

ETHANOL'S VALUABLE COPRODUCTS

Corn ethanol fermentation generates high-value coproducts that play a dual economic role: supporting ethanol biorefinery margins while providing livestock, poultry, and aquaculture producers with dependable, lower-cost sources of protein and energy. In 2025, U.S. ethanol biorefineries generated over 35 million metric tons of distillers grains, corn gluten feed, and corn gluten meal. On a volume basis, these coproduct feeds rival the scope of soybean meal usage, helping moderate feed-cost volatility, expanding protein supply options, and serving as a natural hedge against swings in soybean meal prices.

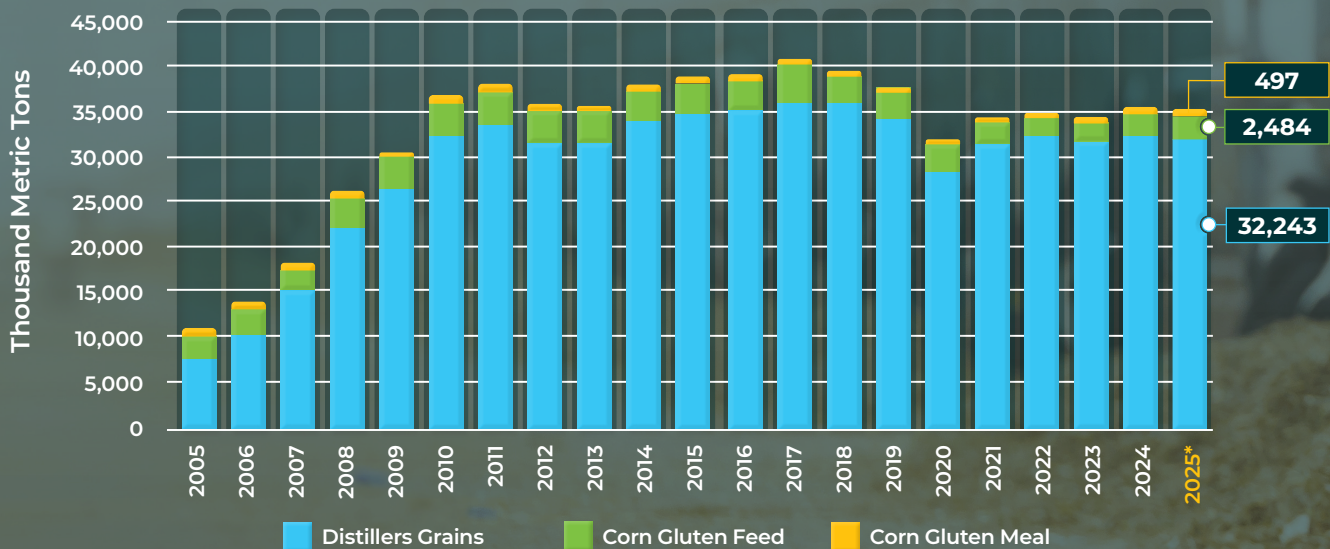
In 2025, beef and dairy cattle accounted for roughly 70 percent of U.S. distillers grains use, reflecting well-established alignment with ruminant nutrition science and the ability of nearby operations to utilize wet and modified products. Swine producers represented nearly one-quarter of consumption, reinforcing the role of distillers grains as a cost-effective protein and energy input in commercial feed rations. Poultry use remains more targeted,

consistent with ration-specific optimization and continued advances in feed formulation.

Rapid biorefinery production optimization over the past five years has also driven record output of distillers corn oil. In 2025, DCO production grew 4 percent to 4.7 billion pounds. This expansion reflects both improved extraction efficiency—with yields improving 50 percent over the last decade and averaging roughly one pound per bushel processed—and growing end-use demand as a key feedstock for renewable diesel, biodiesel and sustainable aviation fuel, as well as for poultry feed.

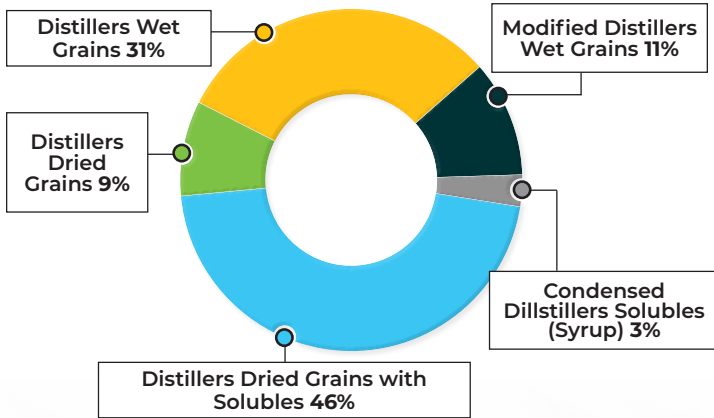
Beyond feed and fuel coproducts, ethanol producers are increasingly unleashing the value of fermentation byproducts. The capture of a record 3 million tons of high-purity biogenic CO₂ in 2025 underscores ethanol's role as one of the most cost-effective and scalable carbon capture platforms in the economy, delivering immediate lifecycle emission reductions while laying the foundation for net-zero and potentially carbon-negative fuels.

