DECISION INNOVATION SOLUTIONS

Prepared for:

Iowa Renewable Fuels Association

2025 Economic Contribution of the Renewable Fuels Industry to the Iowa Economy

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1 Executive Summary

Despite challenges in the overall fuels market, the Iowa renewable fuels industry continues to be a key part of the Iowa economy contributing more than $22.8 billion in output and supporting more than 31,100 good-paying jobs in Iowa with the average being greater than $77,600 per year. In addition, the renewable fuels industry in Iowa adds nearly $5.5 billion of value to Iowa's crop-based inputs that are transformed into fuels for cars, trucks, tractors, and off-road equipment. Iowa's ethanol facilities are the first point of processing for 57% of Iowa's corn production.

In 2025, the 41 ethanol facilities in Iowa produced 4.60 billion gallons of fuel ethanol, down slightly from 2024, and Iowa's eight biodiesel plants produced 266 million gallons, down 24.7% from 2024. The economic backdrop for this production was a U.S. economy that had real GDP growth of 2.2% . The inflation rate continues to decline from the recent highs, with an annual inflation rate of 2.7% in 2025, down from 2.9% in 2024. U.S. average gasoline prices in 2025 were 5.8% lower than in 2024 with prices ending 3.7% lower in 2025 than at the end of 2024. The price of ethanol was up 2.3% in 2025 compared to 2024, and the price of ethanol co-products was mixed in 2025 with Dried Distillers Grains (DDGs) down 9.7% and Distillers Corn Oil (DCO) up 22.1% compared to 2024. On the input side, the price of corn going into ethanol plants was 1.0% lower than 2024, natural gas was up 36.4%, and other operating costs were up 8.3%.

The total economic contribution of ethanol and biodiesel production in Iowa is substantial. In 2025, ethanol and biodiesel production contributed the following to Iowa's economy:

- **31,137** jobs (1.5% of the state's total)
- **$2.4 billion** in labor income
- **$5.4 billion** in value added (2.0% of state GDP)
- More than **$22.6 billion** in output (total sales)

Economic contributions of the sectors of the renewable fuels industries in Iowa are:

Economic Contribution of Iowa Ethanol and Biodiesel Production

	Employment	Labor Income ($ Million)	Value Added ($ Million)	Output ($ Million)
Ethanol	29,939	$ 2,326.5	$ 5,314.3	$ 21,149.6
Biodiesel	1,198	$ 92.0	$ 67.2	$ 1,498.9
Total	**31,137**	**$ 2,418.5**	**$ 5,381.6**	**$ 22,648.4**

Even though a variety of factors converged in 2025 that created stresses for the biofuels industry in Iowa and biodiesel production in particular, Iowa's renewable fuels industry remains a significant source of economic activity within the state. Corn demanded by the ethanol industry in Iowa accounted for 57% of Iowa's 2025 corn crop. Adoption of technological advances in ethanol production is allowing more ethanol production from each bushel of corn being processed and provides millions of tons of high-protein feed for livestock feeders in Iowa, surrounding states, and across the globe. In addition, it

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provides millions of pounds of corn oil that is used in feeds and as a feedstock for renewable diesel fuels.

2 Introduction

In 2025, there were 41 ethanol facilities producing fuel ethanol in Iowa with a total production capacity of 5 billion gallons per year (Figure 1). Thirty-six are dry mill plants which comprised 84.8% of the ethanol production capacity in Iowa. Five are wet mill plants with 15.2% of the total ethanol production capacity. Corn is the primary feedstock for all the ethanol dry mills and wet mills in Iowa. Twenty-seven of the ethanol plants in Iowa also use corn kernel fiber as a feedstock to produce 40 to 50 million gallons of cellulosic ethanol along with their production of conventional corn-based ethanol. Iowa's ethanol plants produced 4.6 billion gallons of ethanol in 2025, which made up 28% of total U.S. ethanol production (16.49 billion gallons).

Iowa's biodiesel plants have a production capacity of over 400 million gallons per year. Iowa's biodiesel plants produced 266 million gallons in 2025 with eight facilities reporting production last year (Figure 1).

