



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		
Dryer type Selected	Natural Air Bin Dryer	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	1,500	Btu/#H2O
Energy Type		
Estimated Baseline energy usage		
Energy Use Based on Drying	12,000	bushels of corn
Water Removed	41,760	pounds
Propane		Gallons
Electricity	18,353	kWh
Average Annual Drying Cost	\$3,671	\$
Total Energy Use	62,640,000	Btu
Greenhouse Gas Emissions	30,197	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	\$734	12,528,000
Low-Temperature Bin Dryer with stirring device	\$440	7,516,800
High Temperature Batch Bin Dryer with stirring device	\$1,992	-13,467,600
Roof Batch Dryer with aeration	\$1,598	-31,320,000
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$1,736	-25,056,000
Cross-Flow Batch Dryer with dryeration	\$1,865	-19,209,600
Mix-flow dryer with dryeration (full heat mode)	\$2,254	-1,566,000
Continuous-Flow In-Bin Dryer with dryeration	\$2,013	-12,528,000
Combination High/Low Temperature Drying	\$2,136	12,528,000

[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		Gallons
Electricity		kWh
Energy Savings - Dryer Only		Btu
Percentage of Energy Savings	%	%
Annual Potential Cost Savings	\$	\$
Optional Equipment/Process		
With Stirring Device	12,528,000	Btu
Cost Savings for Optional Equipment/Process	\$734	\$
Energy Savings		
Max. Total Energy Savings	12,528,000	Btu
Percentage of Energy Savings	20%	%
Total Estimated Cost Savings	\$734	\$

<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide w/Energy Saving Options	6,039	lbs.
Top		

<u>Low-Temperature Bin Dryer</u>		
Annual Energy Cost Savings		
Propane		Gallons
Electricity	-1,835	kWh
Energy Savings - Dryer Only	-6,264,000	Btu
Percentage of Energy Savings	-10%	%
Annual Potential Cost Savings	\$-367	\$
Optional Equipment/Process		
<u>With Stirring Device</u>	13,780,800	Btu
Cost Savings for Optional Equipment/Process	\$808	\$
Energy Savings		
Max. Total Energy Savings	7,516,800	Btu
Percentage of Energy Savings	12%	%
Total Estimated Cost Savings	\$440	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	-3,020	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,624	lbs.
Top		

<u>High Temperature Batch Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	-1,087	Gallons
Electricity	17,759	kWh
Energy Savings - Dryer Only	-38,836,800	Btu
Percentage of Energy Savings	-62%	%
Annual Potential Cost Savings	\$1,432	\$
Optional Equipment/Process		
<u>With Stirring Device (Bin Dryer)</u>	25,369,200	Btu
Cost Savings for Optional Equipment/Process	\$560	\$
Energy Savings		
Max Estimated Energy Savings	-13,467,600	Btu
Max Percentage of Energy Savings	-21%	%
Total Estimated Cost Savings	\$1,992	\$

Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	15,448	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	19,136	lbs.
Top		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	-411	Gallons
Electricity	14,683	kWh
Energy Savings - Dryer Only	12,528,000	Btu
Percentage of Energy Savings	20%	%
Annual Potential Cost Savings	\$2,136	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	18,954	lbs.
Top		

Roof Batch Dryer		
Annual Energy Cost Savings		
Propane	-1,006	Gallons
Electricity	17,803	kWh
Energy Savings - Dryer Only	-31,320,000	Btu
Percentage of Energy Savings	-50%	%
Annual Potential Cost Savings	\$1,598	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	16,541	lbs.
Top		

Continuous Cross-Flow Dryer		
Annual Energy Cost Savings		
Propane	-1,252	Gallons
Electricity	17,668	kWh
Energy Savings - Dryer Only	-54,288,000	Btu
Percentage of Energy Savings	-87%	%
Annual Potential Cost Savings	\$1,092	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	17,539,200	Btu
With Dryeration (Full heat dryer)	29,232,000	Btu
With Heat Recovery (Heat/Cool dryer)	17,539,200	Btu

Cost Savings for Optional Equipment/Process	\$645	\$
Energy Savings		
Total Energy Saved	-25,056,000	Btu
Percentage of Energy Savings	-40%	%
Total Estimated Cost Savings	\$1,736	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	13,203	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	17,451	lbs.
Top		

<u>Cross-Flow Batch Dryer</u>		
Annual Energy Cost Savings		
Propane	-1,096	Gallons
Electricity	17,754	kWh
Energy Savings - Dryer Only	-39,672,000	Btu
Percentage of Energy Savings	-63%	%
Annual Potential Cost Savings	\$1,414	\$
Optional Equipment/Process		
<u>With In-bin cooling (Full heat dryer)</u>	10,231,200	Btu
<u>With Dryeration (Full heat dryer)</u>	20,462,400	Btu
Cost Savings for Optional Equipment/Process	\$451	\$
Energy Savings		
Total Energy Saved	-19,209,600	Btu
Percentage of Energy Savings	-31%	%
Total Estimated Cost Savings	\$1,865	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	15,327	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	18,301	lbs.
Top		

<u>Mixed-flow dryer</u>		
Annual Energy Cost Savings		
Propane	-917	Gallons
Electricity	17,852	kWh
Energy Savings - Dryer Only	-22,968,000	Btu
Percentage of Energy Savings	-37%	%
Annual Potential Cost Savings	\$1,782	\$
Optional Equipment/Process		

With In-bin cooling (Full heat dryer)	12,841,200	Btu
With Dryeration (Full heat dryer)	21,402,000	Btu
Cost Savings for Optional Equipment/Process	\$472	\$
Energy Savings		
Total Energy Saved	-1,566,000	Btu
Percentage of Energy Savings	-2%	%
Total Estimated Cost Savings	\$2,254	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	17,755	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	20,866	lbs.
Top		

Continuous-Flow In-Bin Dryer		
Annual Energy Cost Savings		
Propane	-895	Gallons
Electricity	17,864	kWh
Energy Savings - Dryer Only	-20,880,000	Btu
Percentage of Energy Savings	-33%	%
Annual Potential Cost Savings	\$1,828	\$
Optional Equipment/Process		
With Dryeration (Full heat dryer)	8,352,000	Btu
Cost Savings for Optional Equipment/Process	\$184	\$
Energy Savings		
Total Energy Saved	-12,528,000	Btu
Percentage of Energy Savings	-20%	%
Total Estimated Cost Savings	\$2,013	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	18,058	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	19,272	lbs.
Top		