of all turkeys produced nationwide.

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<sup>44</sup> Frazier, F. 2001. "Marketing Revolution Adds Momentum to Advances for Production Revolution." In *Feedstuffs*. Vol. 73, No. 31.

<sup>45</sup> Gordy, J.F. 1974. "Broilers," in Hanke, O.A. (ed) *American Poultry History 1823-1973*. American Printing and Publishing, Inc., Madison, WI.

<sup>46</sup> USDA, ERS, Martinez, S.W. 1999. "Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products." AER No. 777. Washington, D.C.

## Contract Production

Live poultry production is coordinated through three mechanisms: production contracts<sup>47</sup>, marketing agreements, and company-owned farms. The use of spot markets for poultry is now virtually nonexistent. With marketing agreements, growers retain ownership of both the birds and the feed; the growers' compensation is determined by the difference between the stipulated price of the finished product and the cost of producing it. There are no marketing agreements in broiler production; they are primarily used in turkey production. With production contracts, the integrator owns the birds and the feed and provides them to the contract grower; the growers' compensation is based on the services the grower provides, meaning labor, housing, water, and in some cases there could be some other purchased inputs.

The use of production contracts allowed integrators to coordinate all aspects of production, from the hatching of chicks to the packaging of poultry meat and products for the supermarket shelf. Integrators control the genetics of birds supplied to growers, either by contracting with companies that specialize in broiler breeders or by supplying birds from company-owned or contract broiler breeder farms. This practice results in birds of uniform size and quality. These birds are produced in less time and with less feed, thereby allowing integrators to operate more efficiently and cost-effectively. Integrators also have the opportunity to plan optimum output levels according to expected demand conditions and to make decisions about bird placements based on those expected levels.

Generally, under production contracts between integrators and growers, integrators make placement decisions, such as the timing of the delivery of chicks, the number of chicks placed in each house, the type or breed of birds, the types of feed to be used, and the length of time flocks will remain in grower houses. Integrators provide 1- to 2-day-old chicks, feed, medicine, and technical service and advice. They may also provide to the grower the fuel for brooding, and the equipment and labor needed to catch and haul the birds when they are ready for slaughter.

In addition, integrators' technical advisors visit the farm about once a week, though they may do so more often if problems arise.<sup>48</sup> Integrators collect the birds when they reach desired market weight and transport them from the farm to the processing plant. Growers usually provide the housing, equipment, electricity, and labor necessary to grow the broilers to market weight.

A typical integrator production complex includes a feed mill, hatchery, and slaughter and processing plant. Integrators report that feed transportation costs limit the area in which they will contract with growers because integrators make a large number of feed deliveries to each grower. A typical broiler complex may contract with growers within 35 to 40 miles of the feed mill.

A typical broiler house holds about 25,000–50,000 birds and costs up to \$200,000 to build. A grower may operate a single house, but broiler operations commonly consist of two to four houses. Broilers are ready for slaughter when they reach 4 to 7 pounds, usually in 6 to 8 weeks. After the integrator removes the flock, the grower typically cleans and disinfects the houses and prepares them for the next flock. This is referred to as the layout time and is usually 10 to 16 days.

Turkey production is often conducted in what is termed a brood-and-grow (two-stage) system. Poults (young turkeys) are placed in a brood house during their first 6 to 8 weeks and are then moved to the grow house where they remain until they reach slaughter age. Turkeys usually spend from 12 to 22

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<sup>47</sup> Commonly referred to as grow-out contracts.

<sup>48</sup> Cunningham, Dan, "Contract Broiler Production: Questions and Answers," University of Georgia College of Agricultural and Environmental Science, Cooperative Extension Service. <http://www.ces.uga.edu/pubcd/L423-w.html> (April 22, 2002); Vest, Larry R. and Michael P. Lacy, "Broiler Production and Management," University of Georgia College of Agricultural and Environmental Science, Cooperative Extension Service. <http://www.ces.uga.edu/pubcd/c446-w.html> (April 22, 2002).



weeks in the grow house, depending on the desired slaughter weight, which could be as high as 45 pounds for tom turkeys.

Broiler and turkey integrators often require that growers use specific equipment or a specific housing design as a condition of the contract, and may require growers to maintain the housing and equipment according to a predetermined service schedule. Integrators may require growers to periodically upgrade their housing or equipment as a condition for continuing to receive birds, which entail significant expenditures that are not reimbursed by integrators and may not be recouped by increased income.

Grower performance is typically measured in terms of feed conversion or cost of gain (cost per unit of weight achieved per pound of feed). In a cost-of-gain calculation, in addition to the cost of the feed delivered, other costs such as medication, veterinary services, cost of chicks or poults, and sometimes fuel are included. Though several cost factors are within the grower's control, other factors (including the type of birds raised and the quality and formulation of feed) are not. Costs of feed ingredients and feed conversion rates tend to vary by season. Some items that vary in cost, such as feed and chicks, are charged to the grower at a standard fixed cost per unit.

Contract settlements compare the performance of a grower's flock with the average performance of a group of growers, called a settlement group, who operate in the same geographic area and use the same inputs to produce the same type of birds during the same time period.<sup>49</sup> In a typical contract, all growers whose birds are delivered to the same integrator's complex during a given week are in the same settlement group. The integrator calculates the cost of gain for the entire group and compares each grower's performance to the group average.<sup>50</sup>

Relative performance settlements were instituted in order to reduce growers' risks associated with factors over which they have no control. By comparing each grower's performance to the group's average, any systematic cost variations common to all growers, such as those caused by environmental conditions, are eliminated from influencing each grower's compensation.

### **Consolidation and Concentration**

Firms slaughtering more than one poultry species have a marketing advantage by being able to offer a full line of poultry products to retailers. Although some integrators slaughter and process more than one species, integrators generally have plants dedicated to processing a single type of bird. Further processing, or "value-added processing," has become one of the most important profit centers for the industry.

Among broiler integrators, no significant expansion, mergers, or acquisitions took place in 2002. However, the following major acquisitions occurred in 2001 and 2003:

- In 2001, Foster Farms, Inc., became the eighth largest processor by acquiring Zacky Foods, Inc., both based in California;
- In 2001, Arkansas-based George's, Inc., moved from 19<sup>th</sup> to 12<sup>th</sup> ranked by acquiring Rocco Farm Foods' broiler division based in Virginia;
- In 2001, North Carolina's House of Raeford Farms, Inc., became the 14<sup>th</sup> largest processor, by acquiring Louisiana-based Randall Farms, Inc.;

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<sup>49</sup> Commonly referred to as grow-out settlements.

<sup>50</sup> Growers whose cost of gain is lower than the average are more efficient, and receive a premium to their base payment per pound. Growers whose cost of gain is higher receive a discount. Generally, provisions are made for minimum payments and for potential occurrence of unavoidable disasters.

