

Freight Railroads & Grain

The U.S. is the world's largest grain producer.

Grains include corn, soybeans, oats, wheat, rice, sorghum and barley. We use grains for many purposes, ranging from the food we eat to animal feed and ethanol production. Average annual U.S. grain production from 2011 to 2020 was 584 million tons.

Freight railroads are critical to moving grain domestically and abroad.

With one railcar containing enough wheat to make more than 250,000 loaves of bread or enough corn to feed 37,000 chickens for an entire lifetime, freight railroads are a critical link in the grain supply chain.

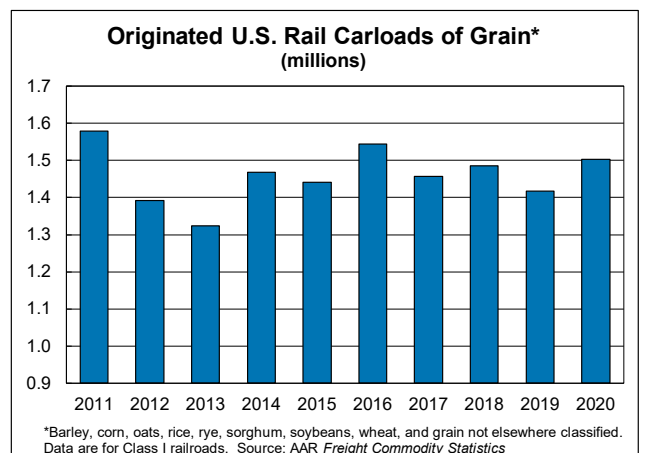
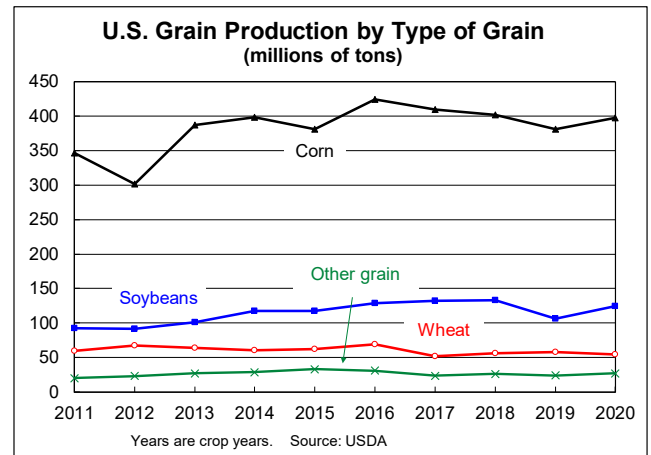
Today, grain shippers benefit from strong competition among railroads, trucks and barges. According to U.S. Department of Agriculture (USDA) data, the truck share of total U.S. grain transport was 61% in 2016 (the most recent year for which data are available), compared with 25% for railroads and 14% for barges. The rail share is close to 40% for grain export movements, according to USDA data.

In 2020, U.S. Class I railroads moved nearly 1.5 million carloads of grain. Railroads also transport around 750,000 carloads of grain-related food products each year, including 400,000 carloads of grain mill products (such as corn syrup and flour), 248,000 carloads of processed soybeans (mainly soybean meal and soybean oil) and 100,000 carloads of dried distillers grains.

- **Corn:** Corn is by far the highest-volume grain carried by railroads. Corn is grown in large quantities in many different states, mainly in the Midwest. In 2020, corn accounted for 691,000 carloads (46% of total rail grain carloads), well ahead of soybeans (340,000 carloads) and wheat (305,000 carloads).
- **Soybeans:** Soybeans accounted for 340,000 carloads in 2020 (23% of total grain carloads). The soybean share of grain movements between 2011 and 2020 varied from 14% to 23%. Over that period, exports accounted for 47% of soybean use — more than three times the export share for corn. Most of the rest was crushed at processing plants throughout the country to produce soybean oil and soybean meal. Soybeans are generally grown in large quantities in the same states that produce large quantities of corn.

Key Takeaways

- Freight railroads are critical to helping the United States remain the world's largest grain producer. In 2020, U.S. Class I railroads moved nearly 1.5 million carloads of grain.
- What crops are grown; where, and in what quantities; and how, when, and to where they are transported are determined by the interplay of many market and non-market forces including current and expected crop prices, weather, trade barriers, crop yields, global demand and more.
- Freight railroads constantly work to meet grain-related shipper needs and are resilient in the face of the complexities of grain markets.



- **Wheat:** Wheat is grown mainly (depending on the type) in the northern tier of U.S. states, including the Dakotas, Montana and Idaho, or the plains of Kansas, Oklahoma and Texas. Wheat accounted for 305,000 carloads in 2020 (20% of total rail grain carloads). Over the past 10 years, 45% of U.S. wheat utilization has gone to exports, slightly less than soybeans and far more than corn. Wheat that is not exported is usually processed to produce food for human consumption, including bread, pastries and pasta.

Many aspects of the grain market are unpredictable.

Some aspects of the grain market are generally predictable — e.g., poultry farms in the southern United States need large and relatively steady amounts of grain for feed — but many aspects of the grain market are volatile.

For example, large annual fluctuations in grain production are common. Just from 2016 to 2020, U.S. grain production ranged from 570 million tons to 653 million tons, a significant swing. Further complexity comes from the difficulty in forecasting crop size, even when the forecasts are made close to harvest time. Global markets too are constantly changing, which is important because the United States is a huge grain exporter.

Timing adds even more complexity. Those who have grain to sell want to sell it to the highest bidder. At harvest, a farmer might choose to sell the crop immediately — perhaps to a local processor or elevator — or the farmer might decide to store all or part of the crop in anticipation of a better price later. Likewise, an elevator might choose to sell the grain to, say, an overseas buyer, or it could decide to store the grain until prices improve. All of this makes planning and operations more difficult for those involved in grain logistics.

Freight railroads focus on meeting the demand of their grain-related customers.

Despite these supply chain complexities, railroads constantly work to improve their service. In fact, freight railroads have invested more than \$250 billion (of their own funds, not taxpayer's) back into their networks over the past 10 years. These investments have enhanced key agricultural routes, helping railroads meet current and future demand in this highly complex marketplace while ensuring farmers remain globally competitive.

- **Investing in Infrastructure & Equipment:** Adequate grain car capacity is critical to efficient grain marketing and transportation, so railroads work with freight car providers to supply a rail car fleet that is as large as can be justified economically. In recent years, railroads have acquired thousands of new high-capacity covered hoppers for carrying grain and increasingly use highly efficient "shuttle trains" to move high volumes of grain reliably and cost-effectively. As of year-end 2020, the North American railroad grain car fleet consisted of nearly 276,000 cars (owned by railroads and non-railroads) with a capacity of 1.41 billion cubic feet.
- **Customer Planning & Communication:** Frequent communication with customers, terminals and grain industry experts gives railroads insights and forecasting so they know where to position equipment and personnel ahead of demand. Railroads developed mobile apps, which allow shippers to order rail cars, track shipments and get customer support.
- **Preparing Operations:** Railroads move hopper cars and locomotives out of storage and beef up mechanical inspection teams ahead of harvest season so assets are ready as demand rises.

