



**AgEcon** SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

# Order Out of Chaos?

## The Evolution of Marketing Institutions

**T**oday, we take for granted the way in which our food is marketed. Fruits, vegetables, grains, and beef all rely on marketing institutions that influence and shape our food markets. These marketing institutions include federal grading standards and inspection services, administered by the Agricultural Marketing Service of the U.S. Department of Agriculture (USDA), and were legislated in the early 1900s with the emergence of national markets. True drama, rivaling any Shakespearean play, underlies the legislation of these marketing institutions. In the late 1800s, human nature showed its worst side, with cheating, lying, and fraud in everyday transactions. The modern economist would claim that undisclosed information made these actions possible, while drama writers would claim that human nature, and man's never-ending struggle with greed and avarice, created the need for government-sponsored marketing institutions.

Market exchange before 1850 was fairly simple. People who sold goods knew the people who bought the goods, and this face-to-face relationship kept both buyers and sellers honest. People could produce their own goods and services and could choose not to buy or sell when terms were unfavorable. In addition, buyers directly examined the quality of goods offered for sale. In the second half of the century, technological advances brought interior plumbing, canned foods, gas heating, and other innovations, often with unobservable quality. Economic specialization dominated this period, making consumers and producers increasingly dependent on the market.

Technology touched agriculture in many ways, starting with mechanization in 1870. In the first phase, plowing and grain harvesting used horse-driven technology. After 1910, farmers adopted gasoline tractors, and shortly thereafter electric motors provided power for pump irrigation. These innovations transformed production of grain and spe-

cialty crops, and helped increase both acreage and yields. Technology had a similar impact on marketing, as the transcontinental railroad made it possible to ship agricultural commodities over long distances. And innovation spurred changes in the way agricultural commodities were bought and sold. Transactions that once took place between people who knew each other were now impersonal and anonymous, leaving room for fraud, deceit, corruption, and greed, with no recourse for dishonest actions. As a result, consumers often received low-quality food, or farmers often received low prices. Industry after industry requested congressional assistance, and USDA stepped in to establish and enforce uniform standards for most agricultural commodities. Quality standards simplified transactions, reduced fraud, and ultimately raised the quality of the goods traded in the market.

### Grain marketing and inspection

During the eighteenth century, most grain was grown in eastern valleys near the population. Wheat was bartered, shipped down rivers, milled into flour, and sold. By the mid-nineteenth century, grain production had moved to different regions, some far from major consumption centers. Initially, the general store owner acted as a grain merchant and traded with farmers, exchanging grain for store merchandise. After accumulating a sufficient quantity, the merchant moved the grain to a nearby terminal or the Chicago market. Around 1840, the country shipper, who used large teams of mules to transport grain to the Chicago market, replaced the general store operator.

Grain delivered by shippers was stored in warehouses, awaiting sales and delivery to eastern mills. In the late 1840s, dealers began combining the grain of different shippers in the warehouses, and in exchange, gave shippers receipts for the warehoused grain. In these earliest transactions, dealers provided eastern buyers with grain samples or signed documents certifying the grain's quality and condition.

by Carolyn  
Dimitri



But as the volume of grain increased, sampling difficulties increased too, prompting sales based on descriptions of the lots. Wheat, for example, was initially described as winter or spring. Later, sellers called wheat sound, bright, common, extra, choice, merchantable, clean, fair, hot, or unsound (Hill).

In the mid-nineteenth century, boards of trade and chambers of commerce stepped in as middlemen, the Chicago Board of Trade being the most notable and the first to hire inspectors. Between 1871 and 1916, nine other states hired inspectors. Yet each market created its own grading standards and interpreted the standards differently, which led to disputes over quality. Farmers complained about grading inequities—two identical loads might receive different grades, even in the same market. And eastern buyers complained about low delivered grain quality, complaints which arose from numerous sources. First, inspectors were not always impartial. Farmers sent damp and dirty grain to the market. Grain dealers mixed oats, barley, and unmarketable wheat with high-quality wheat. Shippers mixed wheat that failed inspection with high-quality wheat. Inspectors graded early-season grains more leniently and tightened standards later. And even when high-quality grain was shipped, the quality could deteriorate during delivery. Water in leaky boats could ruin the grain, and hot ware-

houses could reduce grain quality.