- In 2001, Illinois-based Koch Foods LLC, became the 16<sup>th</sup> largest processor, by acquiring Mississippi’s B.C. Rogers Poultry, Inc., then under bankruptcy protection;
- In 2003, Pilgrim’s Pride became the second largest processor after purchasing ConAgra’s chicken operations;
- In 2003, Tyson Foods, Inc., announced the acquisition of Choctaw Maid Farms, Inc., a poultry processor based in Carthage, Mississippi.

Major acquisitions among turkey integrators occurred in 2001:

- In 2001, the largest processor, Jennie-O Foods, subsidiary of Hormel Foods based in Minnesota, acquired Wisconsin’s The Turkey Store, increasing its share from 13 percent to 19 percent of total turkey production;
- In 2001, the second largest processor, Arkansas-based Cargill North America Turkey Operation acquired Virginia-based Shady Brook Farms/Rocco Inc., increasing its share from 12 percent to 18 percent of total production.

In contrast, no significant expansion, mergers, or acquisitions took place in the turkey industry in 2002 and 2003.

Consolidation among broiler and turkey processors contributed to higher levels of concentration within these industries. The four-firm concentration ratio in broiler slaughter rose from 18 percent in 1975 to 49 percent in 2000, and stabilized at 48 percent in 2001 and 2002 (Table 5). In the turkey slaughter industry, the concentration ratio rose from 41 percent in 1977 to 53 percent in 2001, and stood at 54 percent in 2002 (Table 6). The Department of Justice and the Federal Trade Commission consider markets with Herfindahl-Hirschman Index (HHI) values below 1,000 to be unconcentrated, and markets with HHI values over 1,800 to be highly concentrated. Based on the DOJ and FTC’s Horizontal Merger Guidelines, both industries would be characterized as unconcentrated (HHI less than 1,000). The large numbers of mid-range processors, 16 processing 5–15 million ready-to-cook pounds per week, keep the poultry industry from being concentrated.

Table 5.—Concentration of the top-four-firm broiler slaughterers

	1980	1985	1990	1995	1997	2000	2001	2002
Four-firm Concentration (percent) <sup>1</sup>	18	23	33	41	46	49	48	48
HHI	NA	NA	NA	NA	611	772	728	722

<sup>1</sup> Percent of total commercial slaughter accounted for by the four largest firms.

Sources: Data for 1997 and after from Watt Poultry USA. “WATT Poultry USA Rankings,” various years. Earlier data from Ollinger, M.; J. MacDonald; and M. Madison. 2000. “Structural Change in U.S. Chicken and Turkey Slaughter,” Economic Research Service, USDA, Agricultural Economic Report No. 787, Washington, D.C.

Table 6.—Concentration of the top-four-firm turkey slaughterers

	1977	1982	1987	1992	1997	2000	2001	2002
Four-firm Concentration (percent) <sup>1</sup>	41	40	38	45	41	41	53	54
HHI	NA	NA	NA	NA	496	437	812	783

<sup>1</sup> Percent of total commercial slaughter accounted for by the four largest firms.

Sources: Data for 1997 and after from Watt Poultry USA. “WATT Poultry USA Rankings,” various years. Earlier data from Ollinger, Michael; et al. 2000 “Structural Change in U.S. Chicken and Turkey Slaughter,” Economic Research Service, USDA, Agricultural Economic Report No. 787, Washington, D.C.

## **Changing Business Practices in the Poultry Industry**

### **Efficient Equipment and Housing**

To optimize production efficiency, minimize losses from environmental and housing stresses, and maximize animal well-being, poultry integrators have been moving towards technologically improved housing that offers more control over environmental conditions within poultry houses. The use of tunnel-ventilated housing, for example, results in production efficiency benefits including reduced heat stress, lower mortality, improved feed intake, faster weight gain, and better feed conversion.

Over the years, better insulation, curtain machines, exhaust fans, thermostats, air inlets, and tunnel ventilation have all been added to obtain better control over the house environment. Technology produced reliable, highly accurate, and low-cost temperature sensors, along with very dependable and low-cost “smart” electronic control devices to be used in modern poultry houses. This technology allows for more accurate temperature and air quality control around the clock, with less work for the grower or house manager. New efficiency-enhancing technologies and processes are constantly emerging. Recent examples of these technologies include the use of nipple drinkers that avoid water spills and result in dryer houses, and egg-injected vaccines for uniform vaccine delivery at a lower cost.

### **Computerization and Automated Labor**

In recent years, variations in the size of the labor force and rising costs, particularly those related to insurance and worker’s compensation, have resulted in an increase in the application of computerization and automation both in the field and in the plant. The use of automation in the field, such as automatic chicken catchers that result in less bruising and lower labor requirements, is slowly becoming more popular. There has been a steady trend of computerization in all processes. Data management and storage, such as poultry production-specific software that tracks all information needed for settlement and future cost analysis software designed to better manage and communicate within the company, enable integrators to have better control of supply for finished products.

### **Advancements in Nutrition and Genetics**

At the same time, advances have been made in the production efficiency of poultry meat through genetic selection and refined nutrition.<sup>51</sup> These advancements are allowing integrators to develop ever more efficient, faster growing, and higher yielding birds. For instance, it takes 42 days to grow a 4½-pound chicken today, whereas 15–20 years ago it took 60 days to grow the same size chicken.

### **Response to Consumer Preferences**

The industry is changing its business practices in response to the consumer’s preference for fresh products that minimize preparation time. Recently there has been a trend towards the production of heavier birds for slaughter because de-boning labor costs are reduced on a per pound basis for processing a 7-pound bird compared to a 4-pound bird, since the time needed to de-bone both birds is practically the same. Heavier birds, in turn, are better suited for further processing and ready-to-cook product development.

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<sup>51</sup> Pound of feed per pound of live meat produced.

## Section 4: Sheep Industry

This is the first report to include the poultry and sheep industries, which are included because these are major industries monitored under the P&S Act. This section of the report provides a detailed look at sheep industry structure and business practices.

### General Economic State of the Sheep Industry

Sheep and lamb inventories in the U.S. have declined over the last 10 years, falling from 9.8 million in 1994 to 6.7 million head in 2002.<sup>52</sup> Demand for lamb remained stable in 2003. Imports continued to increase; however, the rate of increase slowed compared to previous years. Drought conditions in Australia led Australian producers to liquidate stock, and they were unable to produce the extra-heavy lambs demanded by the U.S. market.<sup>53</sup> By August 2003, the monthly average live lamb price had reached \$87.60 per cwt., in comparison to \$76.30 per cwt. in September 2002.<sup>54</sup> The East Coast Choice carcass lamb price in July 2003 was \$189 per cwt. compared to \$162 per cwt. a year earlier. Sheep industry production capacity declined during the last two decades in the U.S. The number of domestic sheep operations decreased by more than 23,000, or 27 percent, between 1994 and 2002.<sup>55</sup> The U.S. market share of domestic lamb consumption has decreased over time, as a significant proportion of the market share shifted to New Zealand and Australia.

