

Progressive Processors Unlock New Products

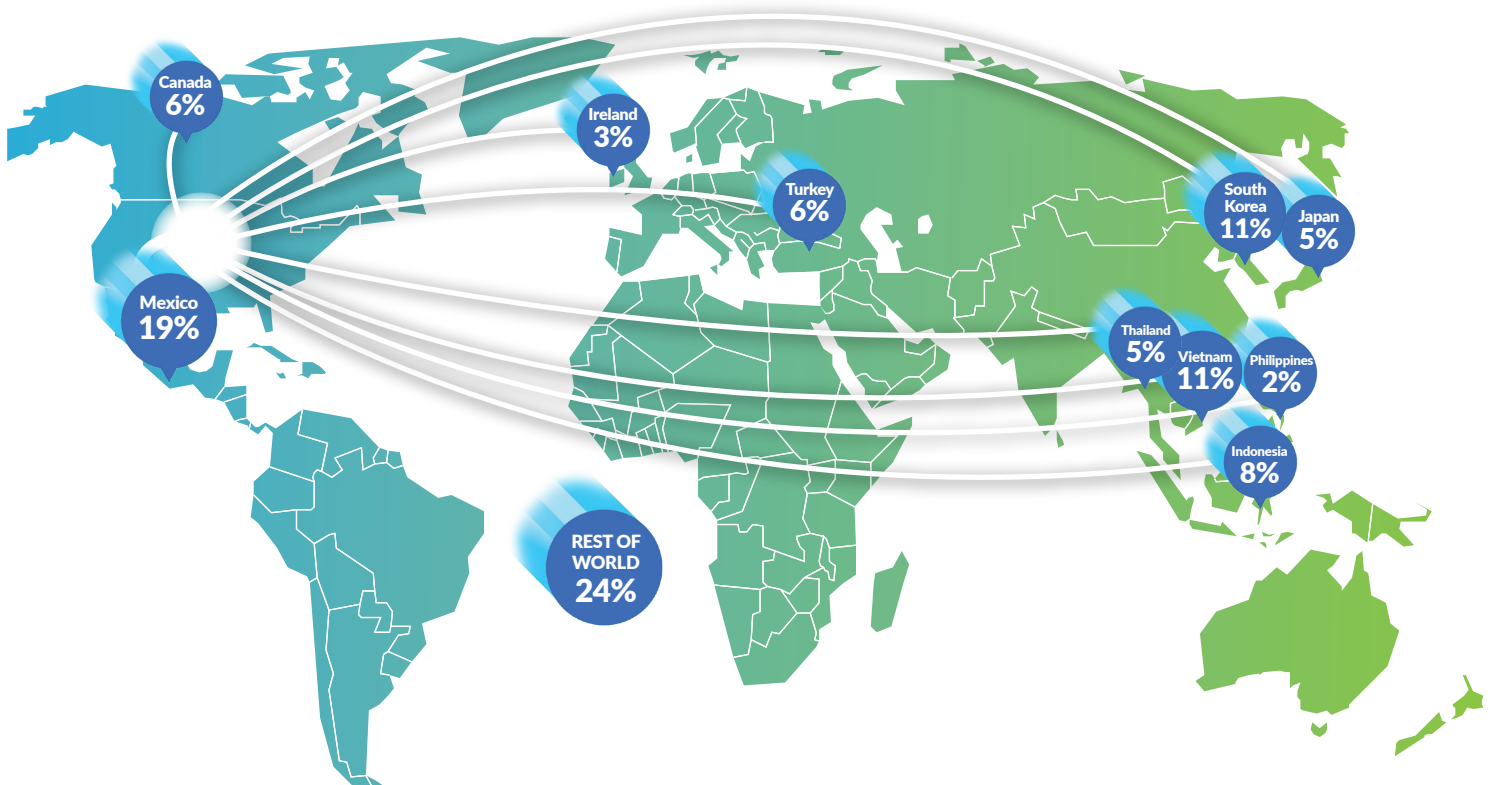
Sophisticated ethanol production facilities have been using engineering and design enhancements, new process technologies, automation upgrades, and other advances to make remarkable gains in efficiency to extract more out of each bushel of corn and generate multiple product streams. Industry is leaping forward to develop potential new feed definitions to green-light the next generation of ethanol co-products.

In 2019, U.S. ethanol producers generated 39.6 million metric tons (mmt) of distillers grains, gluten feed, and gluten meal. These bio-products are valuable corn and soybean meal substitutes in rations used around the world to feed beef and dairy cows, pigs, chickens, turkeys, fish, and other animals. Ethanol plants extracted 3.8 billion pounds of corn distillers oil—a nearly \$1 billion market underpinning the production of biodiesel and animal feed.

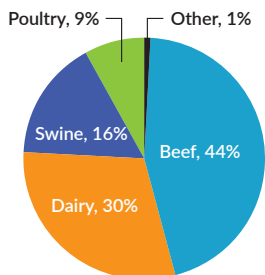
In September, the U.S. Food and Drug Administration gained full authority to enforce the Food Safety Modernization Act Preventive Controls for Animal Food Rule. FDA oversight lends formal assurance to domestic and international customers that American-made ethanol co-products are safe feed ingredients.

