HILLCREST NURSERY

A Nursery Case Study

Mathias Ag Program

Maryland Energy ADMINISTRATION
Powering Maryland's Future

Jim Hershfeld operates a nursery in Manchester, Maryland that has been providing wholesale plants to the horticulture industry for over 30 years. Hillcrest Nursery specializes in cell pack herbs and plants including annuals, perennials, herbs, vegetables and seasonals. With five acres of greenhouses to heat, light and ventilate, Jim knows that improving energy efficiency plays in important role in growing the business and adding to the bottom line.

Hillcrest Nursery spends about $158,000 each year on energy costs including electricity and propane. When Jim learned of a new grant opportunity through the Kathleen A.P. Mathias Agriculture Energy Efficiency Program to help install energy efficiency measures, he seized the chance to make the following improvements to his facility:

Induction lamp fixtures with dimming controls offer significant energy savings over older high pressure sodium lamps. With an estimated life of 100,000 hours, they also last more than six times longer, which provides additional operational and maintenance savings. The color characteristics of the new induction lamp fixtures are essential for the optimum growth of the plants.

High efficiency fan motors provide substantial energy savings over older ventilation fan motors. Removing the wiring of multiple fans to a single switch also enables better airflow control and reduced energy use.

Heating system upgrades included the replacement of suspended propane-fired unit heaters with a central boiler and radiant tube heating system. The new radiant heating piping system provides the optimum distribution of heat at the level of the plants.

While the heating system upgrade provides the greatest cost savings, as shown in Table 1, all three measures contribute substantially to the anticipated annual energy cost savings of $30,465. All measures also provide very attractive payback periods.

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 1,000 Watt Hydrofarm light fixtures with 420 Watt induction lamp fixtures with dimming controls.	85,410		$10,873	$58,018	5.3
Fan Motors Replace (29) ~ 1 HP ventilation fan motors with high efficiency motors.	34,294		$4,366	$25,989	6.0
Heating System Upgrade Replace suspended propane-fired unit heaters with a high efficiency central boiler and aluminum fin tube radiant heating piping system.		9,150	$15,226	$92,051	6.0
Totals	**119,704**	**9,150**	**$30,465**	**$176,058**	**5.8**

Jim had the equipment installed in February 2013 and won't miss the higher energy bills. "With the heating upgrade we'll be filling the propane tanks a few times less a year," he said.

Beyond the energy savings, the induction lights offer an added benefit. "From our testing, the plant growth has been superior underneath the induction lighting," Jim noted. Better plant growth means a healthier bottom line.

With just a six-year payback, the measures implemented at Hillcrest Nursery hold promise for other nursery operations looking for sustainability and cost savings.