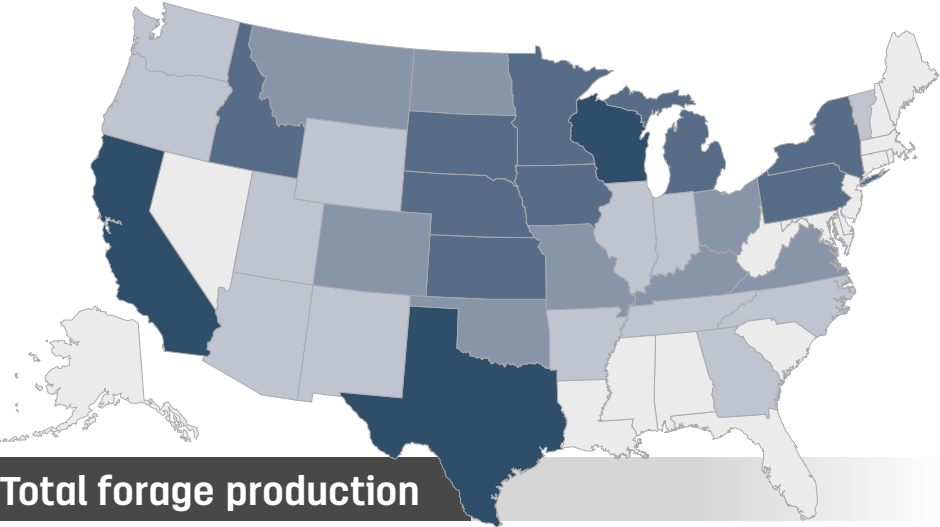


2019 U.S. forage statistics

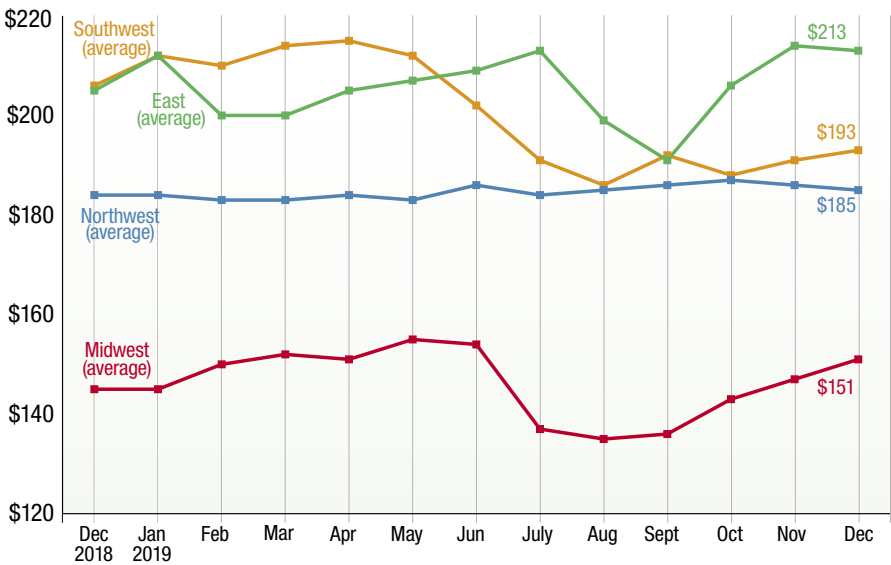


Total forage production

- more than 15,000 thousand tons
- 10,000 to 15,000 thousand tons
- 5,000 to 10,000 thousand tons
- 2,000 to 5,000 thousand tons
- 0 to 2,000 thousand tons

Total forage production is represented by the total of alfalfa, other hay, silage and greenchop production.

Alfalfa hay market trends (dollars per ton)



States that provided data to NASS were divided into the following regions:

- Southwest: Arizona, California, Nevada, New Mexico, Oklahoma, Texas
- East: Kentucky, New York, Ohio, Pennsylvania
- Northwest: Colorado, Idaho, Montana, Oregon, Utah, Washington, Wyoming
- Midwest: Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wisconsin

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2019 national forage review



Prices

Based on historical USDA data, hay prices* hit their peaks in May each year, as old-crop inventories are drawn down and new-crop harvest gets underway. In 2019, other factors magnified that trend, pushing average alfalfa and other hay prices to the highest levels in five years.

A cool, extremely wet spring put planting season well behind schedule and delayed hay growers from taking a first cutting. Combined with severe alfalfa winterkill in parts of the Midwest, terms like “scarce” and “disaster” were used to describe forage supplies, with May 1 hay inventories the lowest for that date since 2013.