U.S. ethanol producers also captured 5.8 billion pounds of high-grade biogenic CO₂ in 2019 for North American food/beverage and industrial markets. Further, the industry is actively engaged in promoting the groundbreaking deployment of carbon capture and sequestration in a pivotal step toward fighting climate change.

Top Destinations for U.S. Distillers Grains Exports in 2019

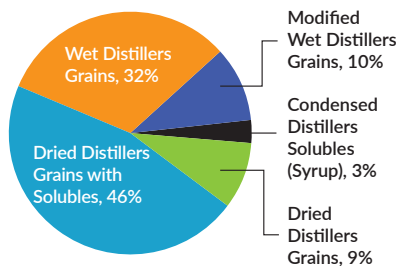


Distillers Grains Consumption by Species



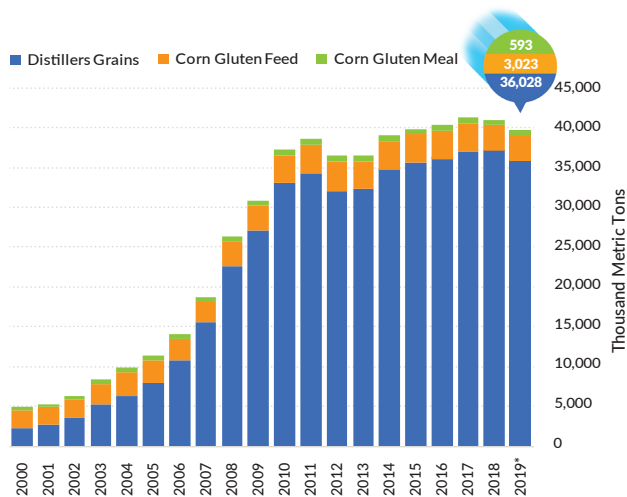
Source: Distillers grains marketing companies

Distillers Grains Production by Type, As-Is Basis



Source: RFA based on U.S. Dept. of Agriculture data

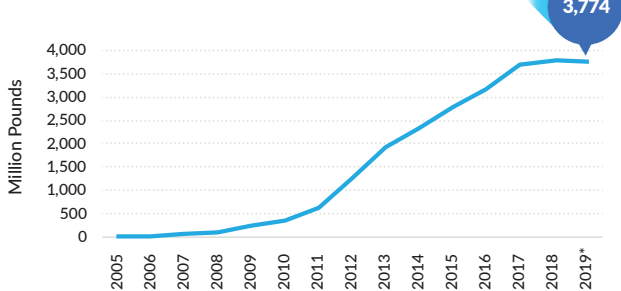
U.S. Ethanol Industry Co-product Animal Feed Output



Source: RFA based on data from U.S. Dept. of Agriculture. Note: All co-products converted to 10% moisture basis.

*Estimated

Corn Distillers Oil Production



Source: RFA based on U.S. Dept. of Agriculture data

*Estimated

A DIVERSIFIED TRADE PORTFOLIO



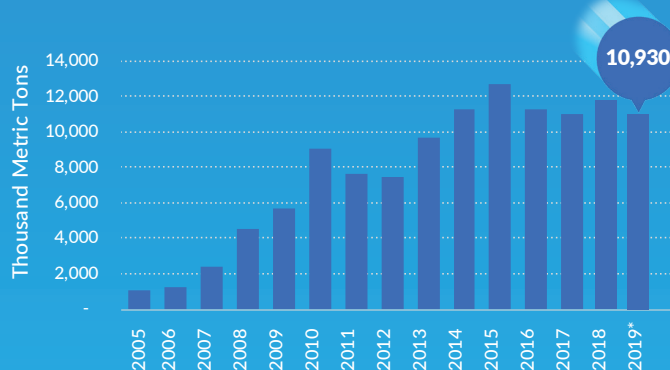
U.S. biorefineries satisfied growing domestic animal food needs while also exporting at least one of every four tons of distillers grains produced. Broadened educational and B2B outreach helped to grow the U.S. bio-product customer base into the most diverse mix in our industry's history.

In 2019, 53 countries purchased a cumulative 10.9 mmt of U.S. distillers grains. Half of these exports landed in Southeast and East Asia, despite China's decision in June to maintain anti-dumping and anti-subsidy tariffs on U.S. distillers grains imports. Another quarter of sales were transborder shipments, with Mexico extending its position as our top distillers grains customer for a third consecutive year.

The Renewable Fuels Association anticipates that mounting demand and geographic diversity lie ahead as countries around the globe embrace the use of these safe and economical ethanol bio-products.



U.S. Distillers Grains Exports



Source: RFA based on data from U.S. Dept. of Commerce & U.S. Census Bureau *Estimated based on Jan.-Nov. 2019 data