

Ethanol Movement in Iowa

Ethanol Production

Iowa farmers grow over 2.4 billion bushels of corn per year at a total value of \$9.1 billion, making corn more valuable to the state than all other agricultural commodities combined. Iowa consistently leads the nation in corn production. About 25 percent of all Iowa corn is used in ethanol plants, fuel processing facilities that have gained a greater portion of the total corn market in recent years. Iowa corn processors produce approximately 2 billion gallons of ethanol, and 7.6 million tons of its co-products, dried distillers grains (DDG) and wet distillers grains (WDG). Like corn production, Iowa leads the nation in ethanol processing.

Ethanol Transport

After production, about 60 percent of Iowa corn is shipped to local grain elevators, though 16 percent is hauled directly to ethanol plants. Approximately 50 percent of Iowa corn is shipped in semis, 25 percent by wagon, and 25 percent by truck, and farmers have shifted toward semis and away from wagon and truck in recent years. Those who use semis are afforded greater opportunities to ship directly to ethanol plants.

Local grain elevators ship a greater percentage of their corn (26 percent) to Iowa ethanol than to any other purchaser. Other destinations include Iowa feeders (23 percent) and processors (18 percent), out-of-state feeders (11 percent), direct export markets (11 percent), and river elevators (5 percent). Over 90 percent of the corn use in Iowa ethanol plants is from in-state sources, and it is hauled primarily by truck. The average truck haul distance from Iowa grain elevators to ethanol plants is 36 miles.

After processing, most ethanol and DDG sales are shipped to other states whereas WDG is primarily used in Iowa. Only 7 percent of ethanol is used in state and less than 2 percent is consumed internationally, meaning about 90 percent is sold to other states. About 60 percent of DDG is shipped to other states, and WDG is almost exclusively utilized in local Iowa feed lots (its moisture content makes it difficult to store and transport).

For in-state ethanol sales, truck is the primary mode of transport, with an average haul of 98 miles. For out-of-state ethanol transport, 60 percent use rail and 40 percent use truck. The average rail haul is 955 miles. Surrounding states are the main end user of Iowa ethanol, though 23 percent is sold to Western states—California, Arizona, Nevada, and Utah—and ten percent to the Northeast region.

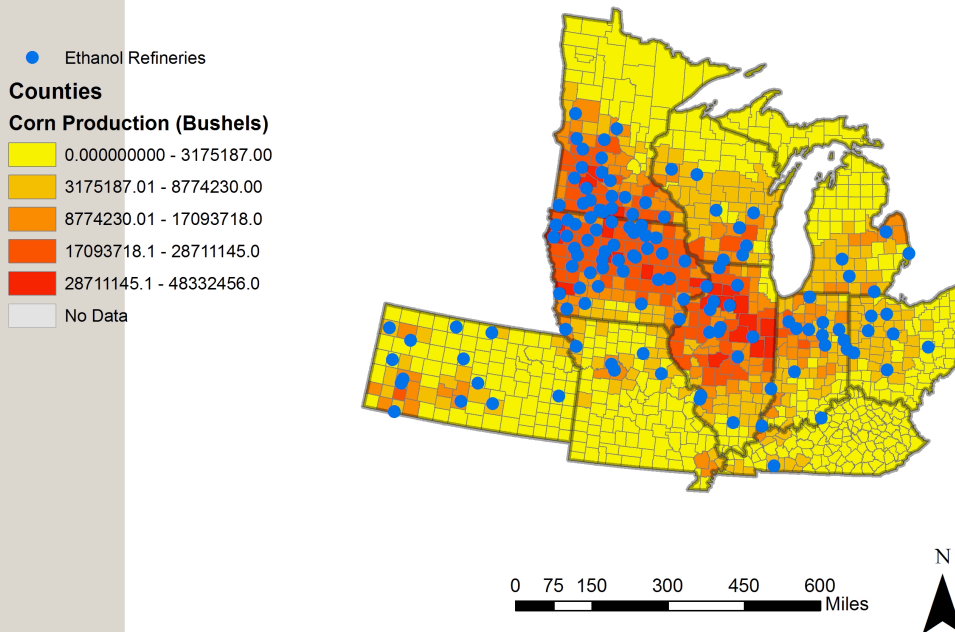
Ethanol Transport Issues

A recent survey of Iowa producers, grain elevator operators, and processors reveal ratings of both Iowa's infrastructure and general transportation hindrances (see attached sheets).

