

CEDAR MOUNTAIN FARMS

A Poultry Farm Case Study

Mathias Ag Program

Cedar Mountain Farms is a family-owned business operating 10 broiler houses in Snow Hill, Maryland. Having already invested in energy-efficient lighting on the farm, owners Sunwoo and Kyunghi Nam were intrigued by the potential for additional energy savings from installing LED bulbs. They also knew that upgrading insulation and ventilation would help increase the farm's productivity while saving energy.

To raise 940,500 birds, the Nams spend nearly \$100,000 each year on electricity and propane. The Kathleen A.P. Mathias Agriculture Energy Efficiency Program helped Cedar Mountain Farms quantify the savings opportunities from their planned improvements and provided funds to help implement those projects. Through the program, the Nams implemented the following measures, which reduced their overall energy use by 15%:

LED bulbs are dimmable and use only about 15% of the energy of incandescent bulbs. They also last much longer than any other current lighting option.



Energy efficient ventilation fans are more efficient than the old fans and offer significant energy savings.



Dropped ceiling insulation reduces heat loss and leads to significant energy savings.



Taken together, these energy efficiency upgrades will pay for themselves in about eight years, as shown in Table 1.

Table 1: Implemented Efficiency Measures and Associated Savings

Recommended Measure	Electric Savings (kWh)	Propane Savings (gal)	Estimated Annual Energy Cost Savings	Installed Cost	Estimated Payback in Years
Lighting Replace (840) 100-watt incandescent bulbs and (396) 23-watt compact fluorescent bulbs with (1,236) 10-watt dimmable LED bulbs. Install 1 LED specific dimmer per house.	66,782		\$6,844	\$40,290	5.9
Ventilation Fans Replace (18) ventilation fans with 1 HP fan motor with (18) new 3-phase, energy-efficient ventilation fans at 20,819 CFM, 24.5 CFM/watt, 0.1" static pressure, or better.	21,691		\$2,223	\$25,650	11.5
Ceiling Insulation Upgrade existing R-8 fiberglass blown insulation with R-19 insulation for a refreshed minimum R-value of R-27.		3,152	\$5,788	\$54,514	9.4
Totals	88,473	3,152	\$14,855	\$120,454	8.1

Cedar Mountain Farm completed its installation in April 2013, and the owners expect both energy savings and reduced bird mortality through better ventilation. "I am looking forward to tracking our new production level and comparing it to our previous numbers," said Kyunghi. "I'm hoping this information can be used to help other growers."

Indeed, the energy savings from this installation add to the farm's bottom line, as do the productivity benefits of the measures. In a poultry house, measures that better regulate the temperature of the birds can reduce bird deaths and provide better growth. By implementing similar upgrades, many other growers can benefit from the energy savings and productivity increase that Cedar Mountain Farms now enjoys.