The need for dairy hay and a somewhat brighter outlook for milk prices helped move hay prices higher, culminating with May U.S. alfalfa hay prices averaging \$204 per ton, the highest since August 2014. Although they softened later in the year, alfalfa hay prices averaged \$184 in 2019, about \$10 per ton higher than 2018.

The storyline for other hay prices wasn’t quite as dramatic, but the end results were similar: The May 2019 peak of \$152 per ton was the highest since May 2014, and the 2019 U.S. average price was also up \$10 from 2018 to \$139 per ton.

In 2019, to facilitate new income margin insurance calculations for dairy farmers under the Dairy Margin Coverage program, the USDA began reporting monthly averages for Premium- and Supreme-quality alfalfa in the five largest milk-producing states (California, Idaho, New York, Texas and Wisconsin). The weighted average price for that hay was about \$213 per ton.

Production

Improved moisture conditions led to increased production across almost all forage categories in 2019. Compared to a year earlier:

• **All dry hay:** Production was estimated at 128.9 million tons, up 4% from 2018. Area harvested was estimated at 52.4 million acres, down 1%; the average yield, at 2.46 tons per acre, was up 0.12 ton from 2018.

• **Alfalfa and alfalfa-mixture dry hay:** Production was estimated at 54.9 million tons, up 4% from 2018. Harvested area, at 16.7 million acres, was up 1%, and average yield was estimated at 3.28 tons per acre, up 0.11 ton from 2018.

• **All other dry hay:** Production totaled 74 million tons, up 4% from 2018. Harvested area, at 35.7 million acres, was down 2%; average yield was estimated at 2.07 tons per acre, up 0.11 ton from 2018. Record-high yields were estimated in California, Kansas, Maine, Missouri, Montana, Nevada and Utah.

• **Total forage:** The USDA’s forage estimation program covers 17 states. Haylage and greenchop production are converted to 13% moisture and combined with dry hay production to derive the total forage estimate. The 17-state total for all forage production was 29 million tons, of which 18.3 million tons were from alfalfa and alfalfa mixtures. The total for all forage production was 83.2 million tons, of which 42.3 million tons were produced from alfalfa and alfalfa mixtures.

• **Corn silage:** Production was estimated at 133 million tons for 2019, up 9% from 2018. Area harvested for silage was up 8% to 6.59 million acres, and the U.S. average yield was estimated at 20.2 tons per acre, up 0.3 ton from 2018.

• **Sorghum silage:** Production was estimated at 4.02 million tons, up 21% from 2018. Area harvested for silage was estimated at 339,000 acres, up 28%; yield averaged 11.9 tons per acre, down 0.7 ton per acre from 2018.

• **New seedings of alfalfa and alfalfa mixtures:** Growers seeded 2.47 million acres of alfalfa and alfalfa mixtures during 2019, up 11% from 2018. New seeding acreage increased the most in the Upper Midwest, where winterkill had taken a heavy toll.

• **Hay stocks:** The increased hay production helped boost year-end hay inventories. All hay stored on U.S. farms on Dec. 1, 2019, totaled nearly 84.5 million tons, up 7% from a year earlier. Despite the rebound, the total still represented the third-smallest inventory since 2006.

Exports

Although ongoing tariff and trade wars dominated the U.S. hay export narrative throughout 2019, final statistics provided a fairly good ending to the story.

For alfalfa hay, 2019 U.S. exports set a new record high of 2.685 million metric tons (MT). Monthly sales peaked in October, with sales to China hitting a U.S. record high for any month to any single country.

By year’s end, China had purchased more than 32% of all U.S. alfalfa hay exports for the year. Exports to Japan weren’t far behind, representing 25% of the U.S. total.

Exports of other hay were not as strong, although there was a surge to end the year thanks to price discounting to move inventory and typhoons in Japan and South Korea – the two leading U.S. markets for other hay – which cut domestic supplies. At 1.393 million MT, sales for the year surpassed 2018, but the total was still the second-lowest volume in at least the past 15 years.

Headwinds to end the year included lingering uncertainty over the U.S.-China trade agreement and a requirement to switch ships to burn low-sulfur fuels, which required several days in dry dock.

Weather and drought

Serving as a precursor to the 2019 growing season, the winter of 2018-19 was the wettest in nearly 125 years, shrinking areas under drought conditions significantly. By April, the USDA’s drought monitor showed the smallest U.S. hay and alfalfa areas under dry conditions in a decade. If anything, there was more acreage suffering from flooding rather than drought in the first half of the year.