Two separate legislative efforts occurred in the early twentieth century: one focused on grain quality and the other on buyer market power. For the first fifteen years of the century, Congress tried, mostly without success, to standardize grain quality and implement inspection services. During the same time, grain farmers accused boards of trade and chambers of commerce of cheating, fraud, and collusion. In 1914, the House proposed a resolution (HR 424, 63rd Congress, 2nd Session) to investigate the grain exchanges. The resolution suggested that the Chicago Board of Trade, the Chamber of Commerce of Minneapolis, and the Board of Trade of Duluth were all monopolies, and colluded to control buying, selling, and pricing of wheat in the Northwest. Two years later, the Grain Standards Act gave USDA authority to establish uniform grades and standards for quality and condition. The Act further required that all existing state-level inspection systems be incorporated into the new system and that USDA supervise all interstate and foreign grain sales. The 1916 Grain Standards Act has since been modified numerous times.

### **Meat marketing and inspection**

During the early part of the nineteenth century, livestock was raised and meat produced in the east-

Marketing of produce, while risky today, was extremely hazardous business before enactment of the Perishable Agricultural Commodities Act in 1930.





ern region, near consumers. By 1870, however, the raising of livestock had shifted to the Ohio and Mississippi valleys. Initially, cowboys drove livestock to consuming regions. Once rail transportation became available in the late 1800s, farmers shipped live animals by rail from the Midwest to the East. But doing so was costly. Animals could not be shipped long distances without suffering, and, further, paying freight on the entire animal (instead of just the edible portion) was expensive. In the last third of the nineteenth century, refrigeration transformed the meat and livestock industry by providing the means to safely ship meat to eastern consumers. In response to this technological change, meat-packing plants emerged in Chicago. Livestock now was moved from the range to Chicago stockyards, transformed into meat products, and delivered by rail to consumers.

The first meat inspection law, which mandated inspection of the animal prior to slaughter, appears to have been driven by the small slaughterhouses (which were being displaced by the large Chicago meat packing firms) rather than by a concern for meat safety. By 1890, four large firms controlled the industry and supplied 89 percent of the meat. This high concentration would have made it possible to identify which firm supplied diseased meat to the market, and the potential damage to a packer's reputation should have been sufficient to prevent each from doing so. Small slaughterhouses were concerned about their loss of market share and began to complain that large packing firms sold diseased meat. Farmers and small businessmen in other industries echoed these sentiments, sentiments in keeping with the general mistrust of large firms of this period. Evidence suggests that Congress passed the Meat Inspection Act of 1890, just prior to the Sherman Antitrust Act, by design, in an effort to counter meatpacker market power (Libecap). The Meat Inspection Act of 1890, later amended in 1891 and 1895, gave the secretary of agriculture authority to appoint inspectors, inspect all meat and animals intended for export, and inspect all meat where it was packed.

The national meat market was, from the start, highly integrated and controlled by meat packing firms. Packers purchased livestock from a central facility, the stockyards located near the packing plants. Packers also owned the refrigerated rail cars, which they rented to the railroads for transporting meat to urban centers. Finally, rather than using a middleman to distribute meat, the packers sold directly to retailers. This degree of control made it possible for packers to hold both suppliers and purchasers captive, thereby lowering prices to suppliers and raising prices to purchasers (Cleman).

