



Energy Self Assessment

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Step 3: Analysis

If you provided "Production and Energy Use" data, the table "Summary of Your Current Operation" is a comparison of your dryer to typical efficiencies recorded in university studies of grain dryers. The efficiency of grain dryers is reported as Btu per pound of water evaporated from the grain. The estimated baseline energy use and cost to dry the grain in an average year is listed in the lower part of the first table along with the total energy use in British Thermal Units (Btu's) and the estimated carbon dioxide (CO₂) emissions from combusting fuels to produce electricity and heat for drying.

The second table, "Energy and Cost Comparison Summary", summarizes the energy and cost savings of all dryer types known to be commercially available in North America. If the value in this table is positive, then using that dryer type with **all** energy efficiency options would be expected to result in lower energy costs. If the value is negative, then the dryer type is expected to use more energy than the dryer you've selected. [Click here](#) for a bar graph that illustrates a general comparison of all the dryer types without optional heat recovery or energy saving cooling processes.

Click on the dryer type in the summary table to display a detailed summary for each dryer. Each summary includes estimated differences in fuel consumption and the cost savings from the dryer options such as in-bin cooling, dryeration, heat recovery and stirring devices, if applicable. At the bottom of the table is the expected increase or decrease in carbon dioxide emissions, the principle greenhouse gas causing global warming.

Summary of Your Current Operation	Your dryer's efficiency is typical for its type.	
Dryer type Selected	Continuous Cross Flow Dryer	
Estimated efficiency of your dryer	2,929	Btu/#H2O
Typical efficiency for dryer type selected	2,800	Btu/#H2O
Energy Type		
Energy Use Based on Drying	25,000	bushels of corn
Water Removed	51,000	pounds
Propane	1,600	Gallons
Electricity	875	kWh
Average Annual Drying Cost	\$2,822	\$
Total Energy Use	149,387,755	Btu
Greenhouse Gas Emissions	21,712	lbs. / yr.

Energy and Cost Comparison Summary
For each dryer listed below, the savings indicated is for the dryer type configured with best possible energy efficiency measures.
Click on Dryer Name (below Dryer Type) for more detailed analysis.

Dryer Type	Potential Cost Savings	Potential Energy Savings (Btu)
Natural-Air Bin Dryer with stirring device	\$-6,144	88,187,755
Low-Temperature Bin Dryer with stirring device	\$-7,041	82,067,755
High Temperature Batch Bin Dryer with stirring device	\$1,066	56,440,255
Roof Batch Dryer with aeration	\$654	34,637,755
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$830	43,934,694
Cross-Flow Batch Dryer with dryeration	\$934	49,427,755
Mix-flow dryer with dryeration (full heat mode)	\$1,341	70,975,255
Continuous-Flow In-Bin Dryer with dryeration	\$1,088	57,587,755
Combination High/Low Temperature Drying	\$-167	88,187,755

[How can a dryer use more energy but save money?](#)

[What does a negative number mean?](#)

Natural-Air Bin Dryer		
Annual Energy Cost Savings		
Propane	1,600	Gallons
Electricity	-21,539	kWh
Energy Savings - Dryer Only	72,887,755	Btu
Percentage of Energy Savings	49%	%
Annual Potential Cost Savings	\$-8,385	\$
Optional Equipment/Process		
With Stirring Device	15,300,000	Btu
Cost Savings for Optional Equipment/Process	\$2,241	\$
Energy Savings		
Max. Total Energy Savings	88,187,755	Btu
Percentage of Energy Savings	59%	%
Total Estimated Cost Savings	\$-6,144	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-15,167	lbs.
Carbon Dioxide w/Energy Saving Options	-7,791	lbs.
Top		

Low-Temperature Bin Dryer		
Annual Energy Cost Savings		
Propane	1,600	Gallons
Electricity	-23,780	kWh

Energy Savings - Dryer Only	65,237,755	Btu
Percentage of Energy Savings	44%	%
Annual Potential Cost Savings	\$-9,506	\$
Optional Equipment/Process		
With Stirring Device	16,830,000	Btu
Cost Savings for Optional Equipment/Process	\$2,466	\$
Energy Savings		
Max. Total Energy Savings	82,067,755	Btu
Percentage of Energy Savings	55%	%
Total Estimated Cost Savings	\$-7,041	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-18,855	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-10,741	lbs.
Top		