U.S. ETHANOL COPRODUCT ANIMAL FEED OUTPUT



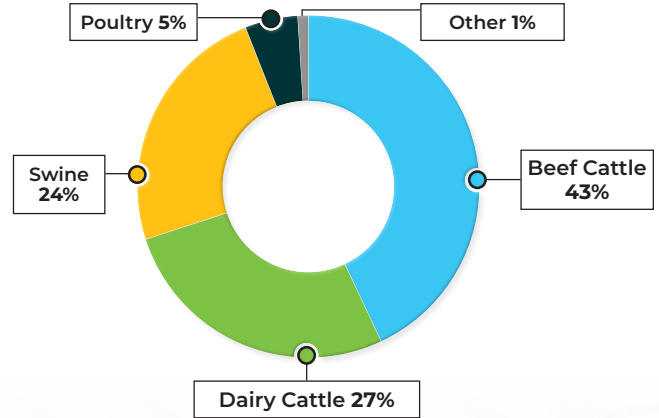
Note: All coproducts converted to 10% moisture basis
Sources: RFA and U.S. Dept. of Agriculture *Forecast based on Jan.-Oct. 2025 data

2025 DISTILLERS GRAINS PRODUCTION BY TYPE, AS-IS BASIS



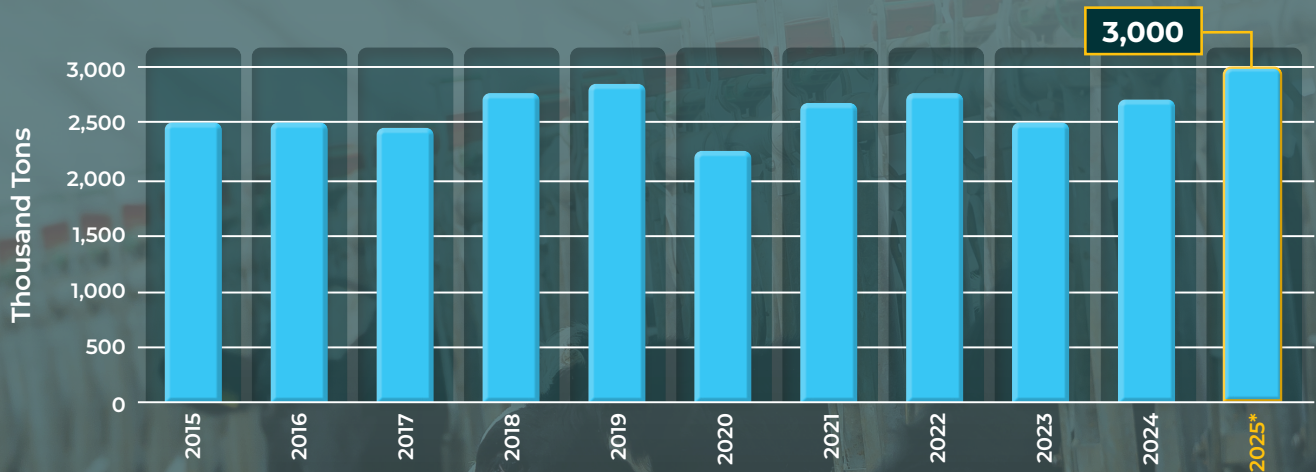
Source: U.S. Dept. of Agriculture. Based on Jan.-Oct. 2025 data.

2025 DISTILLERS GRAINS CONSUMPTION BY SPECIES



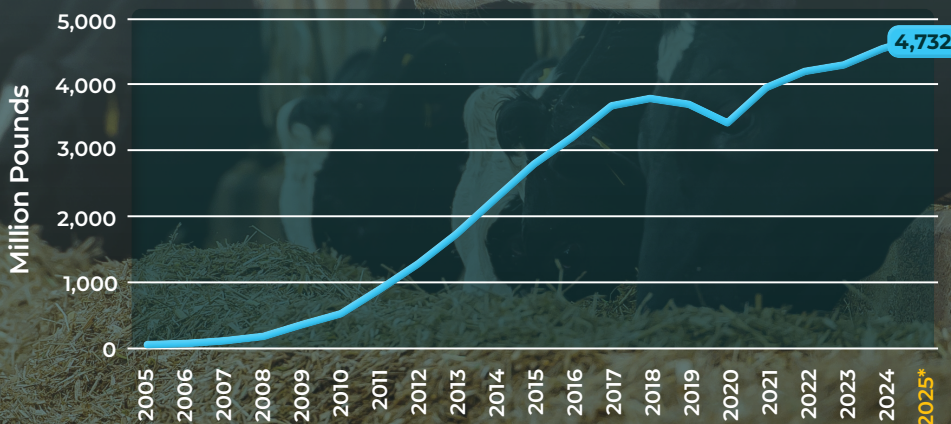
Source: Distillers grains marketing companies

ANNUAL BIOGENIC CO₂ CAPTURED AT U.S. ETHANOL FACILITIES



Sources: RFA and U.S. Dept. of Agriculture *Forecast based on Jan.-Oct. 2025 data

DISTILLERS CORN OIL PRODUCTION



Source: RFA and U.S. Dept. of Agriculture *Forecast based on Jan.-Oct. 2025 data