



### AN EMISSIONS-COMPLIANT, COST-SAVING SOLUTION

New propane engines provide a robust solution for California growers grappling with strict emissions standards and rising energy costs.

All eight growers in the California demonstration program found that irrigating with propane offered several advantages over diesel and electric options. On average, program participants reduced fuel costs per hour by 48 percent, with an estimated total fuel savings of \$86,470.<sup>1</sup>

There are more than 30 models of propane-powered engines available in all 50 states, in a variety of sizes and horsepower ranges. The engines can also be outfitted with the latest telemetric technologies for remote monitoring and control via tablets and smartphones.

To help offset the upfront cost of new propane engines, PERC and the Western Propane Gas Association offer national and state incentive programs.

1. During the 2014 irrigation season in California when the demonstration was conducted, average propane prices were approximately \$1.40-\$1.50 and diesel was approximately \$3.50 per gallon.

#### FOR MORE INFORMATION

To learn more about eligible engines, explore producer testimonials, and to apply for incentive programs, visit [propane.com/agriculture](http://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.

## ENGINE PERFORMANCE IN RICE

MATTEOLI BROTHERS FARM / ROBBINS, CALIFORNIA

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Matteoli Brothers Farm in Robbins, California installed a 5.7-liter Power Solutions International engine from Husker Power Products. The PSI engine pumps water from a well, which feeds an underground pipeline used to flood rice canals. The engine pumps approximately 2,000 gallons of water per minute.

Since the installation of the PSI engine, grower Lance Matteoli is realizing a 59 percent savings in fuel costs, compared with a Tier 4, 6.7-liter diesel engine running nearby that is doing a similar job. In 2014, he paid \$11.17 per hour to irrigate with diesel, but paid only \$6.07 per hour to irrigate with propane.

Matteoli ran the propane-powered engine twenty-four hours a day, seven days a week during the growing season. Despite the hot and dry conditions, Matteoli didn't have to worry about the performance of the propane engine.

"The weather can get up to 100 degrees here, but the propane engine is performing well, despite the heat. It's running at about 170-180 degrees," Matteoli said. "I'm pretty happy with that. Our diesel engines typically run at 210 degrees, which can cause problems like overheating."

Matteoli was pleased to discover how reliable the engine was, and that it was easy to operate and maintain. His maintenance team performs an oil change every 300 hours. He would recommend propane engines to any grower seeking a cost-effective, sustainable irrigation solution.

"The savings we've seen on fuel, and overall lower cost of operation are the main reasons why we'd recommend propane engines to any grower," he said.

## ENGINE PERFORMANCE IN VEGETABLES

H&H FARMS / ARVIN, CALIFORNIA

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The growing season for H&H Farms of Arvin, California, lasts all year long. The specialty ag operation grows 1,500 acres of two crops every year, rotating between potatoes, carrots, alfalfa, garlic, and onions. California's climate also means year-round irrigation needs.

H&H Farms installed a 10.3-liter propane-powered Origin engine to replace a 5.9-liter Tier 1 Cummins diesel engine. The propane engine is a booster application, pumping water from a local water district reservoir. Depending on the time of year, the engine may run up to 18 hours per day, five to seven days a week.

Michael Harris had never used a propane engine before the Origin 10.3-liter was installed. Many of the farm's wells are powered by electric or diesel motors. With year-round irrigation, Harris reported reducing his fuel costs by over 30 percent by switching to propane. His energy costs declined from \$16.98 per hour for diesel to \$11.82 per hour with propane.

Another benefit Harris noted was the portability and reliability of the new engine.

"We have electric, but the service isn't very good out here," Harris said. "It's easier to deal with propane motors because I can move them to where I need them."

