PROPANE: FARM FUEL OF THE FUTURE

Because propane farm equipment is EPA- and CARB-certified, built from the ground up to run on propane, and operates on an independent system to avoid grid-related power interruptions or gas line fluctuations, it is a convenient solution to meet environmental regulations and gain control over your farm.

As an increasing number of farm applications and new generation, innovative propane-powered equipment becomes available, propane is becoming the go-to fuel to power your entire farm.

FOR MORE INFORMATION

To learn more about propane and propane for agricultural operations, please visit **propane.com**. To learn more about the variety of propane-powered farm equipment available and view video testimonials, visit **propanecandothat.com**.

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.

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 7118-CS-18

PROPANE
CLEAN AMERICAN ENERGY®

A HIGHLY EFFICIENT, COST-EFFECTIVE WAY TO POWER YOUR FARM?

PROPANE CAN DO THAT.

PROPANE IN AGRICULTURE CASE STUDY

AGRICU

PROPANE IS A POWERFUL, reliable, clean, and cost-effective solution for powering a variety of farm applications, including irrigation engines, grain dryers, building heat, forklifts, power generators, flame weeding systems, vehicles, and more.

PROPANE SNAPSHOT

A quick glance at the propane ag market.

80% OF PRODUCERS CHOOSE PROPANE

TO REPLACE THEIR EXISTING CROP DRYER

PROPANE IRRIGATION ENGINES REDUCE GREENHOUSE GAS EMISSIONS

11% FEWER THAN DIESEL

24% FEWER THAN GASOLINE

50% REDUCED ENERGY COSTS

PER HOUR THAN PREVIOUSLY OWNED DIESEL ENGINES*

PROPANE IN AGRICULTURE: A CASE STUDY

COMPANIES

Shenandoah Dairy
Live Oak, FL

Maple Lane Farms
Marietta, NY

Swift Greenhouses
Gilman, IA

Renze Display
Omaha, NE

Newman Farms
Sumter, SC

CHALLENGE & SOLUTION

Farmers must rely on a variety of equipment to operate their farms, requiring the use of power or fuel. Propane is a clean, American-made fuel that conveniently meets increasing emissions standards while remaining powerful, effective, and cost-efficient. An increasing number of new generation propane-powered equipment is now available, allowing farmers to rely on propane as their go-to fuel source to power their farms.

RESULTS

- Today's propane grain dryers use up to 50 percent less thermal energy to do the same job as previous generations of dryers.
- Propane heaters produce flexibility in both the type and capacity of available equipment — up to 1 million Btu/h — which makes them a superior solution for livestock, poultry, and greenhouse heating.
- Propane heating systems maintain precise room temperatures within 0.5 degrees Fahrenheit of the desired temperature.
- Propane generators are able to provide power within 10 seconds of a power outage, eliminating the risks of power loss to farm operations.
- PERC field studies show propane flame weeding is between 80-90 percent effective when applied to row crops twice during the season — equally as effective as traditional herbicides.

**Results from the 2014 Propane Farm Incentive Program.*

IRRIGATION ENGINES

Propane-powered irrigation engines include the latest technological advancements and features, making them a great choice for farming operations. These high-performing engines can provide up to 300 horsepower of continuous power.

Propane irrigation engines produce significantly less emissions, allowing producers to easily meet Tier 4 emissions standards requirements without the need for complex engines with expensive diesel exhaust fluid and filters. Farmers who switch to propane irrigation engines cut costs on original purchase price as well as fuel, operation, and maintenance costs.

SHENANDOAH DAIRY

LIVE OAK, FLORIDA

Established in 1987, Shenandoah Dairy is a large, family-owned farm and dairy operation in Live Oak, Florida. The company milks approximately 3,300 cows annually and grows more than half of the cows' feed on-site with corn, sorghum, oats, and ryegrass forages. It currently keeps 2,000 acres under irrigation year-round and harvests, stores, and feeds 45,000 tons of crops annually.

After upgrading the majority of its 23-pivot irrigation systems to Tier 3 diesel engines or electric motors, the company experienced performance issues and electronic problems that adversely impacted the farm's bottom line and emissions goals.

