



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	Low-Temperature Bin Dryer	
Estimated efficiency of your dryer		Btu/#H2O
Typical efficiency for dryer type selected	1,650	Btu/#H2O
Energy Type		
Estimated Baseline energy usage		
Energy Use Based on Drying	5,000	bushels of corn
Water Removed	6,700	pounds
Propane		Gallons
Electricity	3,239	kWh
Average Annual Drying Cost	\$447	\$
Total Energy Use	11,055,000	Btu
Greenhouse Gas Emissions	5,329	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)
<u>Natural-Air Bin Dryer with stirring device</u>	\$122	3,015,000
<u>Low-Temperature Bin Dryer with stirring device</u>	\$89	2,211,000
<u>High Temperature Batch Bin Dryer with stirring device</u>	\$208	-1,155,750
<u>Roof Batch Dryer with aeration</u>	\$152	-4,020,000
<u>Continuous Cross-Flow Dryer with dryeration (full heat mode)</u>	\$172	-3,015,000
<u>Cross-Flow Batch Dryer with dryeration</u>	\$190	-2,077,000
<u>Mix-flow dryer with dryeration (full heat mode)</u>	\$246	753,750
<u>Continuous-Flow In-Bin Dryer with dryeration</u>	\$211	-1,005,000
<u>Combination High/Low Temperature Drying</u>	\$250	3,015,000

How can a dryer use more energy but save money?

What does a negative number mean?

<u>Natural-Air Bin Dryer</u>		
Annual Energy Cost Savings		
Propane		Gallons
Electricity	294	kWh
Energy Savings - Dryer Only	1,005,000	Btu
Percentage of Energy Savings	9%	%
Annual Potential Cost Savings	\$41	\$
Optional Equipment/Process		
<u>With Stirring Device</u>	2,010,000	Btu
Cost Savings for Optional Equipment/Process	\$81	\$
Energy Savings		
Max. Total Energy Savings	3,015,000	Btu
Percentage of Energy Savings	27%	%
Total Estimated Cost Savings	\$122	\$

Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	484	lbs.
Carbon Dioxide w/Energy Saving Options	1,453	lbs.
Top		

Low-Temperature 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		
<u>With Stirring Device</u>	2,211,000	Btu
Cost Savings for Optional Equipment/Process	\$89	\$
Energy Savings		
Max. Total Energy Savings	2,211,000	Btu
Percentage of Energy Savings	20%	%
Total Estimated Cost Savings	\$89	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only		lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	1,066	lbs.
Top		

High Temperature Batch Bin Dryer		
Annual Energy Cost Savings		
Propane	-174	Gallons
Electricity	3,144	kWh
Energy Savings - Dryer Only	-5,226,000	Btu
Percentage of Energy Savings	-47%	%
Annual Potential Cost Savings	\$129	\$
Optional Equipment/Process		
<u>With Stirring Device (Bin Dryer)</u>	4,070,250	Btu
Cost Savings for Optional Equipment/Process	\$80	\$
Energy Savings		
Max Estimated Energy Savings	-1,155,750	Btu
Max Percentage of Energy Savings	-10%	%
Total Estimated Cost Savings	\$208	\$

Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	2,963	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,555	lbs.
<u>Top</u>		

Combination High/Low Temperature Drying		
Annual Energy Cost Savings		
Propane	-66	Gallons
Electricity	2,650	kWh
Energy Savings - Dryer Only	3,015,000	Btu
Percentage of Energy Savings	27%	%
Annual Potential Cost Savings	\$250	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,525	lbs.
<u>Top</u>		

Roof Batch Dryer		
Annual Energy Cost Savings		
Propane	-161	Gallons
Electricity	3,151	kWh
Energy Savings - Dryer Only	-4,020,000	Btu
Percentage of Energy Savings	-36%	%
Annual Potential Cost Savings	\$152	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,138	lbs.
<u>Top</u>		

Continuous Cross-Flow Dryer		
Annual Energy Cost Savings		
Propane	-201	Gallons
Electricity	3,129	kWh
Energy Savings - Dryer Only	-7,705,000	Btu
Percentage of Energy Savings	-70%	%
Annual Potential Cost Savings	\$80	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	2,814,000	Btu
With Dryeration (Full heat dryer)	4,690,000	Btu
With Heat Recovery (Heat/Cool dryer)	2,814,000	Btu

Cost Savings for Optional Equipment/Process	\$92	\$
Energy Savings		
Total Energy Saved	-3,015,000	Btu
Percentage of Energy Savings	-27%	%
Total Estimated Cost Savings	\$172	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	2,603	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,284	lbs.
Top		

Cross-Flow Batch Dryer		
Annual Energy Cost Savings		
Propane	-176	Gallons
Electricity	3,143	kWh
Energy Savings - Dryer Only	-5,360,000	Btu
Percentage of Energy Savings	-48%	%
Annual Potential Cost Savings	\$126	\$
Optional Equipment/Process		
With In-bin cooling (Full heat dryer)	1,641,500	Btu
With Dryeration (Full heat dryer)	3,283,000	Btu
Cost Savings for Optional Equipment/Process	\$64	\$
Energy Savings		
Total Energy Saved	-2,077,000	Btu
Percentage of Energy Savings	-19%	%
Total Estimated Cost Savings	\$190	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	2,944	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,421	lbs.
Top		

Mixed-flow dryer		
Annual Energy Cost Savings		
Propane	-147	Gallons
Electricity	3,159	kWh
Energy Savings - Dryer Only	-2,680,000	Btu
Percentage of Energy Savings	-24%	%
Annual Potential Cost Savings	\$178	\$
Optional Equipment/Process		

With In-bin cooling (Full heat dryer)	2,060,250	Btu
With Dryeration (Full heat dryer)	3,433,750	Btu
Cost Savings for Optional Equipment/Process	\$67	\$
Energy Savings		
Total Energy Saved	753,750	Btu
Percentage of Energy Savings	7%	%
Total Estimated Cost Savings	\$246	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,333	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,832	lbs.
Top		

Continuous-Flow In-Bin Dryer		
Annual Energy Cost Savings		
Propane	-144	Gallons
Electricity	3,161	kWh
Energy Savings - Dryer Only	-2,345,000	Btu
Percentage of Energy Savings	-21%	%
Annual Potential Cost Savings	\$185	\$
Optional Equipment/Process		
With Dryeration (Full heat dryer)	1,340,000	Btu
Cost Savings for Optional Equipment/Process	\$26	\$
Energy Savings		
Total Energy Saved	-1,005,000	Btu
Percentage of Energy Savings	-9%	%
Total Estimated Cost Savings	\$211	\$
Greenhouse Gas Emissions Reduction		
Carbon Dioxide - Dryer Only	3,382	lbs.
Carbon Dioxide - Dryer w/Energy Saving Options	3,577	lbs.
Top		