



13750 S. Sedona Parkway, Ste 5
Lansing, MI 48906

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Contact: Jamie Wilson
Phone: (517) 668-2676

Corn-Powered Engines Growing More Corn

LANSING, MICH. – As talk around the nation continues to focus on the various alternative fuel sources for America’s more than 200 million cars, the Corn Marketing Program of Michigan (CMPM) has been focusing on alternative energy for another type of power; engines for irrigation wells. Though less than 15 percent of corn fields nation-wide are irrigated, farmers who do irrigate have few options for power. After extensive testing and evaluation, one solution to conventional gas- or diesel-powered generators has emerged; the AmeriFuels E100 ethanol engine.

Funded by research dollars from the CMPM and other state corn organizations, AmeriFuels, LLC, a Nebraska-based engine-development company, modified a General Motors industrial engine to run on pure ethanol. This engine has been in use as an 8.1 port fuel configuration since the spring of 2009. More than 50 E100 (100 percent ethanol) engines are currently in use with a logged usage of over 50,000 hours. Though the engines have a wide range of agricultural applications and have been used in a number of different agricultural settings, most are being used for irrigation water pumping. Well depths for these applications have ranged from 100 feet to more than 400 feet. Due to the varied well depths and pump sizes, the engine has been used over a wide range of power requirements.

“What better way could there be for a corn farmer to generate power for an irrigation well than ethanol? Corn is the major feedstock for all ethanol production here in the United States,” commented Clark Gerstacker, CMPM president and a corn farmer from Midland. “The corn that Michigan farmers grow each year can be used to produce a more environmentally-friendly fuel that can be utilized by that same farmer to grow more corn – it’s truly a full circle story. The CMPM is happy to work with innovators such as AmeriFuels, LLC who not only increase the uses and markets for corn, but also help us to become even better stewards of the land by allowing us to use a cleaner-burning fuel while lessening our dependence on foreign oil.”

The ethanol engine work of AmeriFuels, LLC has created a significant level of awareness regarding ethanol-powered engines. Numerous people have seen the projects at trade shows, farm progress shows and in use on farms across the country. These projects have demonstrated that E100 is a very viable fuel that produces power levels commensurate with gasoline when the engine packages are optimized for ethanol as their primary fuel. Engines that are optimized to run on gasoline, such as traditional flex-fuel automobiles, naturally favor gasoline for maximum power output. Thus most E85 (85 percent ethanol/ 15 percent gasoline) engines don’t show the true power potential of ethanol. When engines are optimized to run on E100, such as the AmeriFuels E100 ethanol engine, the power output is very near that of gasoline.

“We are very grateful for the work that AmeriFuels has done to show the true possibilities available with ethanol-optimized engines,” continued Gerstacker. “Flex-fuel engines are often criticized for their lower fuel economy. However, most consumers do not realize that although these engines can be run on E85, they are not designed to run their best on E85. Through the E100 ethanol engine project,

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consumers can now see how efficient ethanol-powered vehicles can be when compared with traditional vehicles. Ethanol powered engines have a great potential and the possibilities for this technology are endless; we are so excited that Michigan corn growers were a part of it.”

Though the current primary use for the E100 engine is irrigation pumps, AmeriFuels is currently seeking additional applications for this engine package, which has been equipped with a number of features that allow the user significant latitude of control. Some of the units have been outfitted with a control system strategy that allows for the use of dual fuels. The unit senses the fuel type and electronically controls engine operation commensurate with the fuel available at the time of use. It appears that outfitting the engine for auxiliary power generation may be an important additional use.

For more information on this or other CMPM sponsored projects, please contact the CMPM office at 1.888.323.6601 or visit us online at www.micorn.org.

Headquartered in Lansing, the CMPM is a legislatively-established statewide program that utilizes one-cent per bushel of Michigan corn sold. Investments are made in the areas of research, education, market development, and new uses in an effort to enhance the economic position of Michigan corn farmers. The CMPM works cooperatively with the Michigan Corn Growers Association (MCGA), a grassroots-membership association representing the state’s corn grower’s political interests since the 1970’s. Michigan’s corn industry adds more than one billion dollars to the state’s economy annually and in 2010, Michigan’s corn farmers harvested a record setting crop of more than 315 million bushels. For more information, visit the website of the MCGA and the CMPM at www.micorn.org.

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