Between 1904 and 1906, the public became con-

cerned over meat safety, precipitated by numerous publications on sanitary conditions in the meatpacking industry. *The Jungle*, for example, stirred the public with its description of slaughterhouse filth and diseased animals. Numerous sources suggested that packers bribed federal inspectors to certify diseased meat clean (Cleman, Rohn). The public responded by buying less meat, prompting a federal investigation of the meat industry. The federal investigators found "...meat shoveled from filthy wooden floors, piled on tables rarely washed, pushed from room to room in rotten box carts, in all of which processes it was in the way of gathering dirt, splinters, floor filth, and the expectoration of tubercular and other diseased workers..." as documented in the Neill Reynolds report. Other evidence indicates that nearly every packing house visited denied USDA officials access to some areas (Rohn). In response to these damning studies, Congress introduced a new meat inspection bill—one vehemently opposed by the packers. Eventually, the packers dropped opposition in exchange for a promise that the Neill and Reynolds report not be published.

The Meat Inspection Act of 1906 required a post-mortem inspection of all beef, sheep, swine, and goats slaughtered and designated for interstate trade. Unapproved (by USDA) dyes and chemicals could not be used in prepared foods. Farmers and small butchers were exempt from mandatory inspection. The Act prohibited false labels and required the inspection of meat designated for export. USDA could require that all diseased carcasses be destroyed, and failure to comply could ban a packer from interstate sales. The Act established sanitation standards for slaughtering, canning, and packing. Finally, the Act prohibited the sale of uninspected meat, or meat that failed inspection.

The Act did not, however, eliminate packer market power. The packers were the subject of an intense federal investigation in 1918, in which the Federal Trade Commission (FTC) found evidence supporting market power. The extensive distribution network, according to the FTC, prevented new firms from entering the industry, and also gave packers control over the retail industry. The investigation led to the Consent Decree of 1920, with its eighteen provisions to reduce packer market power. Some of the provisions required that the packers divest ownership of railroads, stockyards, and wholesale facilities. Finally, the Packers and Stockyards Act of 1921 gave USDA the authority to regulate the packers and defined trading practices for the industry.

### Fresh fruit marketing institutions

Prior to 1890, farmers grew and sold fruit to nearby retailers, who sold it to nearby consumers. Refrigerated railcars made long distance trade in fresh



fruits and vegetables technically feasible in 1887, but only later did it become economically feasible. By 1930, however, most fruit was grown in the Pacific region and was shipped by rail to consumers in midwestern and eastern cities. Between 1890 and 1930, the long distances between sellers and buyers and fruit's perishable nature prevented smooth transcontinental transactions. Buyers and sellers frequently accused one another of cheating and lying. It was not uncommon for a wholesaler to suspect that the grower had cheated him by shipping inferior instead of the claimed high-quality fruit. For example, some apple growers "faced" barrels with high-quality apples and filled the interior with low-quality apples unsuitable for eating. Others padded the barrel interior with pumpkins and turnips (Better Fruit, 1913; HR 21480, 1912). Growers often concluded that wholesalers lied by claiming receipt of low-quality fruit when they had actually received high-quality fruit.

The process whereby growers packed fruit and the railroad delivered it seemed to foster these disputes, because responsibility for quality deterioration could not be easily assigned. If the farmer loosely packed fruit in containers or carelessly loaded containers on railroad cars, jostling during transit could damage the fruit. Railroads could roughly handle shipments, maintain excessively hot or cold temperatures in refrigerated cars, fail to maintain refrigerator equipment, or delay delivery—all actions that damaged fruit. The combined actions of the railroad and the grower frequently rendered

fruit unmarketable, and it was not uncommon for nearly 40 percent of delivered summer fruit to be ruined (Taylor).

Western growers successfully overcame many marketing problems by forming cooperatives and learning to pack and sort fruit to minimize transport damage. Often the cooperatives sent agents with the fruit to inspect its quality in the terminal market. After finding damaged fruit, the agent would file a claim with the railroad. Eastern growers were not able to organize, leading the apple growers to urge Congress, in 1909, to establish federal grading standards for apples. The Sulzer bill, passed in 1912, established three voluntary grades for apples. Grading proved ineffective, however, because the legislation made no provisions for enforcing the standards.