### Industry Structure

The sheep industry is comprised of farms and ranches, feedlots, slaughtering plants, and breakers. The farm and ranch level consists of breeding flocks (ewes and rams) and the lamb crop. Most flocks are specialized for either meat or wool production. Approximately 80 percent of the sheep in the U.S. are raised for meat; the other 20 percent are raised primarily for their wool.<sup>56</sup> At the retail level, meat is labeled either as lamb or mutton, depending upon the age of the animal when slaughtered. Lambs must be less than 1 year of age when slaughtered in order for the meat to be labeled by the USDA as “lamb.”

Lambs grown in the U.S. for meat production are usually grass fed on farms and ranches until they are ready to be sent to feedlots for fattening. Approximately 80 percent of U.S. lambs are grain fed. They spend an average of 45 days on feed and are normally between 5 and 7 months old when slaughtered. Lamb live weights have increased steadily over the past two decades. The average live weight of lambs was roughly 115 pounds in the early 1980s; it increased to 126 pounds in 1990 and to 140 pounds in 2001, before dropping to 133 pounds in 2002. Average carcass weights increased correspondingly. Most lambs are raised in the West and Southwest. Of the 10 States with the largest inventory of sheep and lambs, 9 were in the West or Southwest and accounted for 68 percent of total inventory on January 1, 2003.

Packers procure lambs from farms and ranches, feedlots, and auctions. After slaughter, the whole carcasses are processed further, either by the same packer or by a “breaker.” Breakers buy lamb carcasses in volume and break them into smaller pieces. Breakers process lamb carcasses into primal, subprimal, and retail cuts. The breaking industry for lamb carcasses consolidated and realigned during the 1990s, and slaughtering packers now perform much of the breaking function.

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<sup>52</sup> USDA, NASS, Sheep and Goats Final Estimates 1994-1998; USDA, NASS, Sheep and Goats, Mt An 5-2 (1-03).

<sup>53</sup> USDA, ERS, Livestock, Dairy and Poultry Outlook, LDP-M-110.

<sup>54</sup> USDA, NASS, Agricultural Prices, September 2003.

<sup>55</sup> USDA, NASS, Sheep and Goats, Lv Gn 1 (1-95); and USDA, NASS, Sheep and Goats, Mt An 5-2 (1-03).

<sup>56</sup> “About American Lamb,” Fast Facts, American Sheep Industry Association, <http://www.sheepusa.org/news/ffpdf/FFamlamb1.html>

U.S. wool production was valued at \$21.8 million in 2002. Domestic production of wool declined about 47 percent from 1993 through 2002 (Table 7). Consumer demand for clothing made from wool declined for several decades. The natural characteristics of wool fiber have not been easily adapted to changing consumer demands, and synthetic fibers have contributed to the decline in the demand for wool. As the demand for domestically produced wool declined over time, the domestic production of wool, and thus sheep, declined as well. A 3-year phaseout of direct support payments to wool producers under the National Wool Act program began in late 1993, further reducing the incentive to produce wool. However, the 2002 Farm Security and Rural Investment Act provided for marketing assistance programs and loan deficiency payments for wool and mohair.

Table 7.—Inventory of sheep and lambs and wool production, 1993–2002

Year	Sheep and Lambs Thousand head	Wool production <sup>1</sup> Thousand pounds
1993	10,201	77,513
1994	9,836	68,625
1995	8,989	63,368
1996	8,465	56,159
1997	8,024	53,578
1998	7,825	49,415
1999	7,247	46,428
2000	7,036	45,551
2001	6,908	42,156
2002	6,623	41,078

<sup>1</sup> Shorn, greasy basis

Source: USDA-NASS, *Sheep and Goats Final Estimates 1994-1998*, Statistical Bulletin Number 954 a; USDA-NASS, *Sheep and Goats Final Estimates 1999-2003*, Statistical Bulletin Number 990 a.

### Contraction, Consolidation, and Concentration

The total inventory of sheep and lambs peaked at 56 million head in 1942.<sup>57</sup> By 1993 inventory declined to 10.2 million head, and continued to decline to approximately 6.6 million head in 2002 (Table 7).

Most sheep-breeding operations are small; approximately 92 percent of them had less than 100 head of sheep on January 1, 2003. However, the 8 percent of operations that had 100 head or more accounted for over 70 percent of total sheep and lamb inventory. Lamb slaughter is concentrated in Colorado, Iowa, Texas, Michigan, New Jersey, and Illinois, which together accounted for about 78 percent of the total U.S. lamb slaughter in 2002. Although 525 plants slaughtered lambs in 2002, most slaughtered fewer than 1,000 head (Table 8). Seven plants that each slaughtered 100,000 or more head accounted for 80 percent of all lambs slaughtered. Four of these plants slaughtered 250,000 or more head each and together accounted for 63 percent of total slaughter.

<sup>57</sup> Jones, Keithly, "U.S. Sheep Industry Continues to Consolidate," *Agricultural Outlook*, January–February 2002.

Table 8.—Federally inspected sheep and lamb slaughter by plant size, 2002

Size group Number head	Plants	Slaughter Thousand head
1–999	445	46.0
1,000–9,999	61	207.2
10,000–24,999	8	130.0
25,000–99,999	4	230.7
100,000–249,999	3	521.2
250,000 and over	4	1,944.7
Total <sup>1</sup>	525	3,079.8

<sup>1</sup> Numbers may not sum to total due to rounding

Source: National Agricultural Statistics Service, *Livestock Slaughter 2002 Summary*, NASS-USDA, March 2003 [Mt An 1-2-1 (03)].

Concentration of the top-four-firm sheep and lamb slaughterers increased from 55.9 percent in 1980 to 70.2 percent in 1990 (Table 9). It reached 71.8 percent in 1995, but decreased to 65.3 percent in 2002. The Herfindahl-Hirschman Index (HHI) for the sheep and lamb market was over 1,900 in 1995, but declined to 1,223 points in 2002. The Department of Justice and the Federal Trade Commission consider markets with Herfindahl-Hirschman Index (HHI) values below 1,000 to be unconcentrated, and markets with HHI values over 1,800 to be highly concentrated.<sup>58</sup>

Table 9.—Concentration of the top-four-firm sheep and lamb slaughterers<sup>1</sup>

	1980	1985	1990	1995	2000	2001	2002
Four-firm Concentration (percent) <sup>2</sup>	55.9	51.2	70.2	71.8	67.3	66.2	65.3
HHI <sup>3</sup>	1,050	983	1,580	1,917	1,416	1,378	1,223

<sup>1</sup> Concentration data for 1980, 1985, and 1990, and HHI statistics for all years are based on firms' fiscal years as reported to P&SP. Concentration data for 1995-2000 are based on calendar year federally inspected slaughter.