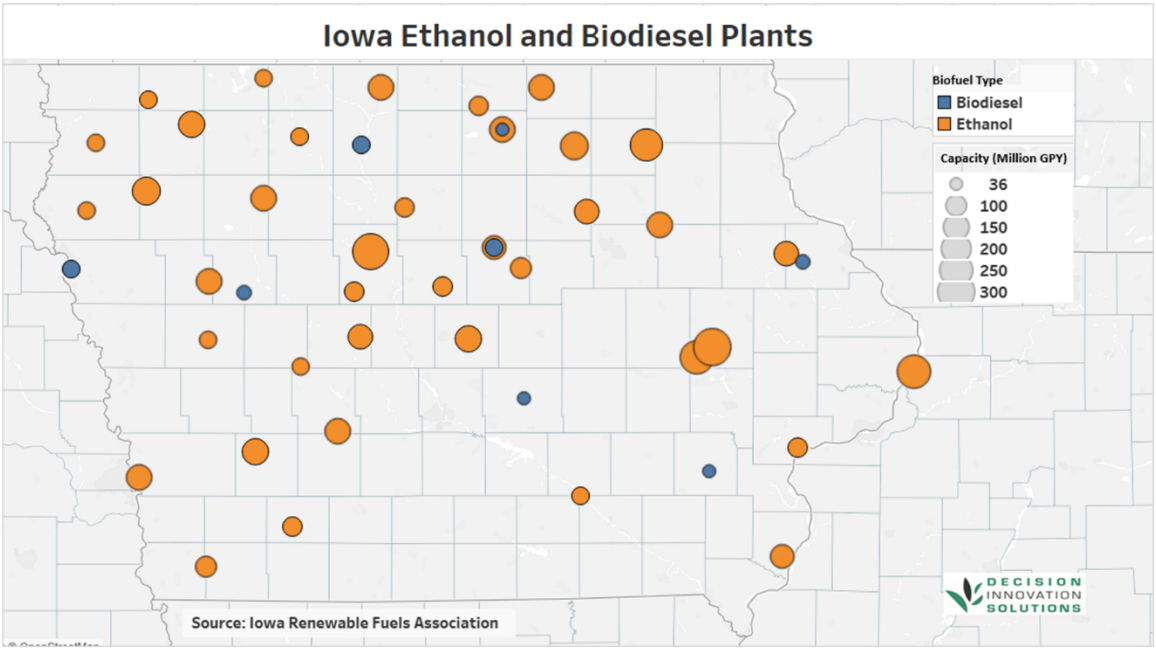

Figure 1. Ethanol and Biodiesel Plants in Iowa (2025), publicly listed capacity

Uncertainty in the regulatory and trade environment were issues that the ethanol and biodiesel industries dealt with in 2025. More specifically, the challenges that the biodiesel industry faced in 2025 included uncertainty due to low Renewable Fuel Standard (RFS) blending levels and a lapse in federal tax policy, leading several Iowa biodiesel plants to idle for a portion, if not all of 2025. The biodiesel blenders tax credit was allowed to expire at the end of 2024. That policy was being replaced by a new clean fuel production tax credit referred to as 45Z. The 45Z policy was modified by Congress in 2025,

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extending the policy through 2029. However, throughout the 2025 production year the rules for 45Z were still not finalized, which contributed to the uncertainty that the industry endured last year.

Biodiesel producers in Iowa provide a significant market for the feedstocks that go into biodiesel (animal fats, vegetable oils, used cooking oil), and along with growth in renewable diesel production, a higher percentage of these materials are being reformed into higher-valued fuels. New markets for biodiesel continue to be developed in several sectors including home heating oil, rail transport and ocean-going marine vessels where sustainable fuels are being sought.

For ethanol producers, the 2025 revised 45Z policy lowered the incentive for producing sustainable aviation fuel (SAF) from $1.75 to $1.00 and included modifications that make it more complicated for a SAF producer using ethanol as their feedstock to claim the credit. The reduction in credit could discourage domestic investment or expansion of SAF facilities. According to the Sustainable Aviation Fuel Grand Challenge Roadmap, the potential for SAF use in the U.S. is about 36 billion gallons a year by 2050 with about 20% of that potentially coming from SAF made from ultra-low-carbon ethanol (ULCE). Currently, the U.S. alcohol-to-jet (ATJ) SAF production capacity is at 10 million gallons. Increases in ATJ SAF production in the near term are highly unlikely given the current application of 45Z tax credits to ultra-low-carbon ethanol production and subsequent production of SAF from low-carbon ethanol.

Estimates indicate that if Iowa's 4.60 billion gallons of ethanol production utilized carbon capture and storage (CCS) technology, it would generate about $2.8 billion in 45Z tax credits back to the state and would boost ethanol's competitive position in domestic and foreign markets. Maintaining access to tools and technologies to compete is crucial for Iowa's ethanol industry to grow in the near future.

Iowa continues as the top ethanol producer in the country with a production of 4.60 billion gallons in 2025, accounting for 28% of the U.S. ethanol production last year (16.49 billion gallons). However, this share has declined compared with 2022 (30%) and 2023 (29%) as other states increased their production. As Figure 2 shows, ethanol production in Iowa has remained stagnant over the last three years[1].

[1] Note: One dry mill ethanol plant appears to have permanently shut down in December of 2024. This plant was one of the first dry mill ethanol plants built in Iowa in the "modern era" (post 2000) of ethanol production in Iowa.

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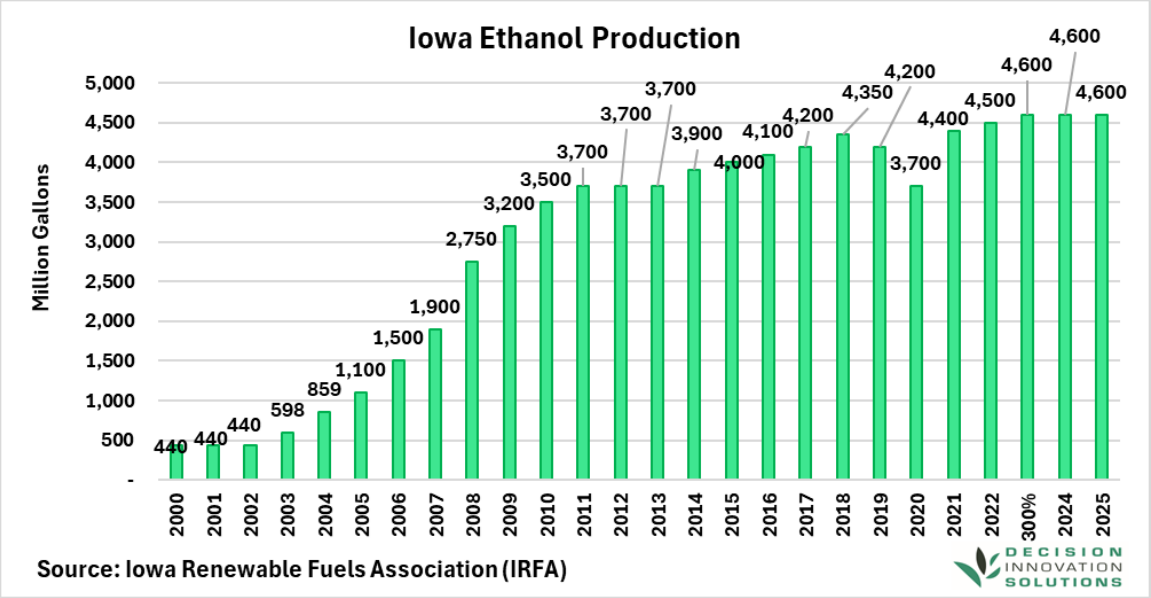