Somewhat normal summer drought patterns resulted in modest growth of drought areas by August and early September, but dry areas remained small relative to recent years. Western wildfires were much less active in 2019 compared to the previous year, and most of the country escaped the year with minimal impact from tropical storms.

In some areas, the late spring and a cool, wet growing season collided with an early onset of the winter of 2019-20, creating a shorter growing season and smaller harvest windows. Across the Plains and Midwest, rain, snow and early frost hampered or prevented final cuttings.

At year’s end, about 9% of U.S. hay-producing acreage and 6% of alfalfa-producing areas were considered under drought conditions; dry areas all but disappeared in the Southeast but remained prominent in Utah, Colorado and Texas. New drought areas were also emerging in Idaho, Oregon and Washington.

**Monthly average prices calculated by USDA are across all hay qualities. Among major hay-producing states, the range of monthly prices can vary by \$100 per ton or more.*



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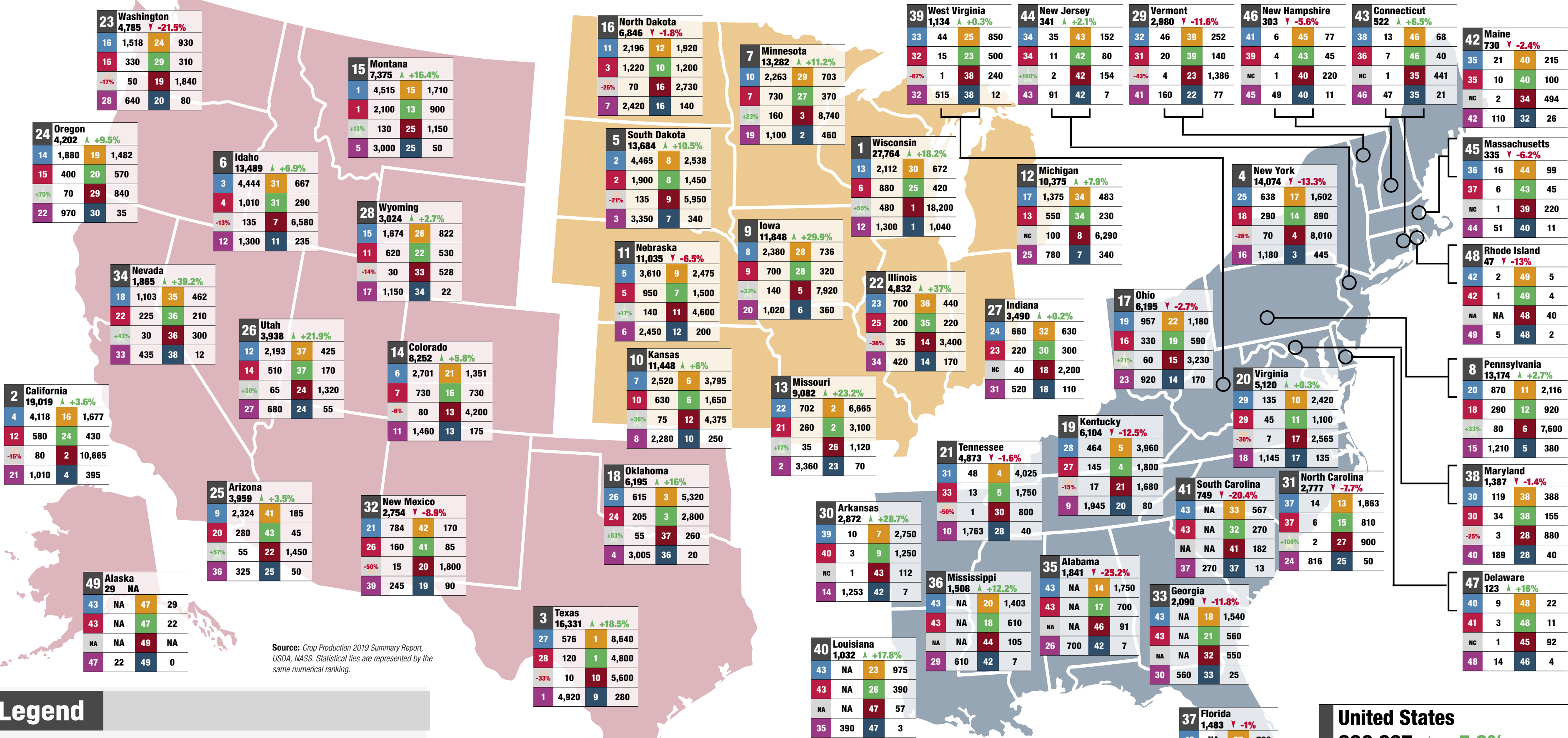