"I was spending more time driving out to check [the engines] to see if they were working, or driving around to get parts when they break, burning more fuel and producing more carbon emissions than before," said Ted Henderson, vice president of Shenandoah Dairy.

"PROPANE ALREADY BURNS CLEAN AND MEETS ALL THE SPECIFICATIONS. THERE WAS NOTHING TO DO WITH IT OTHER THAN GET IT THERE AND GET IT INTO PLACE."

TED HENDERSON,
VICE PRESIDENT, SHENANDOAH DAIRY

After discussing options with Todd Lawrence, general manager with the local farm supply outlet, Farmers Cooperative, he decided to purchase a Ford 6.8-liter, propane-powered irrigation engine from Engine Distributors, Inc. (EDI).

"I thought it would be hard to make the conversion to propane, but they knew everything about what I was trying to do," Henderson said. "Propane already burns clean and meets all the specifications. There was nothing to do with it other than get it there and get it into place."

The engine's purchase price was $6,000 less than the same Tier 3-compliant diesel model and the company also received an incentive through PERC's Propane Farm Incentive Program. Henderson estimates Shenandoah will save about $10,000 a year by using propane compared with diesel.

FROM 2008 TO 2015

25% MORE U.S. FARMS

ADDED PROPANE IRRIGATION ENGINES

CROP DRYERS

Producers have made propane their number one choice for crop drying; in fact, more than 80 percent of crop dryers run on propane. With a higher Btu than natural gas and reliable on-site fuel storage, propane-powered crop dryers result in fewer shutdowns, smaller and more economical gas controls, and the ability to avoid contamination.

TODAY'S PROPANE CROP DRYERS USE UP TO

50% LESS THERMAL ENERGY

TO DO THE SAME JOB AS PREVIOUS GENERATIONS OF DRYERS

MAPLE LANE FARMS

MARIETTA, NEW YORK

Established in the 1920s, Maple Lane Farms in Marietta, N.Y., has grown from a small, 100-acre farm to a 1,000-acre family-owned business. The farm includes 450 dairy cows and produces corn, soybeans, wheat, and hay.

Today, Tim, Charlie, Ed, and Karen Leubner — grandchildren of the farm's original owners — oversee day-to-day operations. In 2013, they replaced an older model of Mathews Company (M-C), purchased in 1980, with a new M-C crop dryer with enhanced efficiency and features — including the ability to measure incoming and discharged grain moisture, more accurate and reliable moisture control, and vacuum cooling. At the end of its first year in use, the Leubners cut overall drying costs by 38 percent per bushel.

"The new dryer always puts corn out at the same moisture," Leubner said. "With it being so consistent and accurate, we are able to start harvesting earlier and get better grain quality."

"THE NEW DRYER ALWAYS PUTS CORN OUT AT THE SAME MOISTURE. WITH IT BEING SO CONSISTENT AND ACCURATE, WE ARE ABLE TO START HARVESTING EARLIER AND GET BETTER GRAIN QUALITY."

TIM LEUBNER, MAPLE LANE FARMS

BUILDING HEAT

Propane-powered ag heating is a convenient solution to the consistent, comfortable temperatures and clean air required by livestock, poultry, and greenhouse plants. Propane provides more even, precise heat, is cost-effective, and is a cleaner, non-toxic fuel that doesn't contaminate ground water or soil — making it safe to use around animals and plants.

The precise and consistent heat only available through propane-powered heating systems makes it the optimal choice to maintain animal health and help plants flourish.

SWIFT GREENHOUSES
GILMAN, IOWA

Swift Greenhouses operates two 30,000-gallon tanks on its 4.5-acre operation as well as propane-powered boilers, which heat water that is pumped through coils in the concrete floor creating radiant heat throughout the room. Temperature sensors check the air around the coils, ensuring plants are at an ideal temperature for each stage of growth.

Swift Greenhouses grows roughly 1,300 varieties of perennials and herbs, requiring a diverse range of optimal temperatures for each type of plant and its specific stage of growth. Ideal temperatures also vary by time of day, another capability of easily-controlled, precise propane heating equipment.