Figure 2. Iowa Ethanol Production

Ethanol plants in Iowa provided a market for 1.59 billion bushels of corn, 57.2% of Iowa's 2025 corn production (Figure 3) which produced high protein feeds, fuel, and distillers corn oil.

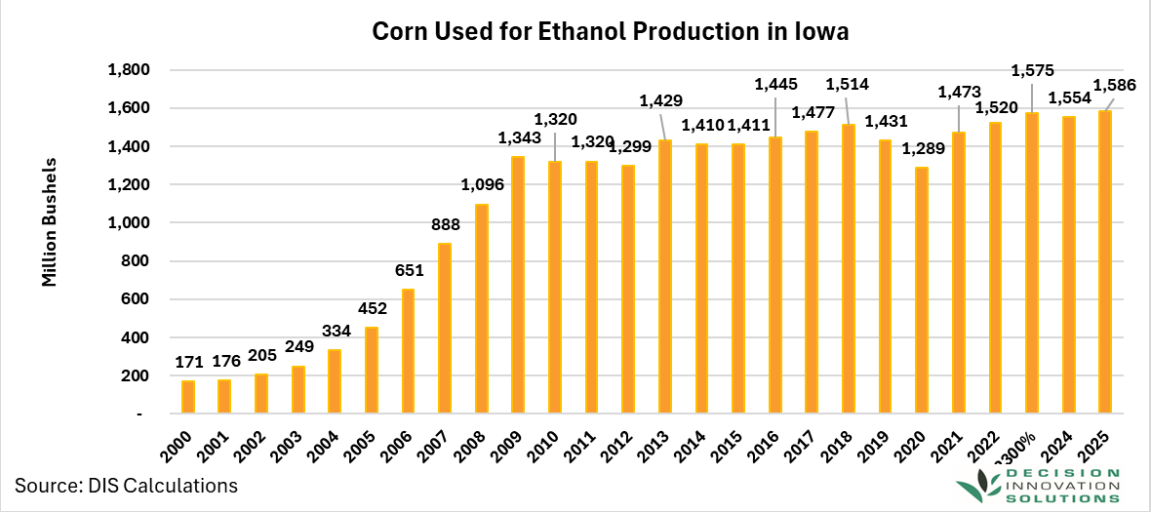

Figure 3. Corn Used for Ethanol Production in Iowa

In addition to ethanol production, the dry mill ethanol plants produce valuable co-products, mainly dried distillers grains (DDGs) (wet and dry) and Distillers Corn Oil (DCO). In 2025, there were over 6.5 million tons of these co-products produced by the dry mills in Iowa (Figure 4). *Fun Fact: At typical feeding rates, 6.5 million tons of DDGs will provide high protein feed to 11.6 million head of fed cattle,*

providing roughly 12% of total feed consumed. The hamburger from 11.6 million head of cattle is enough to provide a "Quarter Pounder" every day to every Iowan for 4 years.

