



Energy Self Assessment

You are here: [Conservation Tools](#) | Grain Drying | Prequalify | Energy Use | **Step 3: Analysis**

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		
Dryer type Selected	Continuous Flow In-Bin Dryer	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	2,000	Btu/#H2O
Energy Type	Estimated Baseline energy usage	
Energy Use Based on Drying	125,000	bushels of corn
Water Removed	555,000	pounds
Propane	11,889	Gallons
Electricity	6,505	kWh
Average Annual Drying Cost	\$18,140	\$
Total Energy Use	1,110,000,000	Btu
Greenhouse Gas Emissions	161,330	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	\$-26,741	444,000,000
Low-Temperature Bin Dryer with stirring device	\$-31,229	377,400,000
High Temperature Batch Bin Dryer with stirring device	\$1,610	98,512,500
Roof Batch Dryer with aeration	\$-2,267	-138,750,000
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$-907	-55,500,000
Cross-Flow Batch Dryer with dryeration	\$363	22,200,000
Mix-flow dryer with dryeration (full heat mode)	\$4,195	256,687,500
Continuous-Flow In-Bin Dryer with dryeration	\$1,814	111,000,000
Combination High/Low Temperature Drying	\$-723	444,000,000

[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	11,889	Gallons
Electricity	-237,416	kWh
Energy Savings - Dryer Only	277,500,000	Btu
Percentage of Energy Savings	25%	%
Annual Potential Cost Savings	\$-37,962	\$
Optional Equipment/Process		
With Stirring Device	166,500,000	Btu
Cost Savings for Optional Equipment/Process	\$11,220	\$
Energy Savings		
Max. Total Energy Savings	444,000,000	Btu
Percentage of Energy Savings	40%	%
Total Estimated Cost Savings	\$-26,741	\$

<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-240,000	lbs.
Carbon Dioxide w/Energy Saving Options	-159,734	lbs.
Top		

<u>Low-Temperature Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	11,889	Gallons
Electricity	-261,808	kWh
Energy Savings - Dryer Only	194,250,000	Btu
Percentage of Energy Savings	18%	%
Annual Potential Cost Savings	\$-43,572	\$
Optional Equipment/Process		
<u>With Stirring Device</u>	183,150,000	Btu
Cost Savings for Optional Equipment/Process	\$12,342	\$
Energy Savings		
Max. Total Energy Savings	377,400,000	Btu
Percentage of Energy Savings	34%	%
Total Estimated Cost Savings	\$-31,229	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-280,133	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-191,840	lbs.
Top		

<u>High Temperature Batch Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	-2,556	Gallons
Electricity	-1,398	kWh
Energy Savings - Dryer Only	-238,650,000	Btu
Percentage of Energy Savings	-21%	%
Annual Potential Cost Savings	\$-3,900	\$
Optional Equipment/Process		
<u>With Stirring Device (Bin Dryer)</u>	337,162,500	Btu
Cost Savings for Optional Equipment/Process	\$5,510	\$
Energy Savings		
Max Estimated Energy Savings	98,512,500	Btu
Max Percentage of Energy Savings	9%	%
Total Estimated Cost Savings	\$1,610	\$

<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-34,686	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	14,318	lbs.
Top		

<u>Combination High/Low Temperature Drying</u>		
Annual Energy Cost Savings		
Propane	6,430	Gallons
Electricity	-42,280	kWh
Energy Savings - Dryer Only	444,000,000	Btu
Percentage of Energy Savings	40%	%
Annual Potential Cost Savings	\$-723	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	11,898	lbs.
Top		

<u>Roof Batch Dryer</u>		
Annual Energy Cost Savings		
Propane	-1,486	Gallons
Electricity	-813	kWh
Energy Savings - Dryer Only	-138,750,000	Btu
Percentage of Energy Savings	-12%	%
Annual Potential Cost Savings	\$-2,267	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-20,166	lbs.
Top		

<u>Continuous Cross-Flow Dryer</u>		
Annual Energy Cost Savings		
Propane	-4,755	Gallons
Electricity	-2,602	kWh
Energy Savings - Dryer Only	-444,000,000	Btu
Percentage of Energy Savings	-40%	%
Annual Potential Cost Savings	\$-7,256	\$
Optional Equipment/Process		
<u>With In-bin cooling (Full heat dryer)</u>	233,100,000	Btu
<u>With Dryeration (Full heat dryer)</u>	388,500,000	Btu
<u>With Heat Recovery (Heat/Cool dryer)</u>	233,100,000	Btu

Cost Savings for Optional Equipment/Process	\$6,349	\$
Energy Savings		
Total Energy Saved	-55,500,000	Btu
Percentage of Energy Savings	-5%	%
Total Estimated Cost Savings	\$-907	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-64,532	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-8,066	lbs.
Top		

<u>Cross-Flow Batch Dryer</u>		
Annual Energy Cost Savings		
Propane	-2,675	Gallons
Electricity	-1,464	kWh
Energy Savings - Dryer Only	-249,750,000	Btu
Percentage of Energy Savings	-22%	%
Annual Potential Cost Savings	\$-4,081	\$
Optional Equipment/Process		
<u>With In-bin cooling (Full heat dryer)</u>	135,975,000	Btu
<u>With Dryeration (Full heat dryer)</u>	271,950,000	Btu
Cost Savings for Optional Equipment/Process	\$4,444	\$
Energy Savings		
Total Energy Saved	22,200,000	Btu
Percentage of Energy Savings	2%	%
Total Estimated Cost Savings	\$363	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-36,299	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,227	lbs.
Top		

<u>Mixed-flow dryer</u>		
Annual Energy Cost Savings		
Propane	-297	Gallons
Electricity	-163	kWh
Energy Savings - Dryer Only	-27,750,000	Btu
Percentage of Energy Savings	-2%	%
Annual Potential Cost Savings	\$-453	\$
Optional Equipment/Process		

With In-bin cooling (Full heat dryer)	170,662,500	Btu
With Dryeration (Full heat dryer)	284,437,500	Btu
Cost Savings for Optional Equipment/Process	\$4,648	\$
Energy Savings		
Total Energy Saved	256,687,500	Btu
Percentage of Energy Savings	23%	%
Total Estimated Cost Savings	\$4,195	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-4,033	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	37,308	lbs.
Top		

Continuous-Flow In-Bin Dryer		
Annual Energy Cost Savings		
Propane		Gallons
Electricity		kWh
Energy Savings - Dryer Only		Btu
Percentage of Energy Savings	%	%
Annual Potential Cost Savings	\$	\$
Optional Equipment/Process		
With Dryeration (Full heat dryer)	111,000,000	Btu
Cost Savings for Optional Equipment/Process	\$1,814	\$
Energy Savings		
Total Energy Saved	111,000,000	Btu
Percentage of Energy Savings	10%	%
Total Estimated Cost Savings	\$1,814	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	16,133	lbs.
Top		