<sup>2</sup> Percentage of total commercial slaughter accounted for by the four largest firms.

<sup>3</sup> Based on procurement data reported to GIPSA, all reporting firms.

Source: Grain Inspection, Packers and Stockyards Administration.

## Factors Affecting Production Costs

Predation and disease control significantly affect sheep and lamb production costs. Large numbers of sheep and lambs are lost to predators every year. In 1999, animal predation of sheep and lambs in the U.S. accounted for losses of approximately 273,000 head, or roughly \$16.5 million in losses to producers. Coyotes were responsible for 61 percent of those losses. Other major predators of sheep and lambs in the U.S. include dogs, mountain lions, bears, foxes, eagles, wolves, and bobcats.<sup>59</sup> While losses to predators in absolute terms declined from 1994 to 1999, the decline appears to be due to smaller inventories of sheep and lambs for predators to prey upon. As a percent of total inventory, losses remained essentially unchanged at approximately 3.7 percent during that time period.

In 1999, farmers and ranchers spent \$8.8 million on non-lethal methods to protect sheep and lambs from predators.<sup>60</sup> Historically, producers used lethal controls such as traps, poisoned bait, and shooting to

<sup>58</sup> "Mergers producing an increase in the HHI of less than 50 points, even in highly concentrated markets post-merger, are unlikely to have adverse competitive consequences and ordinarily require no further analysis. Mergers producing an increase in the HHI of more than 50 points in highly concentrated markets post-merger potentially raise significant competitive concerns, depending on the factors set forth in Sections 2-5 of the Guidelines." Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, [http://www.usdoj.gov/atr/public/guidelines/horiz\\_book/15.html](http://www.usdoj.gov/atr/public/guidelines/horiz_book/15.html), April 2, 1992 (as amended April 8, 1997).

<sup>59</sup> USDA, NASS, *Sheep and Goats Predator Loss*, Agricultural Statistics Board, May 2000.

<sup>60</sup> *Ibid*

control predators. Since the early 1960s, changing public attitudes toward wildlife have resulted in more reliance on non-lethal methods including fencing, lambing sheds, night penning, and the use of dogs, llamas, and donkeys to guard the sheep.<sup>61</sup>

Scrapie is a fatal degenerative disease affecting the central nervous system of sheep and goats.<sup>62</sup> It can cause significant production losses and prevent the export of breeding stock, semen, and embryos.<sup>63</sup> On September 20, 2001, USDA implemented a new regulation establishing standards for the control and eradication of scrapie in the U.S. sheep industry. The regulation requires mandatory identification of most breeding animals, and all sheep 18 months of age and older, that will be moved in interstate commerce. According to USDA, nearly 85 percent of the sheep that are moved in interstate commerce are less than 18 months of age, intended for slaughter, and, as such, are exempt from the identification requirement because lambs in slaughter channels do not present a significant risk of transmitting scrapie and would not need to be traced for scrapie purposes.<sup>64</sup> USDA estimated 1.5 million sheep would have to be tagged at a cost of about \$0.30 per animal.

### **Fed Lamb Procurement Methods**

Procurement methods used in the purchase of lambs for slaughter include purchase in spot markets, use of marketing agreements, use of various other forms of advance sales contracts, and packer feeding.

A spot market purchase of lambs for slaughter refers to a purchase of lambs that are ready for slaughter at the time the lambs are purchased. Spot market transactions include fed lambs purchased through auction markets, video sales, Internet sales, and direct purchases from sellers. Historically, spot market purchases were the primary method packers used for purchasing lambs for slaughter, but the proportion declined throughout the 1990s.

Based on annual reports filed by meat packers, packers purchased about 12 percent of the lambs they slaughtered at auctions and terminal markets in 2000.<sup>65</sup> Packers still use auction markets and buying stations extensively in certain regions of the country, but increased use of separate feedlots for fattening lambs led to increased direct purchases from feedlots. When lambs are fed in custom feedlots, the feedlots may represent the owners of the lambs in sales to packers or the owners may handle their own negotiations.

The term “non-spot market procurement” of slaughter livestock refers to transactions in which animals are committed to a packer prior to being ready for slaughter. In the lamb industry, the primary forms of non-spot procurement methods are marketing agreements and packer-feeding. As in other livestock procurement, these methods are often collectively called captive supply.

Precise data are not available on the use of non-spot procurement methods by packers in the sheep industry. Data collected by USDA under Mandatory Price Reporting (MPR) provides some indication of the extent of non-spot procurement. According to MPR data, packers reporting under MPR purchased about 83 percent of the lambs they slaughtered in 2002 using non-negotiated procurement methods.<sup>66</sup> Non-negotiated procurement methods as defined by the MPR regulations are similar to non-spot procurement as defined by P&SP but may include some procurement that P&SP classifies as spot market procurement. The MPR regulations define procurement as non-negotiated if the lambs are ready for

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<sup>61</sup> American Sheep Industry Association, Industry Resources-Predator Control, online excerpts from Sheepman’s Production Handbook, <http://www.sheepusa.org/resources/predcontrol.html>

<sup>62</sup> Scrapie and the National Scrapie Eradication Program, <http://www.animalagriculture.org/scrapie/Media/QandA.htm>, accessed April 10, 2003.

<sup>63</sup> USDA, APHIS, “Scrapie Program,” <http://www.aphis.usda.gov/vs/nahps/scrapie/>

<sup>64</sup> “Scrapie in Sheep and Goats; Interstate Movement Restrictions and Indemnity Program: Final Rule,” 9 CFR Part 54 and 79, August 21, 2001.

<sup>65</sup> USDA, GIPSA, Packers and Stockyards Statistical Report, 2000 Reporting Year, SR-02-2.

<sup>66</sup> Van Dyke, John, Agricultural Marketing Service, USDA, Presentation to the National Lamb Feeders Association Annual Meeting, Eugene, Oregon, March 14, 2003.

slaughter at the time they are committed to the packer but the price is not established at the time of the transaction. P&SP defines spot market procurement as any procurement within 14 days of slaughter, regardless of the time or manner in which the livestock are priced.

Marketing agreements as used by lamb packing firms are long-term arrangements between packers and sellers of fed lambs that establish an ongoing relationship for purchase of lambs without negotiating individual transactions. A common form of marketing agreement in the lamb industry, referred to as a supply contract or agreement, specifies the number of lambs per week the seller must provide the packer. A formula is used to determine the price paid for the lambs. Packers often have supply contracts with large feedlots in order to ensure procurement of sufficient numbers of lambs to meet the individual packer's specific requirements.