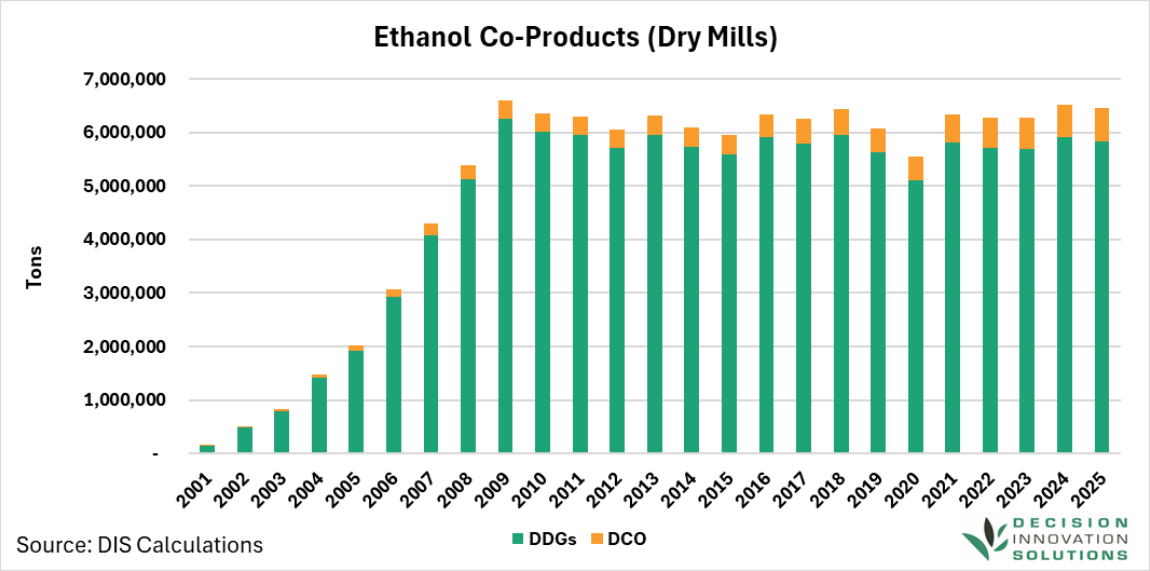

Figure 4. Ethanol Co-Products (Dry Mills)

Wet mill plants in Iowa produced about 4.1 million tons of feed ingredient co-products (Figure 5). Corn gluten feed (wet and dry forms) and corn gluten meal (a high protein feed) are the most common co-products of wet-mill ethanol production. In addition, corn germ meal, a nutrient-rich, low-fat co-product of corn oil extraction is also produced.

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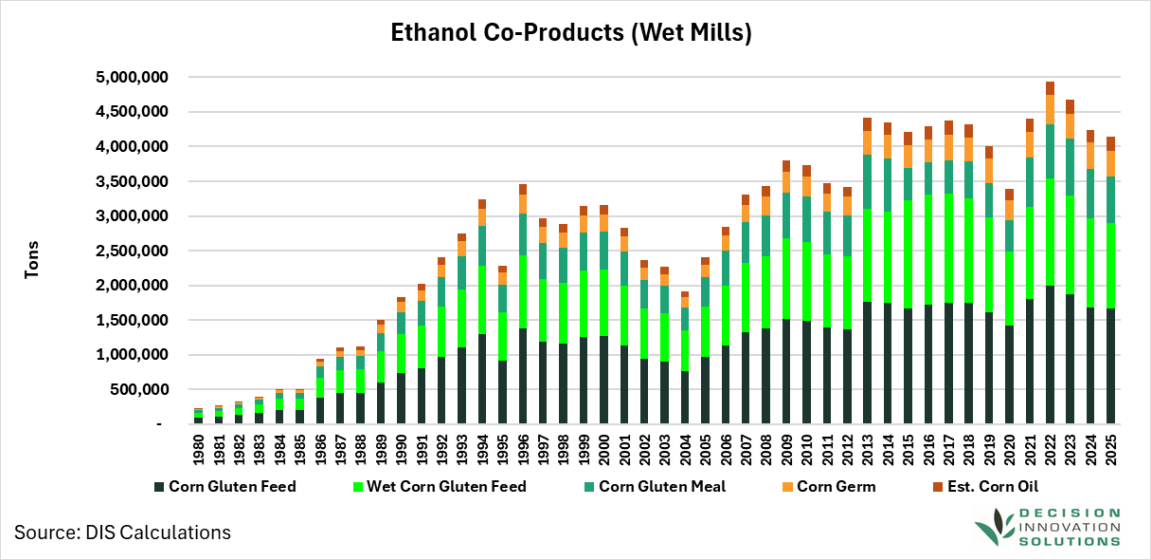

Figure 5. Ethanol Co-Products (Wet Mills)

The economic backdrop for this production was a U.S. economy that had a real GDP growth of 2.2 % in 2025 compared with an increase of 2.8% in 2024. The 2.2% expansion in 2025 GDP mostly indicated growth in consumer spending and investment. The inflation rate in 2025 (2.69%) decreased from 2024 (2.96%).

U.S. average gasoline prices in 2025 were 5.8% lower than in 2024 with prices ending 3.7% lower in 2025 than at the end of 2024 (Figure 6).

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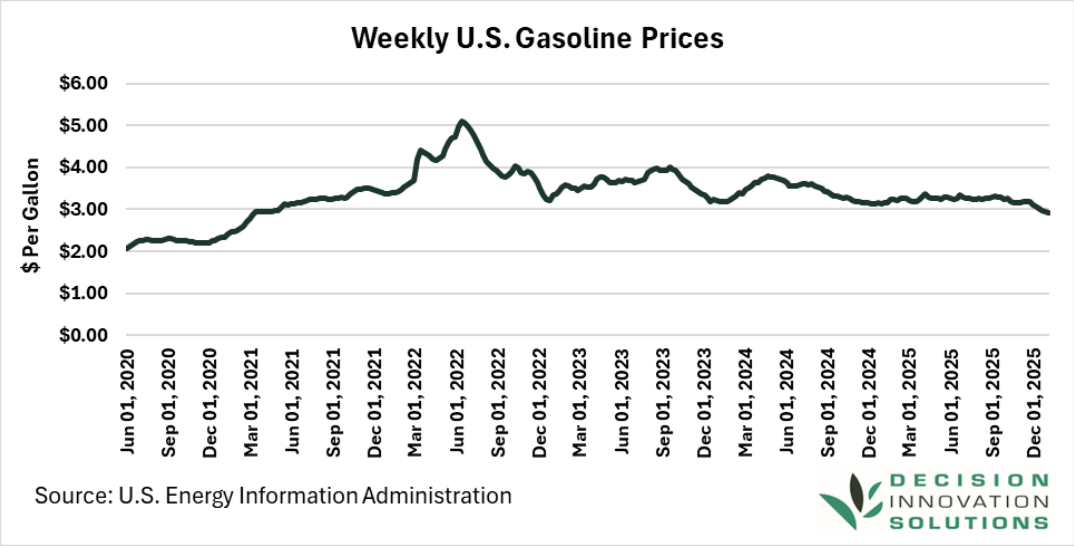

Figure 6. Weekly U.S. Gasoline Prices[2]

Iowa average ethanol price increased 2.3% to $1.64/gallon in 2025 compared with the previous year ($1.58/gallon) (see Figure 7). Net cost of corn and other operating costs are also shown in this figure.

