

## Changes in Farming

### Main Ideas

1. New farming technology helped Texans adapt to life on the frontier.
2. The commercial cotton-farming boom had both positive and negative effects for Texans.

### Why It Matters Today

In the late 1800s, Texans experienced a major farming boom that was followed by a bust in crop prices. Use current events sources to learn about boom-and-bust business cycles today.

### Key Terms and People

- dry farming
- threshers
- commercial farming
- Dora Nunn Roberts
- boll weevil



**TEKS:** 6D, 7B, 10A, 10B, 13A, 13B, 20A, 20C, 20D, 20E, 21B, 21C, 21H, 22A, 22D

## The Story Continues

In 1891 General Robert St. George Dyrenforth began a series of government-sponsored experiments in West Texas. He believed that a big explosion in the sky might lead to rain in the dry region. Dyrenforth hauled more than 60 balloons, 100 kites, and thousands of pounds of explosives to a rural area outside of Midland. He then sent large balloons filled with hydrogen and loaded with dynamite into the air. The explosions produced gray clouds of smoke but little rain. After further experiments also failed, Dyrenforth returned \$5,000 to the U.S. government and earned the nickname Major Dry-henceforth.

### myNotebook

Use the annotation tools in your eBook to take notes on changes in farming in Texas during the late 1800s.



### New Farming Technology

Although West Texas was dry, many farmers had moved into the region during the late 1800s because the land there was inexpensive. Farmers soon learned that certain crops grew well in West Texas. Instead of growing corn like some East Texas farmers, West Texas farmers turned to wheat and other grains such as sorghum.

Even so, farmers needed new techniques to help them grow crops in the dry climate. Many farmers practiced **dry farming** techniques such as terracing to keep moisture in the soil. Farmers built terraces, or small ridges, to catch runoff from rainfall and to help stop soil erosion.



### Interpreting Visuals

**Railroads and farming.** Railroad junctions, like this Houston depot, were busy with farmers bringing their cotton and other goods to be shipped to out-of-state markets. How do you think the national demand for cotton affected the local market in Houston?

The soil in the Panhandle and some areas of West Texas was quite rich but was often very hard on the surface. John Deere's deep steel plow—widely used by 1845—helped West Texas farmers break through the hard soil. This type of plow left a layer of loose soil on top to allow crops to better absorb moisture from the air. During the 1880s a few farmers, following the lead of ranchers, began to use windmills to pump water from aquifers for crop irrigation.

Texans also began to use new mechanical farm tools. Farmers began using horse-drawn plows that could plow several rows at once. Two-row planters also made planting faster and less difficult. **Threshers**—machines that separate grain or seeds from plants—made harvesting crops faster and easier. In the late 1800s a few Texas farmers even began to use steam-powered threshers and tractors. Steam-powered machines were rare and often attracted public interest. One Abilene newspaper reported the arrival of a steam-powered thresher. “The steam thresher received by T. & B. Gardner last week was a considerable source of amusement and curiosity while it remained in town.” Although often amazed by these new machines, farmers used them to increase production.

**Reading Check Analyzing Information** How did new technology compare to past technologies and help farmers adapt to farming in West Texas?



## Commercial Farming

New machinery, the increase in the number of farms, and the availability of railroads to ship products all encouraged agricultural growth in Texas. The increase in the state's agricultural production resulted in a

Image Credit: © Corbis

boom in **commercial farming** during the late 1800s. Commercial farming is the large-scale growing of crops to sell for profit. Because cotton brought larger profits per acre than other crops, some Texas farmers began to grow only cotton. It grew well in the state's drier western regions as well as in East Texas. In 1880, Texas farmers produced about \$57 million worth of cotton. Texas had just a few textile mills in the late 1800s, so much of this cotton was shipped out of state. Railroads provided a cheap way to ship cotton to national markets. This contributed to the boom in commercial cotton farming. The development of cottonseed oil further spurred cotton production. Cottonseed oil was used in cooking products, cosmetics, and roofing material.

Railroads also opened up new areas to commercial farming. Spur lines were extended off main lines into regions where cotton could be grown. Railroad companies offered lower rates for shipping cotton and built large cotton loading platforms at each railroad stop. From 1874 to 1878, the number of cotton bales shipped on the Texas and Pacific Railway more than tripled. Railroad companies also transported other crops, including fruits, rice, and vegetables.

As commercial farming boomed, the value of Texas agricultural goods shot up. In East Texas their value rose from more than \$10 million to almost \$40 million during the late 1800s. West Texas experienced an even more dramatic shift, increasing from \$574,000 to more than \$8 million during that same period. This rise in value was the result of increased crop production rather than a rise in farm prices.

**Reading Check Finding the Main Idea** What geographic and other factors led to the boom in commercial farming of cotton in Texas?