Some lamb producers who feed their own lambs market their lambs through a lamb feeding operation or feedlot that has a supply contract agreement with a packer. The feedlot with the supply contract may charge a commission for allowing the producers to market lambs through the agreement. Some producers without marketing agreements report that if they do not arrange to sell lambs through a feedlot that has a supply contract with a packer, they have difficulty finding a buyer for their fed lambs.

P&SP defines packer-fed lambs as lambs that are owned and fed by a packer in its own feedlots or in custom feedlots for more than 14 days prior to slaughter. P&SP's definition includes lambs obtained for slaughter that are owned, in whole or in part, by the packer or the packer's parent firm or a subsidiary. In 2002, packer feeding accounted for 6 percent of the lambs slaughtered by packers reporting purchases under MPR. The definition of packer-fed lambs under MPR definitions is similar to P&SP's definition of packer feeding, but it is uncertain whether packers reporting under the MPR included lambs fed by their parent firms or subsidiary firms.

There are also business arrangements where individuals who have a financial interest in large lamb packing companies also have lamb feeding operations and supply lambs to the packing company. These arrangements do not fall within the definition of packer feeding, but may provide packers with some control over price, quantity, quality, and timing of lambs delivered for slaughter similar to the control packers obtain by packer feeding. Data are not available on the proportion of lambs procured by packers using such arrangements.

### **Fed Lamb Pricing Methods**

Pricing methods used to determine the price paid for fed lambs include live-weight, carcass-weight, and formula-based (or value-based) methods. One price may be paid for all the animals in a transaction or different prices may be paid for each animal or carcass. The traditional method for pricing fed lambs is to establish one price per hundredweight—per hundred pounds of liveweight—in “live-weight pricing” and per hundred weight of dressed weight in “carcass-weight pricing” for all animals in a transaction.

With value-based and formula pricing methods, lambs are purchased on a carcass basis and price paid depends on the characteristics of individual carcasses. Premiums and discounts are applied based on how individual carcasses meet USDA definitions for various quality and yield grades.<sup>67</sup>

Carcass weight pricing applies separate prices for different weight categories and different USDA grade categories. The lowest weight category is 45 pounds and below, the highest is 75 pounds and above, and

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<sup>67</sup> USDA has a uniform system of grades for slaughter lambs. Quality grade is an indication of the lean characteristics and conformability (the proportion of edible meat to bone) of the carcass. Quality grades for slaughter lambs range from Prime, the most desirable, to Choice, Good and Utility. Slaughter lambs are also assigned one of five yield grades with Yield Grade 1 representing the highest degree of cutability.



the categories in the middle are generally defined in 5-pound increments. The total amount paid is determined by the application of different prices to these different categories, and total payment is further adjusted by pelt and offal credits. Pelt and offal credits are usually an average per-unit credit based on sales at the plant. Base prices are often determined according to USDA-reported prices for carcass sales or according to the average price received for carcass sales in each weight category from the plant where the live animals were slaughtered (also known as a “plant average price”).

Grid pricing is a pricing method in which the final price is determined by applying a schedule of quality premiums and discounts to the base price. The base price may be established from USDA market news report prices, from some form of plant average price, or from other specifications negotiated by the buyer and seller. The USDA yield grade, leg score, and loin area are additional measures that frequently are used to determine price premiums and discounts.<sup>68</sup>

### **Cooperatives, Associations, and Pools**

The use of cooperatives, associations, and pools by lamb producers increased in recent years. A lamb cooperative is an organization of independent firms and individual producers who act collectively in marketing their lambs and lamb products. Cooperatives are formed to market lambs, wool, and lamb meat products, and to increase the leverage of their members in the marketplace. Associations and pools are groups of lamb-feeding firms and producers that combine their lambs, sort them into loads, and market them to packers. Like cooperatives, associations and pools assist smaller producers in marketing their lambs and gaining leverage in the marketplace.

## **Changing Business Practices in the Sheep Industry**

### **Lamb Checkoff Program**

Effective July 1, 2002, a Lamb Promotion, Research and Information Order established a promotion, research, and information program for lamb and lamb products. The purpose of the program is to increase consumption of U.S. lamb through consumer advertising, consumer education, and marketing programs.<sup>69</sup> It established an assessment on lambs to be paid by producers, seedstock producers, exporters, feeders, and packing plants. The funds and programs are managed by the American Lamb Board with members appointed by the Secretary of Agriculture with an anticipated annual budget of \$2.6 million. The first board was appointed in October 2002.

### **Electronic Evaluation Technology**

For several years, the lamb industry participated in the development and experimental use of video imaging and carcass evaluation technology. Several studies were conducted in conjunction with universities and technology firms to develop electronic equipment that would evaluate carcass characteristics for use in the pricing of live lambs and the marketing of lamb products. Most lamb slaughter plants discontinued the experimentation with and use of electronic carcass evaluation equipment to price lambs. Its use is not widely accepted or cost beneficial at this time.

### **Product Development**

Members of the U.S. lamb industry are focusing on differentiating and marketing those qualities of U.S. lamb that they believe make it more desirable than imported lamb. For example, the Sheep Industry

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<sup>68</sup> Leg score is an indicator of carcass muscling, and is based on a visual assessment of the conformation of the leg. The wider and thicker the leg, the higher the likely ratio of lean meat to bone, and thus the higher the leg score.

<sup>69</sup> <http://americanlambboard.org>

Development Council developed the Certified Fresh American Lamb brand to position U.S. lamb as the premium product available to consumers in 2002. The Council expects the effort to result in higher producer prices for lambs that meet high quality specifications required to use the brand name. Lamb packers and retailers have made a concerted effort in recent years to develop new case-ready and tray-ready products. These products include seasoned boneless legs, leg slices, shoulder roasts, and leg roasts.

### **Innovations in Production and Distribution**

Increased imports and the need to meet consumer preferences have encouraged packers and breakers to utilize advanced technology to improve their slaughter and packaging operations. For example, many packers have installed an inverted dressing chain on the kill floor to increase efficiency in carcass processing, and many packers have installed pre-evisceration wash cabinets to decrease microbe counts and extend lamb shelf life.<sup>70</sup> Some packers have introduced technological advances in packaging, such as carbon dioxide gas flush systems for packaging tray-ready and case-ready products.

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<sup>70</sup>Using an inverted dressing chain, the carcass is held initially by all feet horizontally, and then by the fore hocks until evisceration.

## **Section 5: Operations or Activities in the Livestock and Poultry Industries That Raise Concerns under the Packers and Stockyards Act**

This section presents issues identified by industry participants and from industry monitoring by P&SP that may raise concerns under the P&S Act. Following each issue, GIPSA identifies whether the issue warrants action under the P&S Act and, if warranted, indicates what actions P&SP will take in response to the issue.