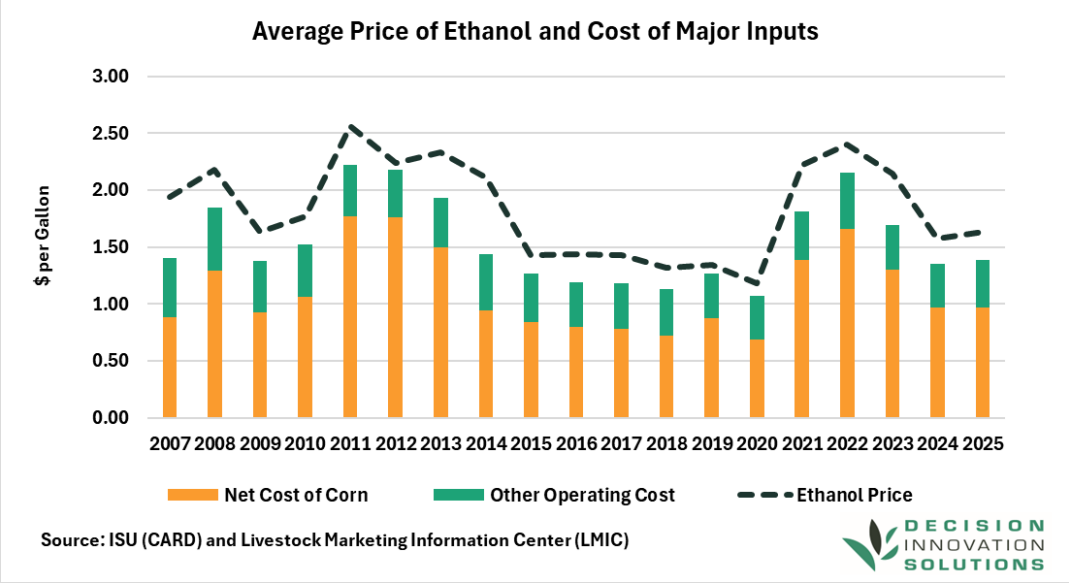

Figure 7. Price of Ethanol and the Cost of Major Inputs

[2] Prices are the Weekly U.S. All Grades All Formulations Retail Gasoline Prices

Export markets play a key role for the Iowa and U.S. ethanol and co-product markets. Despite uncertainty in the trade environment in 2025, U.S. ethanol exports increased to a new record high of 2.18 billion gallons, up 12.6% year-over-year (Figure 8), which was driven by increased demand from Canada, the Netherlands, the Philippines, and South Korea, among others.

On the other hand, the U.S. exported about 11.6 million metric tons of DDGs in 2025, which declined 4.0% from 2024 (Figure 9). The reduction in exports reflects, in part, a decline of 10% in export to the top U.S. market for DDGs, Mexico.