Before 1915, growers could not track shipments into particular markets, or tell how much fruit other farmers were sending into the same markets. At times, they flooded one market when fruit supplies to a nearby market might be scarce. In 1915, USDA began working with the fruit industry, and its first step was to establish the Market News Service. This service reported farm-level and delivered prices for fruits and vegetables, as well as prices for shipments and deliveries for various other commodities.

In a 1916 appropriation bill hearing, growers requested an inspection service to certify quality at shipping points. Instead, one year later, Congress authorized the Food Products Inspection law in the 1917 Agricultural Appropriation Act. The new service verified delivered quality in central receiving markets. During the first few years, inspectors assessed quality according to shipper or state standards, a practice that made comparisons of quality across production regions difficult. Using a federal grade instead of regional grades eliminated many of these contracting difficulties, but by 1919 USDA had developed standards only for potatoes. By 1926, USDA had established standards for over thirty fruits and vegetables, and by 1934, for fifty-four fruits and vegetables, making it possible for most contracts to use federal grades (Samson). The Appropriations Act of 1922 created a service certifying quality at time of shipping.

By 1923, the structure of a contract enforcement system was in place. Voluntary federal grading standards defined quality, and inspection services certified quality prior to shipment and verified quality after delivery. But the rules of the trade were poorly specified, leading to the passage of the Perishable Agricultural Commodities Act (PACA) of 1930, which defined trading rules for the entire industry. The PACA required that all buyers and sellers be licensed, that bills be paid in a timely



A market in New Orleans around the turn of the century.



manner, and that buyers and sellers maintain records of all transactions. The Act specifically prohibited fraudulent claims over quality. Finally, the PACA provided a forum for buyers or sellers to file complaints with PACA, a forum in which USDA agents adjudicated disputes by evaluating each case and, when required, levying fines and suspending or revoking licenses.

### In retrospect

Common elements led to the legislation underlying our modern agricultural marketing institutions. Technological innovation made national trade a new possibility in the late nineteenth century. Anonymous long-distance trading made it possible for buyers and sellers to misrepresent quality. In both the grain and fruit industries, quality could deteriorate as the product moved along the marketing chain, lowering the value of the shipment. In the meat industry, diseased and unclean meat posed a threat to health. Additionally, market power issues created public and industry concerns in the grains and meatpacking sectors. For grains and fruits, industry efforts to standardize quality and provide inspection services failed, and the government intervened to reduce quality-based disputes between buyers and sellers. In each case, USDA marketing institutions eliminated opportunities for fraud, cheating, and exertion of market power, creating a well-functioning food distribution network, still in place as we move into the twenty-first century. □



Grain inspection.

### ■ For more information

Clemen, R. *The American Livestock and Meat Industry*. New York: The Ronald Press Company, 1923.

Hill, L. *Grains and Standards*. Champaign IL: University of Illinois Press, 1990.

Libecap, G. "The Rise of the Chicago Packers and the Origins of Meat Inspection and Antitrust." *Econ. Inquiry* 30(April 1982):242-62.

Olmstead, A., and P. Rhode. "An Overview of California Agricultural Mechanization, 1870-1930." *Agr. History* 62, no. 3(1988):86-111.

Rahn, L.E. "A History of Meat Inspection in the United States." MA thesis, Ohio State University, 1939.

Samson, H.R. "The Standardization and Inspection of Fresh Fruits and Vegetables." Address to The American Institute of Cooperation, Chicago, 1926.

Taylor, W.A. "The Influence of Refrigeration on the Fruit Industry." Washington DC: U.S. Department of Agriculture, *Yearbook of the Department of Agriculture*, 1900.

*The author thanks Erik Lichtenberg and John J. Wallis for discussion, feedback, and comments, and an anonymous referee for helpful comments.*

*Carolyn Dimitri is an economist with the Economic Research Service, U.S. Department of Agriculture.*