## Farming Troubles

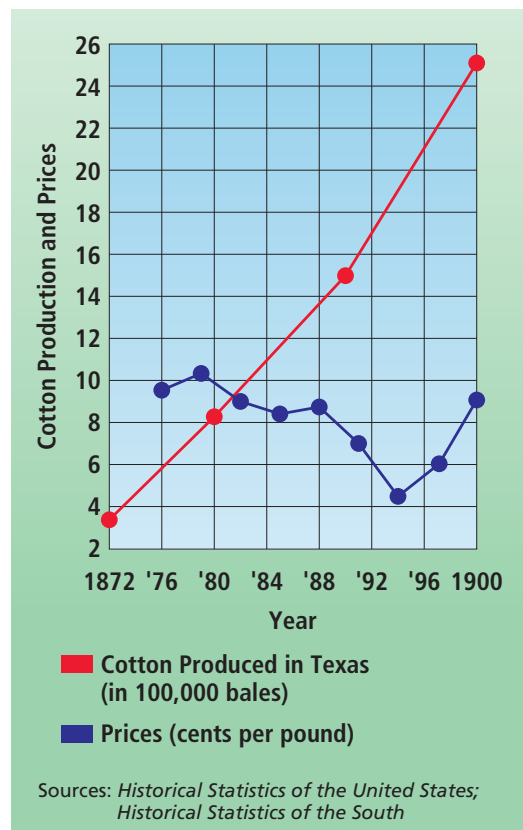
The boom in commercial farm production eventually led to a bust in prices. As farmers grew more crops, supply began to exceed demand, and thus prices fell. This is the economic law of supply and demand. If supply is more than demand, prices fall. But if demand is greater than supply, prices rise. For example, between 1874 and 1897 national production of wheat rose by 250 million bushels. The price fell from 94 to 63 cents per bushel.

## CONNECTING TO

## ECONOMICS

### King Cotton in Texas

Cotton production expanded rapidly during the late 1800s. Overproduction of cotton eventually led to a drop in prices.



### Interpreting Graphs

1. How many more bales were produced in 1900 than in 1880?
2. In general, what happened to the price of cotton as production increased? Why did this happen?
3. Based on this chapter, what historical and geographic factors might have led to the rise in cotton production?

## BIOGRAPHY

### **Dora Nunn Roberts** (1863–1953)

Born in Alabama, Dora Nunn moved to Texas and married Andrew Griffin. The couple settled in Howard County in 1884. The family used a windmill to pump water and irrigate vegetables. After her husband died, Nunn married John Roberts. When he died, she managed the farm. After oil was discovered on her property, she made large donations to several Texas colleges and hospitals. **How did Dora Nunn Roberts adapt to life on the frontier?**

Around this same period, national cotton production increased from more than 3.8 million to about 10.9 million bales. Cotton prices also fell from 11 to 6 cents per pound. Railroads had integrated Texas with the national and international markets for cotton. Therefore, the price of a bale of cotton in Texas was determined by the quantity of cotton produced in all parts of the world. Texas farmers were now vulnerable to supply and price changes in world markets.

The drop in prices hit farmers hard because the cost of farming was on the rise. Prices for farmland rose once most of the inexpensive land on the Texas frontier had been purchased. Some of the best farmland rose in cost from \$10 an acre in 1870 to more than \$500 in 1900.

Many migrants, freedpeople, and immigrants from Mexico and Europe could not afford to buy land. Instead they worked as farm laborers, tenant farmers, or sharecroppers. Between 1880 and 1900 the number of tenant farms in Texas tripled. Texas farmers such as **Dora Nunn Roberts** also struggled to survive a lengthy drought in the 1880s. In addition, cotton farmers suffered from crop-destroying pests and weeds during the 1890s.

For example, the **boll weevil**, a type of beetle, first infested cotton fields in the Rio Grande valley and then quickly spread throughout Texas. Despite the pest problems, many farmers refused to grow anything but cotton. Farm organizations and scientists tried to encourage farmers to diversify and grow a variety of crops. However, even with the falling prices, farmers still made more money on cotton than on other crops.

**Reading Check Drawing Inferences and Conclusions** How do you think the interdependence of Texas and national and international markets and the economic law of supply and demand affected Texas farmers?



## Section 2 Review



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ONLINE QUIZ

### 1. Define and explain:

- dry farming
- threshers
- commercial farming
- boll weevil

### 2. Identify and explain

the historical significance of:

- Dora Nunn Roberts

### 3. Summarizing

Copy the graphic organizer below. Use it to explain how railroads and farming led to the interdependence between the Texas economy with national and international markets.

Farming and  
Railroads

International  
Markets

### 4. Finding the Main Idea

- Compare the new types of farming technology. How did they help Texans adapt to and modify their environment?
- Why did a boom in cotton farming occur, and what were its effects?

### 5. Writing and Critical Thinking

myWriteSmart

**Categorizing** Imagine that you visited Texas in 1870 and in 1900. Write a letter explaining the positive and negative effects of the commercial agricultural boom. Consider the following:

- the value of farm goods and changes in farming costs
- the effects of the law of supply and demand on farmers