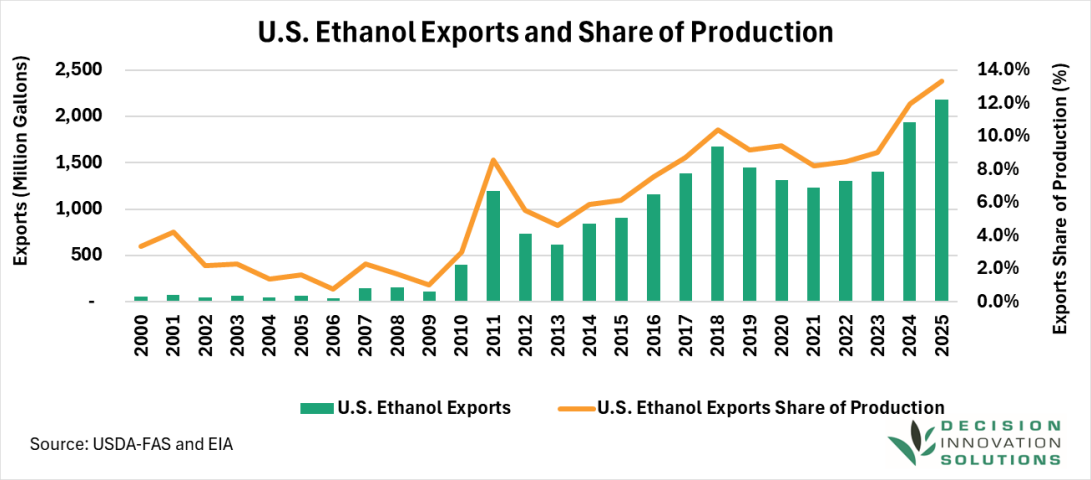

Figure 8. U.S. Ethanol Exports and Share of Production

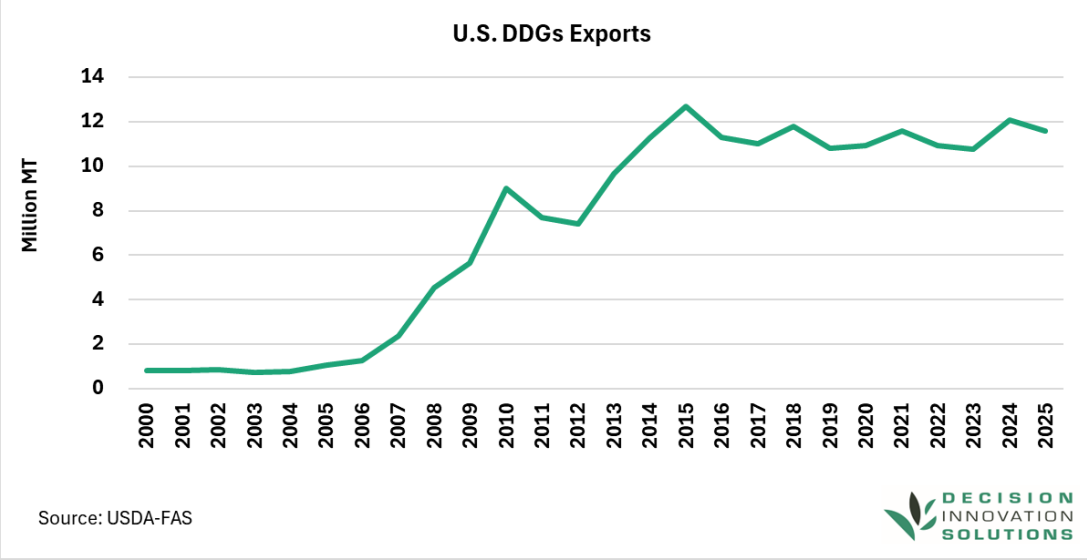

Figure 9. U.S. DDGs Exports

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Biofuels plants purchase agricultural raw materials, other inputs, and a wide range of goods and services such as industrial chemicals; electricity, natural gas, water; labor, and services such as maintenance, insurance, and general overhead. The primary feedstock for ethanol produced in Iowa is corn while the biodiesel industry uses a wide variety of fats and oils as feedstocks.

According to data summarized by the Iowa Renewable Fuels Association (IRFA), Iowa biodiesel production declined 24.7% to 266 million gallons in 2025 from 353 million gallons in the previous year (see Figure 10). The production originated from eight facilities, but some of them were running off and on and below production capacity.

The 2 billion pounds of soybean oil used to produce biodiesel in Iowa was the equivalent of the oil from 178.7 million bushels of soybeans, accounting for 30% of Iowa's soybean crop in 2025. Soybean oil accounted for 92% of Iowa's biodiesel production in 2025. Other feedstocks included distillers corn oil (a co-product of corn dry mill ethanol production), animal fats and greases, and used cooking oil (UCO).

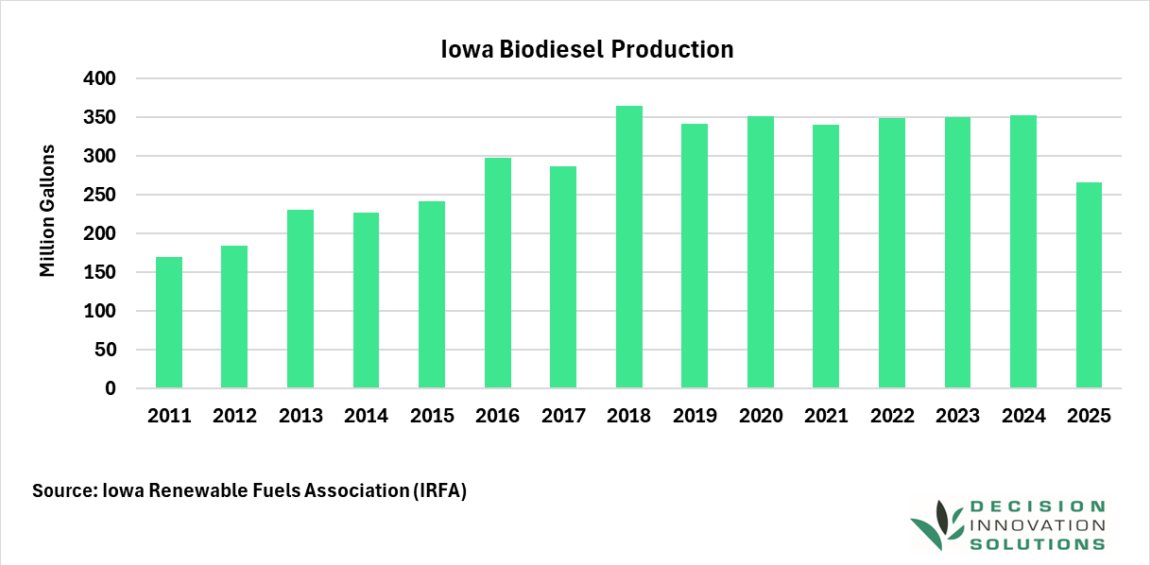

Figure 10. Iowa Biodiesel Production

Iowa's biodiesel production accounted for 23.1% of U.S. production in 2025. Over the last five years the state has produced 21.3% of the national production, on average. Based on EIA data, U.S. biodiesel production was estimated at 1.15 billion gallons in 2025, down 31% from 1.67 billion in 2024.

