WALNUT FARMER ACHIEVES IMPROVED EFFICIENCY, LOWER ENERGY COSTS WITH NEW IRRIGATION ENGINE

A PROPANE CASE STUDY

Eric Montemagni, a second-generation farmer, cares for 150 acres of English walnuts on his ranch in Visalia, California. Montemagni is always looking for ways to make his operation more cost-effective, so when he was looking for an affordable and reliable irrigation solution, he was pleased to find a propane option available. By choosing the propane-powered Origin 8.0-liter engine, he immediately reduced his energy expenses while improving efficiency and decreasing his environmental impact.

MAKING THE UPGRADE

Natural gas pipelines do not reach all of Montemagni's walnut ranches, so his other irrigation power options include diesel, propane, or electricity. Montemagni first went the electric route, using an 80-horsepower electric motor. At the beginning, this appeared to be the most affordable choice, since the electric motor cost less initially than other options.

Montemagni soon learned about the added costs of the electric motor. Every month, he had to pay a $300 demand charge to make the electricity available for his ranch. Montemagni also had to sacrifice his ability to vary the speed of the motor, or pay several thousand dollars in upgrades to add that feature.

COMPANY

Montemagni Farms
Visalia, Calif.

CHALLENGE & SOLUTION

Eric Montemagni needed an off-the-grid energy solution to power irrigation for his 150-acre walnut orchard. While an electric motor appeared attractive initially, the monthly expense of reserving electricity, and the inefficiency of the single-speed, 80-horsepower motor caused him to look for a better alternative. The propane-powered Origin 8.0-liter engine offered initial purchase incentives as well as impressive long-term savings while drastically improving efficiency.

RESULT

- Reduced monthly cost of operations compared with previous electric motor.
- Improved irrigation efficiency.
- Met and exceeded California's strict environmental regulations.

"I will easily expect to get 15 years of life from this Origin engine, and over time, propane will be more cost effective than electricity."

Eric Montemagni
Walnut Farmer

Looking for improved efficiency at a lower cost, he looked into the Propane Education & Research Council's Propane Farm Incentive Program, which offers purchase incentives for certain propane engines, in exchange for recording performance data.

IMMEDIATE RESULTS

Montemagni upgraded to an Origin 8.0-liter engine and saw an immediate payoff. Propane consistently costs less than his combined cost of fees plus electricity rates, and the propane engine is nearly maintenance free. "Compared to diesel or electricity, the calculated cost for using propane is much lower," Montemagni said. "I would highly recommend it as a cost-effective solution."

After switching to propane irrigation for the 2013 growing season, Montemagni saw his yearly irrigation costs fall by about 26 percent. He paid $7,230 in demand fees and electricity to run his electric motor irrigation system in 2012. The following growing season, he upgraded to propane-powered irrigation and his energy costs dropped to $5,342 for a similar period of operation.

The propane engine also offers improved performance because of its variable speed control, which allows him to adjust the speed of the drive and regulate the flow of water from the irrigation pump, providing greater efficiency for lower horsepower.

In addition to its lower cost and ease-of-use benefits, the engine's closed loop technology makes it incredibly fuel-efficient and clean-burning while also easily fulfilling California's strict air quality regulations. In fact, PERC research shows that engines fueled with American-made propane produce 11 percent fewer greenhouse gas emissions than equivalent diesel engines. In addition, oxides of nitrogen and hydrocarbon emissions for the Origin 8.0-liter tested at only 1/20th of the allowable EPA standard, at 0.136 grams per kWh.

LONG-TERM BENEFITS

Even more impressive than the immediate results are the long-term advantages of switching to propane. Montemagni says the Propane Farm Incentive Program helped reduce the initial cost of the new engine and he will quickly recoup his upfront costs through monthly energy savings. "I will easily expect to get 15 years of life from this Origin engine, and over time, propane will be more cost effective than electricity," he said.

FOR MORE INFORMATION

To learn more about propane-powered irrigation engines, the Propane Farm Incentive Program, and the Propane Education & Research Council, visit **propane.com/agriculture**.

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The Propane Education & Research Council was authorized by the U.S. Congress with the passage of Public Law 104-284, the Propane Education and Research Act (PERA), signed into law on October 11, 1996. The mission of the Propane Education & Research Council is to promote the safe, efficient use of odorized propane gas as a preferred energy source.

 7028-CS-14