

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 efficiency is abnormally high based on research data for this type of dryer. Typical efficiency values will be used for calculations.	
Dryer type Selected	Natural Air Bin Dryer	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	1,200	Btu/#H2O
Energy Type	Estimated Baseline energy usage	
Energy Use Based on Drying	8,000	bushels of corn
Water Removed	10,880	pounds
Propane		Gallons
Electricity	3,060	kWh

Average Annual Drying Cost	\$31	\$
Total Energy Use	10,444,800	Btu
Greenhouse Gas Emissions	5,035	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	\$	
Low-Temperature Bin Dryer with stirring device	-\$11	-3,916,800
High Temperature Batch Bin Dryer with stirring device	\$27	-9,384,000
Roof Batch Dryer with aeration	\$27	-14,035,200
Continuous Cross-Flow Dryer with dryeration (full heat mode)	\$27	-12,403,200
Cross-Flow Batch Dryer with dryeration	\$27	-10,880,000
Mix-flow dryer with dryeration (full heat mode)	\$28	-6,283,200
Continuous-Flow In-Bin Dryer with dryeration	\$27	-9,139,200
Combination High/Low Temperature Drying	\$20	-2,611,200

[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		Btu
Cost Savings for Optional Equipment/Process	\$	\$
Energy Savings		
Max. Total Energy Savings		Btu
Percentage of Energy Savings	%	%
Total Estimated Cost Savings	\$	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide w/Energy Saving Options		lbs.
Top		

Low-Temperature Bin Dryer		
Annual Energy Cost Savings		
Propane		Gallons
Electricity	-1,148	kWh
Energy Savings - Dryer Only	-3,916,800	Btu
Percentage of Energy Savings	-38%	%
Annual Potential Cost Savings	\$-11	\$
Optional Equipment/Process		
With Stirring Device		Btu
Cost Savings for Optional Equipment/Process	\$	\$
Energy Savings		
Max. Total Energy Savings	-3,916,800	Btu
Percentage of Energy Savings	-38%	%
Total Estimated Cost Savings	\$-11	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	-1,888	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	-1,888	lbs.
Top		

High Temperature Batch Bin Dryer		
Annual Energy Cost Savings		
Propane	-283	Gallons
Electricity	2,905	kWh
Energy Savings - Dryer Only	-15,993,600	Btu
Percentage of Energy Savings	-153%	%
Annual Potential Cost Savings	\$26	\$
Optional Equipment/Process		

With Stirring Device (Bin Dryer)	6,609,600	Btu
Cost Savings for Optional Equipment/Process	\$1	\$
Energy Savings		
Max Estimated Energy Savings	-9,384,000	Btu
Max Percentage of Energy Savings	-90%	%
Total Estimated Cost Savings	\$27	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	1,193	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	2,153	lbs.
Top		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	-107	Gallons
Electricity	2,104	kWh
Energy Savings - Dryer Only	-2,611,200	Btu
Percentage of Energy Savings	-25%	%
Annual Potential Cost Savings	\$20	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	2,106	lbs.
Top		

Roof Batch Dryer		
Annual Energy Cost Savings		
Propane	-262	Gallons
Electricity	2,917	kWh
Energy Savings - Dryer Only	-14,035,200	Btu
Percentage of Energy Savings	-134%	%
Annual Potential Cost Savings	\$27	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	1,477	lbs.
Top		

Continuous Cross-Flow Dryer		
Annual Energy Cost Savings		
Propane	-326	Gallons
Electricity	2,882	kWh
Energy Savings - Dryer Only	-20,019,200	Btu

Percentage of Energy Savings	-192%	%
Annual Potential Cost Savings	\$26	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	4,569,600	Btu
With Dryeration (Full heat dryer)	7,616,000	Btu
With Heat Recovery (Heat/Cool dryer)	4,569,600	Btu
Cost Savings for Optional Equipment/Process	\$1	\$
Energy Savings		
Total Energy Saved	-12,403,200	Btu
Percentage of Energy Savings	-119%	%
Total Estimated Cost Savings	\$27	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	608	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	1,714	lbs.
Top		

Cross-Flow Batch Dryer		
Annual Energy Cost Savings		
Propane	-285	Gallons
Electricity	2,904	kWh
Energy Savings - Dryer Only	-16,211,200	Btu
Percentage of Energy Savings	-155%	%
Annual Potential Cost Savings	\$26	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	2,665,600	Btu
With Dryeration (Full heat dryer)	5,331,200	Btu
Cost Savings for Optional Equipment/Process	\$1	\$
Energy Savings		
Total Energy Saved	-10,880,000	Btu
Percentage of Energy Savings	-104%	%
Total Estimated Cost Savings	\$27	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	1,161	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	1,936	lbs.
Top		

Mixed-flow dryer		
Annual Energy Cost Savings		

Propane	-239	Gallons
Electricity	2,930	kWh
Energy Savings - Dryer Only	-11,859,200	Btu
Percentage of Energy Savings	-114%	%
Annual Potential Cost Savings	\$27	\$
Optional Equipment/Process		
<u>With In-bin cooling (Full heat dryer)</u>	3,345,600	Btu
<u>With Dryeration (Full heat dryer)</u>	5,576,000	Btu
Cost Savings for Optional Equipment/Process	\$1	\$
Energy Savings		
Total Energy Saved	-6,283,200	Btu
Percentage of Energy Savings	-60%	%
Total Estimated Cost Savings	\$28	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	1,793	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	2,604	lbs.
<u>Top</u>		

<u>Continuous-Flow In-Bin Dryer</u>		
Annual Energy Cost Savings		
Propane	-233	Gallons
Electricity	2,933	kWh
Energy Savings - Dryer Only	-11,315,200	Btu
Percentage of Energy Savings	-108%	%
Annual Potential Cost Savings	\$27	\$
Optional Equipment/Process		
<u>With Dryeration (Full heat dryer)</u>	2,176,000	Btu
Cost Savings for Optional Equipment/Process	\$	\$
Energy Savings		
Total Energy Saved	-9,139,200	Btu
Percentage of Energy Savings	-87%	%
Total Estimated Cost Savings	\$27	\$
<u>Greenhouse Gas Emissions Reduction</u>		
Carbon Dioxide - Dryer Only	1,873	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	2,189	lbs.
<u>Top</u>		