In summary, a variety of factors converged in 2025 that created pressures for the biofuels industry in Iowa and lowered the economic contributions of the industry to the Iowa economy, Iowa's ethanol industry maintained volumes similar to the past four years of fuel production despite the closing of a dry-mill production facility. Adoption of technological advances in ethanol production is allowing more ethanol production from each bushel of corn being processed and provides millions of tons of high-protein feed for livestock feeders in Iowa, around the U.S., and across the globe. The price of ethanol was up 2.3% compared to 2024. In contrast, Iowa biodiesel production experienced a substantial

reduction in 2025 compared with the previous year. Biodiesel prices declined 7% relative to 2024. Despite challenges in the overall fuels market, the Iowa renewable fuels industry plays a significant part in Iowa's economy.

3 Methodology

3.1 Economic Contribution Methodology and Terms

The following economic contribution study was conducted using a combination of IMPLAN and Microsoft Excel. IMPLAN is an input-output model used to understand industry relationships and conduct economic assessments for specified local economies. IMPLAN datasets are constructed annually and are derived from many different sources, including the U.S. Bureau of Labor Statistics (BLS), the U.S. Bureau of Economic Analysis (BEA), the U.S. Bureau of Economic Analysis Benchmark Input-Output Account of the U.S., the BEA output estimates, the U.S. Census Bureau's economic censuses and surveys, the U.S. Department of Agriculture's census, and more.

Within IMPLAN, the effects of an economic impact or contribution event are expressed in terms of direct, indirect, and induced effects. These different effect types are defined as follows:

- **Direct Effects** – The economic activity directly attributable to the industry under analysis
- **Indirect Effects** – The effects of local inter-industry spending throughout the supply chain, for example, the seed, equipment, fertilizer, and other inputs used by a farmer to produce corn for an ethanol plant
- **Induced Effects** – The results of employees of the directly and indirectly affected industries spending their income throughout the local economy
- **Total Effect** – The sum of direct, indirect, and induced effects

The 2024 IMPLAN data package, which is the most recent data available, was used for this analysis. Using inflation factors inherent in the IMPLAN modeling system, all numbers within these sectors were brought forward from 2024 to 2025. The results of this analysis are presented using the following common economic modeling terms:

- **Output:** The broadest measure of economic activity – also commonly referred to as "sales." Output refers to the total value of all sales of an industry within a study area without any deductions for the cost or origination of inputs that were used in the production process.
- **Value Added:** A component of output, this measure includes the total sales minus the costs of inputs. Alternatively, value added is calculated as the sum of labor income (further defined below), taxes on production and imports, and other property-type income. An industry's value added is equivalent to its contribution to GDP.
- **Labor Income:** A subset of value added, includes the sum of employee compensation (i.e., wages and benefits) and proprietor income (i.e., income of self-employed workers).

- **Employment (Jobs):** A measure of part- and full-time job positions, including contract workers, without regard to their full-time equivalence. Since it is not representative solely of full-time positions or full-time equivalents, care must be made when drawing comparisons to other measures of employment.

3.2 Economic Impact Study versus Economic Contribution Study

The term "Economic Impact Study" implies a change has taken place within a local economy. The change in a local economy typically comes from one of the following sources:

- Entrance/departure of a new business or industry
- Expansion/contraction of an existing business or industry

While estimating a change (economic impact study) such as the entrance or departure of industry activity is a worthwhile endeavor in many instances, this is not how the contribution of the biofuels sectors in this study were estimated. This study is an effort to evaluate the structure of existing industries within an existing economy. As a result, we believe that a different method of analysis is the most appropriate for this study. For that reason, this study is called an "economic contribution analysis"; in other words, we are interested in understanding what Iowa ethanol and biodiesel production currently contributes to the overall economy. This is a key difference from what is traditionally termed an "economic impact study". With a contribution analysis, the sum of individual industry estimates will never exceed the total of what actually exists in a given study area.

3.3 Model Inputs

The input values used for the economic contribution analysis in IMPLAN were derived from an Excel-based ethanol and biodiesel production model. These models were adapted from those used by John Urbanchuk versions of this report published prior to 2024. Prices used in these models were updated to 2025 values using a combination of U.S. Department of Agriculture Agricultural Marketing Service (USDA AMS), Energy Information Administration (EIA), and Iowa State University Extension Data. In some cases (wages, for example) prices were updated according to annual CPI inflation from 2024 to 2025 (Table 1).