High Temperature Batch Bin Dryer		
Annual Energy Cost Savings		
Propane	273	Gallons
Electricity	149	kWh
Energy Savings - Dryer Only	25,457,755	Btu
Percentage of Energy Savings	17%	%
Annual Potential Cost Savings	\$481	\$
Optional Equipment/Process		
With Stirring Device (Bin Dryer)	30,982,500	Btu
Cost Savings for Optional Equipment/Process	\$585	\$
Energy Savings		
Max Estimated Energy Savings	56,440,255	Btu
Max Percentage of Energy Savings	38%	%
Total Estimated Cost Savings	\$1,066	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,700	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	8,203	lbs.
Top		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	1,098	Gallons
Electricity	-3,607	kWh
Energy Savings - Dryer Only	88,187,755	Btu
Percentage of Energy Savings	59%	%
Annual Potential Cost Savings	\$-167	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	7,981	lbs.

Roof Batch Dryer

Annual Energy Cost Savings		
Propane	371	Gallons
Electricity	203	kWh
Energy Savings - Dryer Only	34,637,755	Btu
Percentage of Energy Savings	23%	%
Annual Potential Cost Savings	\$654	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	5,034	lbs.
Top		

Continuous Cross-Flow Dryer

Annual Energy Cost Savings		
Propane	71	Gallons
Electricity	39	kWh
Energy Savings - Dryer Only	6,587,755	Btu
Percentage of Energy Savings	4%	%
Annual Potential Cost Savings	\$124	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer).	22,408,163	Btu
With Dryeration (Full heat dryer).	37,346,939	Btu
With Heat Recovery (Heat/Cool dryer).	N/A	Btu
Cost Savings for Optional Equipment/Process	\$705	\$
Energy Savings		
Total Energy Saved	43,934,694	Btu
Percentage of Energy Savings	29%	%
Total Estimated Cost Savings	\$830	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	957	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	6,386	lbs.
Top		

Cross-Flow Batch Dryer

Annual Energy Cost Savings		
Propane	262	Gallons
Electricity	143	kWh
Energy Savings - Dryer Only	24,437,755	Btu
Percentage of Energy Savings	16%	%
Annual Potential Cost Savings	\$462	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer).	12,495,000	Btu

With Dryeration (Full heat dryer).	24,990,000	Btu
Cost Savings for Optional Equipment/Process	\$472	\$
Energy Savings		
Total Energy Saved	49,427,755	Btu
Percentage of Energy Savings	33%	%
Total Estimated Cost Savings	\$934	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,552	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	7,184	lbs.
Top		

Mixed-flow dryer		
Annual Energy Cost Savings		
Propane	480	Gallons
Electricity	263	kWh
Energy Savings - Dryer Only	44,837,755	Btu
Percentage of Energy Savings	30%	%
Annual Potential Cost Savings	\$847	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer).	15,682,500	Btu
With Dryeration (Full heat dryer).	26,137,500	Btu
Cost Savings for Optional Equipment/Process	\$494	\$
Energy Savings		
Total Energy Saved	70,975,255	Btu
Percentage of Energy Savings	48%	%
Total Estimated Cost Savings	\$1,341	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	6,517	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	10,316	lbs.
Top		

Continuous-Flow In-Bin Dryer		
Annual Energy Cost Savings		
Propane	508	Gallons
Electricity	278	kWh
Energy Savings - Dryer Only	47,387,755	Btu
Percentage of Energy Savings	32%	%
Annual Potential Cost Savings	\$895	\$
Optional Equipment/Process		
With Dryeration (Full heat dryer).	10,200,000	Btu
Cost Savings for Optional Equipment/Process	\$193	\$
Energy Savings		
Total Energy Saved	57,587,755	Btu

Percentage of Energy Savings	39%	%
Total Estimated Cost Savings	\$1,088	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	6,887	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	8,370	lbs.
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