### **Captive Supply**

Packer use of captive supply continues to concern many industry participants. There is much confusion about what the term “captive supply” means. Some define captive supply in terms of procurement; some define captive supply in terms of pricing. Those who define captive supply in terms of procurement focus on whether the livestock are committed to a packer prior to the time the livestock is ready for slaughter. Using this definition, some industry participants believe that any livestock procured by a packer 7, 10, or 14 days (depending on the industry participant) prior to slaughter is captive supply. Those who define captive supply in terms of pricing focus on whether the price is known at the time of purchase. If the final purchase price is unknown, the livestock are considered captive supply. P&SP considers captive supply to be livestock that a packer owns or has an agreement to purchase before the animals are ready for slaughter. More specifically, P&SP defines captive supply as: 1) livestock owned or fed by a packer more than 14 days prior to slaughter; 2) livestock procured by a packer through a contract or marketing agreement that has been in place for more than 14 days; or 3) livestock otherwise committed to a packer more than 14 days prior to slaughter.

**GIPSA Response:** In fiscal year 2003, GIPSA received \$4.5 million in appropriations for a broad study of marketing practices in the entire livestock and red meat industries from farmers to retailers, food service firms, and exporters.<sup>71</sup> The study will address the many questions and concerns that have been raised about changes in the structure and business practices in the livestock and meat industries, including captive supply issues. GIPSA established an interagency working group with representatives from USDA and other federal agencies to provide advice on the study. The working group includes representatives from several USDA agencies<sup>72</sup> plus the Department of Justice, Federal Trade Commission, and Commodity Futures Trading Commission.

The overall objective of the study is to develop foundation information needed to understand what economic changes are occurring, why they are occurring, what changes are likely to occur in the future, and their implications for market participants and the structure of the livestock and meat industries. More specifically, the study will: (1) identify and determine the use of emerging types of marketing arrangements; (2) determine terms of the marketing arrangements and their availability to entities of different sizes and entities in different geographic locations; (3) analyze shortrun relationships between captive supply and spot and non-spot market prices; (4) determine the longrun implications of marketing arrangements on operating costs, animal and meat quality, marketing risks, prices of livestock and meat, and the structure of the livestock and meatpacking industries, and (5) determine the implications of marketing arrangements for entry conditions, industry concentration, price discovery, and thinning spot markets.<sup>73</sup>

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<sup>71</sup> For more information on the Livestock and Meat Marketing Study, please visit our website at [http://www.usda.gov/gipsa/psp/issues/livemarketstudy/livestock\\_marketing\\_study.htm](http://www.usda.gov/gipsa/psp/issues/livemarketstudy/livestock_marketing_study.htm)

<sup>72</sup> Office of the Chief Economist, Economic Research Service, Agricultural Marketing Service, National Agricultural Statistics Service, Office of Budget and Program Analysis, and Grain Inspection, Packers and Stockyards Administration

<sup>73</sup> The Federal Register notice and request for comments was published on May 30, 2003, and is available at the following website: <http://www.usda.gov/gipsa/rulemaking/fr03/5-30-03.pdf>

In 2002, GIPSA published a report on Captive Supply that examined all known reported statistics on captive supply.<sup>74</sup> Differences in captive supply statistics available from various organizations result from different definitions of what constitutes captive supply and variations in the geographical coverage of the data collection. P&SP's captive supply statistics are the only captive supply statistics based on a packer's commitment to purchase livestock before the animals are ready for slaughter.

## **Contract Terms**

With an increasing share of livestock and poultry sold under contract to packers and live poultry dealers, complaints to P&SP about packers and live poultry dealers changing contract terms have increased in recent years. P&SP investigates all of these complaints and initiates actions against packers and live poultry dealers when appropriate. In virtually every case investigated by P&SP, the contracts allowed packers and live poultry dealers to change or modify contract terms. Producers and growers in these investigations reported they were unaware of these contract provisions or their implications.

**GIPSA Response:** P&SP investigates every complaint that a contract has been breached, including allegations that a party has unlawfully changed a contract term. In almost every instance, P&SP has determined that the contract allowed the packer or live poultry dealer to modify the contract without breaching it. P&SP is working with the industry, both buyers and sellers, to increase contract transparency, but it is incumbent on the parties to seek appropriate guidance and understand the contract terms before entering it.

## **Specific Contract Provisions**

Contracts between packers and livestock producers are becoming more prevalent and more complex. In general, contracts are viewed as reflecting the free choice of the signing parties and thus presumed to be beneficial to both parties. However, certain provisions in livestock procurement contracts may have raised concerns for some industry participants and GIPSA.

One form of contract utilized in the hog industry is a window contract with a ledger. These contracts guarantee producers a price that falls between a predetermined high (ceiling) and a predetermined low (floor), regardless of actual market prices. If the market price falls below the floor price, the producer receives the floor price and the producer's ledger account with the packer is debited the difference between the floor price and the actual market price. If the market price rises above the ceiling price, the producer receives the ceiling price, and the ledger account is credited the difference between the ceiling price and the actual market price. In theory, these credits and debits should offset each other over the life of the contract. However, producers may owe packers hundreds of thousands of dollars at the end of a contract. In most cases, these producers are given the choice of paying the balance or renewing the contract. In effect, the contract is a tool for managing cash flow, but this tool can also effectively bind the producer to the given packer.

Another provision of concern to producers is the right of packers to change pricing terms in contracts. In most cases, even if the producers do not like the changes, they cannot switch to another packer. Some producers report they cannot switch to another packer because there are no other packers within their geographic region. In cases where hog producers have ledger balances with a packer, producers are not in a position to switch because most ledger contracts require them to immediately pay off the ledger balance. As a result, it is easy for packers to make such changes without concern that producers will choose to terminate the contract. Producers have also expressed concern that some contracts require them to sell

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<sup>74</sup> The report can be viewed at [http://www.usda.gov/gipsa/pubs/captive\\_supply/captive.htm](http://www.usda.gov/gipsa/pubs/captive_supply/captive.htm)

100 percent of their animals to the packer with whom they contract. Such all-or-nothing provisions limit producers' choices.

Some production and marketing agreements and poultry growing arrangements stipulate that the producer must agree to keep the contract terms confidential. As a result, producers and growers are concerned that they are required to sign the contracts without consulting an attorney or financial professional. Many small producers and growers fear that they will be unable to obtain satisfactory terms in contracts, or that they will be excluded from the most favorable agreements. In addition, confidentiality requirements regarding terms of sale make it more difficult for other sellers to determine the fair market value of their livestock or growing services.