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Table 1. Prices of Renewable Fuel Products and Major Inputs

Prices of Renewable Fuel Products & Major Inputs				
	2025	2024	Difference	Pct Change
Ethanol $/gal	$1.64	$1.57	$0.07	4.5%
Corn $/bu	$4.25	$4.29	-$0.04	-0.9%
DDGS $/ton	$139.58	$154.10	-$14.52	-9.4%
DCO $/cwt	$53.68	$43.77	$9.91	22.6%
Corn Gluten Meal $/ton	$461.18	$442.98	$18.20	4.1%
Corn Gluten Feed $/ton	$127.85	$123.48	$4.37	3.5%
IA Biodiesel $/gal	$3.77	$4.64	-$0.87	-18.8%
Soybean Oil $/cwt	$48.93	$45.33	$3.60	7.9%
Canola Oil $/cwt	$50.00	$55.48	-$5.48	-9.9%
Yellow Grease $/cwt	$37.19	$34.70	$2.49	7.2%
Choice White Grease $/cwt	$47.76	$40.14	$7.62	19.0%
Natural Gas $/1,000 cu ft	$6.25	$5.45	$0.80	14.7%
Source: Center for Agricultural and Rural Development (CARD), Iowa State University, USDA, EIA				

Once determined, these values for the Iowa ethanol and biodiesel industries were used as inputs for an economic contribution analysis in the IMPLAN modeling system. The "other basic organic chemical manufacturing" industry was used to model the economic contribution of biodiesel and dry mill ethanol production, and the "wet corn milling" industry was used for the economic contribution of wet mill ethanol production. In all three cases, the spending pattern of the relevant IMPLAN industry was modified to reflect the actual purchases required for ethanol/biodiesel production estimated by the Excel model.

4 Results

4.1 Ethanol

Table 2 shows the estimated economic contribution of ethanol production in Iowa. Activity at ethanol plants directly contributes nearly $1.2 billion in value added (GDP) and generates approximately $277.0 million in labor income across more than 2,100 jobs. Ethanol production has a broad and substantial impact on the Iowa economy. After accounting for industry purchases (indirect effects) and employee spending (induced effects), ethanol production supports nearly 30,000 jobs and generates $2.3 billion in labor income, $5.3 billion in value added, and $21.1 billion in output (sales) throughout the state.

Table 2. Economic Contribution of Iowa Ethanol Production

Economic Contribution of Iowa Ethanol Production				
Effect Type	Employment	Labor Income ($ Million)	Value Added ($ Million)	Output ($ Million)
Direct	2,112	$ 277.0	$ 1,172.8	$ 9,910.1
Indirect	20,767	$ 1,659.3	$ 3,354.2	$ 9,941.3
Induced	7,060	$ 390.2	$ 787.3	$ 1,298.2
Total	**29,939**	**$ 2,326.5**	**$ 5,314.3**	**$ 21,149.6**

Table 3 shows the industries within IMPLAN with the highest output (sales) sourced in Iowa ethanol production. The large total contribution of the ethanol industry in Iowa is primarily due to its substantial purchases of corn, electricity, natural gas, transportation, and more. These purchases have significant upstream effects, such as grain farmers purchasing agricultural chemicals, equipment, and support services.

Table 3. Top Industries Impacted by Ethanol Production

Top Industries Impacted by Iowa Ethanol Production		
Industry	Total Output ($ Million)	
Other basic organic chemical manufacturing	$	7,883.4
Grain farming	$	6,144.8
Wet corn milling	$	2,051.4
Wholesale - Other nondurable goods merchant wholesalers	$	477.6
Pesticide and other agricultural chemical manufacturing	$	430.2
Electric power transmission and distribution	$	335.0
Support activities for agriculture and forestry	$	312.3
Other real estate	$	229.7
Maintenance and repair construction of nonresidential structures	$	202.4
Truck transportation	$	154.4

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4.2 Biodiesel

The eight biodiesel plants in Iowa employ an estimated 241 workers making $15.8 million in labor income. These plants have direct sales of more than $1.0 billion. Direct value added is negative as a result of negative profits from biodiesel production in 2025. This negative direct value counts against total value added, resulting in a low total value added. However, total value added being positive shows that the overall contribution to state GDP was positive despite losses from biodiesel production at the plant level. In addition to the 241 jobs directly supported, biodiesel production is estimated to support an additional 957 jobs throughout the economy through its purchases of materials, energy, transportation, and services. After accounting for indirect and induced effects, the total contribution of biodiesel production to the Iowa economy is 1,198 jobs, $92.0 million in labor income, $67.2 million in value added, and nearly $1.5 billion in output (Table 4).

Table 4. Economic Contribution of Iowa Biodiesel Production

Economic Contribution of Iowa Biodiesel Production				
Effect Type	Employment	Labor Income ($ Million)	Value Added ($ Million)	Output ($ Million)
Direct	241	$ 15.8	$ (89.5)	$ 1,009.7
Indirect	679	$ 60.8	$ 125.6	$ 437.9
Induced	278	$ 15.4	$ 31.1	$ 51.3
Total	**1,198**	**$ 92.0**	**$ 67.2**	**$ 1,498.9**

Table 5 shows the industries within IMPLAN with the highest output derived from Iowa biodiesel production. Similar to ethanol production, industries that supply feedstock for biodiesel (such as oilseed farming and processing) are some of the most impacted industries along with transportation, maintenance, and energy industries.

Table 5. Top Industries Impacted by Iowa Biodiesel Production

Top Industries Impacted by Iowa Biodiesel Production		
Industry		Total Output ($ Million)
Other basic organic chemical manufacturing	$	1,011.1
Soybean and other oilseed processing	$	197.8
Oilseed farming	$	45.9
Wholesale - Other nondurable goods merchant wholesalers	$	38.0
Truck transportation	$	35.3
Electric power transmission and distribution	$	12.8
Maintenance and repair construction of nonresidential structures	$	10.8
Rail transportation	$	9.4
Owner-occupied housing	$	6.7
Wet corn milling	$	6.0

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