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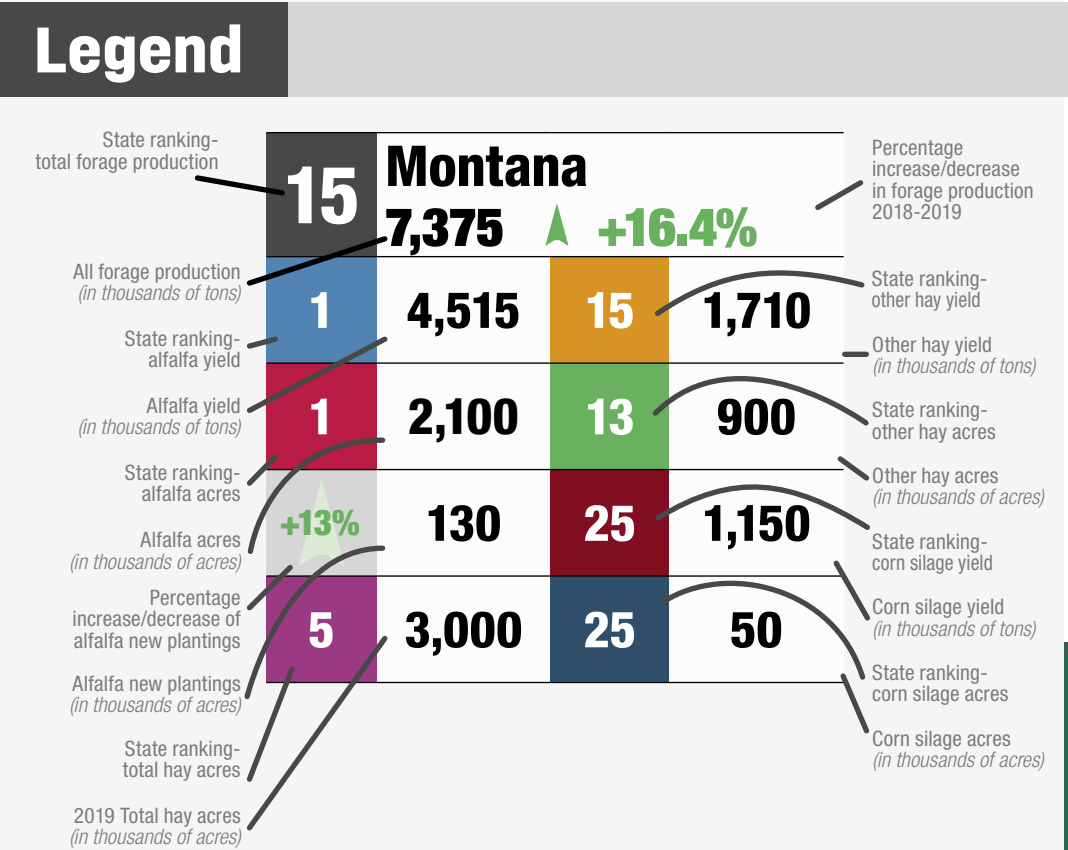
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2019 U.S. forage statistics



Source: Crop Production 2019 Summary Report, USDA, NASS. Statistical ties are represented by the same numerical ranking.



Total U.S. forage acres in thousands of acres

- Other hay 35,682
- Alfalfa 16,743
- Silage 6,587
- Greenchop 4,504

Combined total 63,516



Total U.S. tons harvested in thousands of tons

- Silage 20.2 tons/acre 132,807
- Other hay 2.1 tons/acre 73,989
- Alfalfa 3.3 tons/acre 54,875
- Greenchop 6.4 tons/acre 29,026

Combined total 290,697

| | | | |
|-----------------|-----------------|--|--|
| United States | | | |
| 290,697 ▲ +5.9% | | | |
| 54,875 ▲ +4.3% | 73,989 ▲ +4.3% | | |
| 16,743 ▲ +0.8% | 35,682 ▼ -1.5% | | |
| 2,469 ▲ +11.2% | 132,807 ▲ +9.2% | | |
| 52,425 ▼ -0.8% | 6,587 ▲ +7.6% | | |

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