**GIPSA Response:** The P&S Act does not limit freedom to contract, and neither the P&S Act nor the regulations impose any specific prohibitions on contracts. Industry participants are free to fashion their own contracts in the manner that best suits their needs. Therefore, P&SP will not take any action on window contracts with a ledger.

Producers and poultry growers with contracts and marketing agreements with a duration of 1 year or more have the right to discuss the terms of their contracts with others. The 2002 Farm Bill included a provision making it unlawful for a party to a contract of 1 year or more to prohibit the other party to discuss the terms or details of the contract or marketing agreement with: 1) a Federal or State agency; 2) a legal adviser to the party; 3) a lender to the party; 4) an accountant hired by the party; 5) an executive or manager of the party; 6) a landlord of the party; 7) a member of the immediate family of the party – even if the contract is confidential.<sup>75</sup>

P&SP conducts investigations to ensure slaughtering packers are paying in accordance with the terms of the contracts. These investigations include analyzing contracts, verifying payment based on assigned grading (either house or USDA) or the appropriate use of electronic evaluation equipment, recalculating formulas used to estimate carcass characteristics or payment, and verifying settlement to producers. In addition, P&SP investigates complaints that arise because of contract disputes.

GIPSA implemented the Swine Contract Library as mandated by the 106th Congress. The amended Packers and Stockyards Act requires the Secretary of Agriculture to establish and maintain a library or catalog of the types of contracts offered by packers to swine producers for the purchase of swine (including swine that are purchased for future delivery). The Swine Contract Library is intended to aid in the price discovery process and provide equal access to market information for all market participants. The swine contract library requirements apply to packers who purchase at least 100,000 swine per year and slaughter at packing plants with a federally inspected slaughter capacity of 100,000 swine or more per year. This covers 51 plants owned or used by 31 packers. These packers are required to provide example contracts and monthly reports specifying the number of swine committed and the maximum number of swine to be delivered over the next 12 months by contract type.

Interested parties, primarily producers, may use the summarized information that we provide from the contract library to determine the range of options in contracts offered by packers. The producer could identify the contract provisions of interest and approach packers or plants within the region to negotiate a contract. Although producers would not know which packers are offering any of the provisions listed in the summarized information or how those provisions would be combined in any contract, the knowledge that those provisions exist in the marketplace could result in the producer conducting additional searches for contracts, agreements, or provisions that result in a more favorable transaction for the producer. The

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<sup>75</sup> Farm Security and Rural Investment Act of 2002, Title X—Miscellaneous, Subtitle F—Livestock, Sec. 10503. Right to Discuss Terms of Contract.

information from the monthly report on the number of swine contracted for future delivery may aid producers in deciding how many sows to breed and deciding whether to search out packers in regions where smaller numbers of swine are known to be contracted for delivery.

Implementation of the Swine Contract Library improved transparency in swine marketing agreements and helps producers evaluate their marketing options. In addition, Section 10502 of the Farm Security and Rural Investment Act of 2002 (the 2002 Farm Bill) amends the P&S Act to make any swine contractor—any person engaged in the business of obtaining swine under a swine production contract for the purpose of slaughtering the swine or selling them for slaughter—subject to the jurisdiction of the P&S Act. Under the Act, swine contractors are prohibited from engaging in any unfair practices.

### **Formula Pricing**

Cattle, hog, and lamb buyers use a variety of methods to establish base prices in formulas used for marketing agreements and other contracts. The base price may be calculated from livestock, meat, or feed prices reported by USDA Market News or other public organizations such as the Chicago Mercantile Exchange, or from information that is not publicly available such as internally generated prices (e.g., average price paid by a packer). Some agreements for cattle guarantee the seller a price equal to the “top price” reported in a region.

Proponents of these pricing mechanisms assert that they reduce transaction costs by reducing the need to monitor market conditions and prices. They suggest these methods provide sellers some assurance of receiving a price that is representative of the current market price. In other instances packers use information that is not publicly available to establish base prices in formulas used for marketing agreements and other contracts. When packers use formulas that employ information that is not available to sellers to calculate livestock prices, some sellers fear that packers may have an opportunity to influence the market or alter the information to impact the base or formula price.

**GIPSA Response:** P&SP conducts compliance investigations to ensure that packers are complying with Regulation §201.99. Regulation §201.99 requires that packers disclose prior to purchase all the details of the purchase contract, including any special conditions. P&SP investigates producer complaints and initiates its own investigations to ensure that settlements agree with the terms and conditions of contracts. P&SP audits electronic procurement data from the top four steer and heifer slaughterers in order to verify accuracy of data provided by the packers in their annual reports.

### **Joint Livestock Purchasing**

When two packers use the same agent to procure livestock of similar type and quality, packers buy livestock of similar type and quality for each other, or dealers have orders from multiple packers for the same type and quality of livestock, these market participants risk violating the P&S Act.

**GIPSA Response:** P&SP investigates all complaints about the use of shared agents, packers buying livestock for each other, and dealers having orders from multiple packers for the same type and quality of livestock. Whether the P&S Act is violated depends on the circumstances of each case. Regulation §201.69 prohibits packers, dealers, and market agencies from furnishing information to competitor buyers for certain purposes. Regulation §201.70 requires every packer and dealer to conduct his or her buyer operations in competition with and independently from other packers and dealers similarly engaged.

## **Livestock, Meat, and Poultry Electronic Evaluation**

Electronic evaluation devices are used in determining the purchase price for livestock purchased in the U.S. Some slaughtering packers also use the information developed by evaluating devices to establish their live weight price. At the end of the 2002, there were no established, verifiable and traceable standards in use to determine the accuracy of electronic carcass evaluation technology.

**GIPSA Response:** ASTM F10 Committee on Carcass Evaluation Systems was formally created in November 2001 when P&SP and a diverse group of stakeholders (National Pork Producers Council (NPPC), National Institute of Standards and Technology (NIST), Agricultural Marketing Service (AMS), Agricultural Research Service (ARS), weights and measures inspectors, academia, several meat packers, and evaluation device manufacturers) voted to create a committee to “develop standards for carcass evaluation systems for livestock.” While developing these standards, the committee changed its name from Carcass Evaluating Systems to Livestock, Meat and Poultry Electronic Evaluating Systems to reflect the different types of evaluating equipment being used in the livestock, meat, and poultry industries.

P&SP established a task force to assist in the development of voluntary industry standards to govern the use or accuracy of electronic evaluation devices in the livestock and meatpacking industries because no standards exist. The standards are being developed by ASTM International, a nonprofit organization devoted to development of voluntary, full-consensus standards. The P&SP task force is working with ASTM, market participants, academicians, NIST, and State and other Federal government agencies (including AMS) to develop voluntary standards.<sup>76</sup>

In fiscal year 2004, the following four standards under development will be proposed for adoption as voluntary industry standards:

- Standard Specifications for Design and Construction of Composition or Quality Constituent Measuring Devices or Systems,
- Standard Test Methods for Livestock, Meat, and Poultry Evaluation Devices,
- Standard Practices for User Requirements for Livestock, Meat, and Poultry Evaluation Devices or Systems, and
- Standard Specifications for Developing and Validating Prediction Equation(s) or Model (s) Used in Connection with Livestock, Meat, and Poultry Device(s) or System(s) to Determine Value.