1. Unimproved gravel roads received the most negative evaluations across all three groups. About 29 percent of producers and 36 percent of country elevator operators rate gravel roads to be below average.
2. Interstates receive the most positive ratings, as a majority from all three groups judge interstate highways to be above average and excellent.

- Over 10 percent of producers and country elevators identified definite issues with road and bridge weight restrictions, elevator unloading times, rail access, rail reliability, and rail costs.

Corn Production and Ethanol Refineries



Sources

The 2007/08 Iowa Grain and Biofuel Flow Study: A Survey Report by Tun-Hsiang (Edward) Yu and Chad Hart, Iowa State University; USDA NASS; USDA ERS, Iowa State University Institute for Transportation.

Examples

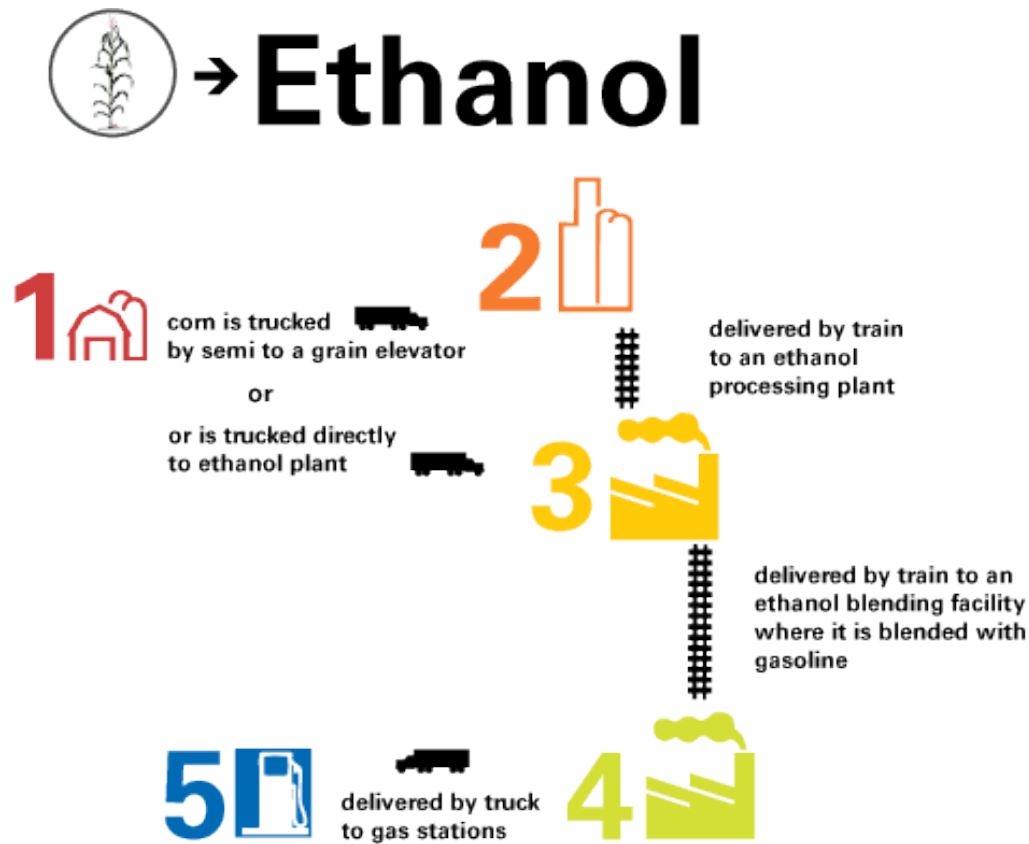


Table 5. Rating Iowa's freight infrastructure by grain marketers

Transportation system	Poor		Average			Excellent		N/A	No response
	1	2	3	4	5				
Rail lines	10%	10%	39%	17%	4%	9%	12%		
Interstates	1%	3%	29%	39%	12%	4%	11%		
Primary state highways	3%	10%	38%	33%	6%	1%	11%		
Paved county roads	5%	14%	37%	28%	5%	1%	10%		
Unimproved gravel roads	9%	20%	36%	20%	3%	1%	11%		
Waterways	6%	12%	27%	12%	2%	23%	17%		