Membership on the Livestock, Meat, and Poultry Electronic Evaluation Systems committee is open to all interested parties, and P&SP encourages interested parties to participate.

## **Vertical Coordination<sup>77</sup>**

For many years, livestock sellers took their animals to terminal stockyards and auction markets where a number of buyers bid on and purchased livestock. In recent decades, trade in slaughter livestock moved away from these organized public markets toward various forms of direct trading between buyers and sellers. Alternative means emerged to manage the production, marketing, and trade of slaughter livestock from production through slaughter. For example, increasing numbers of cattle and hogs are traded

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<sup>76</sup> The Electronic Evaluation Device committee is open to everyone interested in participating. Interested parties can contact either P&SP's Office of the Deputy Administrator at (202) 720-7051 or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 at (610) 832-9714 for additional information.

<sup>77</sup> Vertical coordination is the process of ensuring that each successive stage in the production, processing, and marketing of a product is appropriately managed and interrelated to the next, so that decisions about what to produce, and how much, are communicated as efficiently as possible from the consumer to the producer. Vertical integration is a type of vertical coordination, but the latter does not necessarily require that a single organization own or control all of the stages.

through forward contracts and various types of marketing agreements. The decline in the use of spot markets and increase in the use of alternative forms of vertical coordination raised concerns among some market observers about vertical coordination's potential adverse effects on competitive behavior in the livestock and meatpacking industries. However, individuals involved in vertical coordination view vertical coordination as a method to manage risk, control costs, and enhance quality.

**GIPSA Response:** Vertical coordination of livestock production is not a violation of the Act. P&SP closely monitors marketing agreements, contracted livestock production, and other vertically integrated procurement and pricing mechanisms to ensure they are not used in an unfair, unjustly discriminatory, or otherwise unlawful manner prohibited by the P&S Act.

In fiscal year 2003, GIPSA received \$4.5 million in appropriations for a broad study of marketing practices in the entire livestock and red meat industries from farmers to retailers, food service firms, and exporters.<sup>78</sup> The study will address the many questions and concerns that have been raised about changes in the structure and business practices in the livestock and meat industries, including captive supply issues and vertical coordination.

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<sup>78</sup> For more information on the Livestock and Meat Marketing Study, please visit our website at [http://www.usda.gov/gipsa/psp/issues/livemarketstudy/livestock\\_marketing\\_study.htm](http://www.usda.gov/gipsa/psp/issues/livemarketstudy/livestock_marketing_study.htm)



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U.S. DEPARTMENT OF AGRICULTURE  
 GRAIN INSPECTION, PACKERS AND  
 STOCKYARDS ADMINISTRATION  
 PACKERS AND STOCKYARDS  
 PROGRAMS

**ANNUAL ASSESSMENT REPORT COMMENT FORM**

Thank you for your interest in GIPSA's Report, *Assessment of the Cattle, Hog, Poultry, and Sheep Industries*. As a means of both improving the publication and gaining insight on the issues arising in the cattle, hog, poultry, and sheep industries we invite your comments and ideas for future publications.

**1. Please indicate which area of the report you found to be the most useful (please check one box):**

- General Economic State     Changing Business Practices     Operations or Activities that Raise Concerns

**2. Please indicate which area of the report you found to be the least useful (please check one box):**

- General Economic State     Changing Business Practices     Operations or Activities that Raise Concerns

**3. Please rate your overall satisfaction with the report (please check one box):**

- Excellent     Good     Average     Poor     Very Poor

**4. Please identify each industry you are involved with (please check all that apply):**

- Cattle     Hog     Poultry     Sheep     Other: \_\_\_\_\_

**5. Please identify your primary role(s) in the industry:**

- Producer     Processor     Packer     Stockyard     Feedlot     Other: \_\_\_\_\_

**6. What changing business practices have you witnessed in the livestock, poultry, or meat industry?**

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**7. What concerns in your industry would you like us to address in future publications?**

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**8. Additional comments or suggestions:**

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**9. If you would like to provide your contact information, please do so below.**

Name: \_\_\_\_\_  
Last Name First Name

Business Name (if applicable): \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
Street

City/Town State Zip Code

E-mail Address: \_\_\_\_\_

Telephone Number: (including area code) \_\_\_\_\_

**Thank you for your response to this questionnaire.**

Please submit the completed questionnaire using one of the following methods:

- 1) Mail the document to the following address:  
Grain Inspection Packers and Stockyards Administration  
Packers and Stockyards Programs, CMAR  
1400 Independence Ave. SW, Stop 3647  
Washington, DC 20250-3647
- 2) E-mail the form to: [pspess@usda.gov](mailto:pspess@usda.gov) with the subject line as "CMAR," or
- 3) Fax the form to: (202) 690-1266, ATTN: Jaime Adams.

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According to the Paperwork reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information is 0580-0015. The time required to complete this collection is estimated to average 10 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection.

**Instructions for Completing  
the Annual Assessment Report Comment Form P&SP-6020**

You may use any of the following methods to submit the form:

- 1) Mail the document to the following address:  
 USDA Grain Inspection Packers and Stockyards Administration  
 Packers and Stockyards Programs, CMAR  
 1400 Independence Ave. SW, Stop 3647  
 Washington, DC 20250-3647
- 2) E-mail the form to: [pspeess@usda.gov](mailto:pspeess@usda.gov), with the subject line as "CMAR," or
- 3) Fax the form to: (202) 690-1266, ATTN: Jaime Adams.

Line No.	Subject	Instruction
1.	Most Useful Part of the Report	Check the appropriate box to indicate which part of the report you found most useful.
2.	Least Useful Part of the Report	Check the appropriate box to indicate which part of the report you found least useful.
3.	Overall Satisfaction	Check the appropriate box to indicate your overall opinion of the report.
4.	Industry Segment	Check the appropriate box(es) to indicate each livestock category you work with.
5.	Industry Roles	Check the appropriate box(es) to indicate your primary roles in the livestock, poultry, or meat industries.
6.	Changing Business Practices	Enter a description of the changing business practices that you noticed during the past year.
7.	Industry Concerns	Enter a description of the concerns you experienced in the livestock, poultry, or meat industries over the past year that you would like us to address in future publications.
8.	Additional Comments	Enter any additional comments that will help to improve future annual assessment reports.
9.	Contact Information	Enter your name, business name, mailing address, e-mail address, and telephone number.