Table 7. Rating hindrances to efficient grain marketing by grain marketers

Marketing hindrances	Not at all		Somewhat			Definitely		N/A	No Response
	1	2	3	4	5				
Grain hauling equipment size	39%	14%	23%	5%	6%	3%	11%		
Road weight restrictions	31%	13%	24%	9%	10%	3%	11%		
Bridge weight restrictions	29%	12%	20%	11%	13%	4%	11%		
Availability of seasonal labor	27%	14%	23%	12%	9%	5%	11%		
Lack of on-farm storage	25%	18%	26%	12%	8%	2%	11%		
Elevator storage capacity	32%	19%	19%	10%	5%	4%	11%		
Elevator unloading time	26%	17%	22%	11%	10%	4%	10%		
Distance to market	28%	22%	24%	9%	6%	1%	11%		
Trucking costs	14%	11%	26%	19%	16%	4%	11%		
Rail access	23%	13%	17%	10%	11%	15%	11%		
Rail service reliability	19%	11%	17%	12%	11%	18%	12%		
Rail service costs	16%	8%	17%	11%	13%	20%	14%		

Table 12. Rating Iowa's freight infrastructure by country elevators

Transportation system	Poor		Average		Excellent		N/A	No Response
	1	2	3	4	5			
Rail lines	4%	9%	33%	8%	0%	36%	11%	
Interstates	1%	2%	42%	41%	6%	4%	5%	
Primary state highways	2%	15%	48%	25%	6%	1%	3%	
Paved county roads	4%	22%	44%	24%	2%	1%	4%	
Unimproved gravel roads	10%	26%	46%	12%	1%	2%	5%	
Waterways	2%	6%	29%	7%	0%	43%	13%	

Table 14. Rating hindrances to efficient marketing by country elevators

Marketing hindrances	Not at all		Somewhat		Definitely		N/A	No Response
	1	2	3	4	5			
Road weight restrictions	21%	26%	29%	8%	10%	2%	4%	
Bridge weight restrictions	18%	18%	30%	14%	12%	5%	3%	
Availability of seasonal labor	10%	12%	25%	21%	26%	4%	2%	
Elevator storage capacity	7%	11%	30%	24%	21%	5%	3%	
Elevator unloading time	15%	27%	24%	15%	13%	4%	3%	
Trucking costs	4%	11%	24%	28%	28%	2%	3%	
Rail access	18%	17%	12%	5%	12%	33%	3%	
Rail service reliability	12%	7%	14%	9%	10%	44%	4%	
Rail service costs	13%	6%	10%	8%	15%	44%	4%	
Barge access	24%	7%	6%	4%	3%	52%	4%	
Barge service reliability	22%	7%	6%	3%	1%	58%	4%	
Barge service costs	16%	5%	8%	5%	4%	56%	5%	
Other hindrances	3%	1%	0%	0%	2%	26%	68%	

Table 16. Rating Iowa's freight infrastructure by corn processors

	Poor		Average		Excellent		N/A	No Response
	1	2	3	4	5			
Rail lines	0%	23%	38%	31%	0%	8%	0%	
Interstates	0%	8%	23%	38%	31%	0%	0%	
Primary state highways	0%	8%	54%	31%	8%	0%	0%	
Paved county roads	0%	15%	38%	46%	0%	0%	0%	
Unimproved gravel roads	0%	15%	54%	31%	0%	0%	0%	
Waterways	0%	0%	38%	8%	0%	54%	0%	

Table 18. Rating hindrances to efficient marketing by corn processors

	Not at all		Somewhat		Definitely		N/A	No Response
	1	2	3	4	5			
Road weight restrictions	8%	23%	46%	8%	15%	0%	0%	
Bridge weight restrictions	15%	8%	31%	8%	15%	23%	0%	
Storage capacity	8%	23%	15%	38%	15%	0%	0%	
Unloading time	31%	38%	15%	8%	8%	0%	0%	
Trucking costs	0%	31%	23%	31%	15%	0%	0%	
Rail access	23%	15%	23%	8%	23%	8%	0%	
Rail service reliability	15%	8%	23%	23%	23%	8%	0%	
Rail service costs	0%	15%	15%	15%	46%	8%	0%	
Barge access	23%	0%	0%	0%	15%	62%	0%	
Barge service reliability	15%	8%	0%	0%	15%	62%	0%	
Barge service costs	15%	8%	0%	0%	15%	62%	0%	

From The 2007/08 Iowa Grain and Biofuel Flow Study: A Survey Report by Tun-Hsiang (Edward) Yu and Chad Hart, Iowa State University