PROPANE HEATING SYSTEMS MAINTAIN PRECISE ROOM TEMPERATURES

WITHIN 0.5° F

OF THE DESIRED TEMPERATURE

FORKLIFTS

Propane can efficiently power any size of forklift, from light duty forklifts with less than 5,000 lbs capacity to 10,000 lbs capacity heavy-lifters. With its low emissions, propane forklifts are able to operate both indoors and outdoors, unlike its diesel counterparts. In addition, propane forklifts do not require lengthy recharging periods, and the power and lifting capacity does not diminish with battery usage, as is the case with electric forklifts.

RENZE DISPLAY
OMAHA, NEBRASKA

Renze display uses propane forklifts to move giant exhibits and trade show displays around its warehouse and to load and unload its trucks. After purchasing electric forklifts in 2001 and 2004, the company switched to propane forklifts for increased reliability, which is critical to meet the companies quick turnaround requirements when working with up to 100 clients daily.

> **"ELECTRIC FORKLIFTS WERE NOT A GOOD FIT FOR US. THERE'S A LOT MORE POWER AND A LOT MORE LIFT CAPACITY TO WHERE WE DON'T HAVE TO WORRY ABOUT TIPPING OVER A FORKLIFT."**
>
> BRYAN MEUSCH,
> SENIOR EXHIBIT MANAGER
> RENZE DISPLAY

"Electric forklifts were not a good fit for us," said Bryan Meusch, senior exhibit manager at Renze Display. With propane forklifts, "there's a lot more power and a lot more lift capacity to where we don't have to worry about tipping over a forklift."

Because the forklifts primarily operate indoors, diesel forklifts and their accompanying fumes were never an option for a clean work environment. Propane also fits well with Renze's goals to be environmentally responsible, functioning on a closed-loop fuel system requiring no additional demands from the Environmental Protection Agency for contamination or clean-up.

POWER GENERATORS

Propane generators provide clean, efficient, reliable prime or backup power anywhere it is needed on your operation, independent of the power grid. Not only does this ensure power with no location limitations, it adds control and ensures your operation continues to run smoothly even during a power outage. Because propane does not degrade over time, it is also always ready to go when you need it, making it the perfect fuel for standby generators.

PROPANE GENERATORS ARE ABLE TO PROVIDE POWER WITHIN

10 SECONDS

OF A POWER OUTAGE, ELIMINATING THE RISKS OF POWER LOSS TO FARM OPERATIONS.

VEHICLES

Propane is an alternative fuel for an operation's trucks that can lower cost of ownership while reducing emissions. Powerful, clean, and economical, propane vehicles reduce fuel costs while eliminating additional fluids and pricey particulate filters required by diesel engines.

The cost of wholesale propane falls between the price of oil and natural gas, making it consistently less expensive than diesel as fuel prices fluctuate. Propane engines also do not require anti-gels to prevent clogging of fuel filters and lines necessary for diesel vehicles in cold temperatures. With propane autogas, you can also avoid diesel particulate filters necessary to meet emissions requirements and skip the downtime typical for diesel engine repairs and maintenance. Propane autogas vehicles also operate quieter than diesel models without sacrificing horsepower, torque, and towing capacity.

FLAME WEEDING

Propane flame weeding systems are a 100 percent organic solution for weed control that works in multiple growth stages and eliminates the need for herbicides. Instead, propane flame weeding systems remove weeds by using short jets of flame between the rows. The intense, focused heat bursts plant cells, causing weeds to wither and die without harming crops. And unlike chemical herbicides, there's no resistance to flame weeding, allowing farmers to return to fields almost immediately. Propane flame weeding also allows farmers to avoid expensive, non-selective chemicals or costly, labor-intensive hand weeding.

"IT WAS HARD TO BELIEVE A PROPANE WEED FLAMER COULD REALLY REMOVE WEEDS IN THE WAY I REQUIRED, BUT I WAS QUICKLY AMAZED AT ITS CAPABILITIES. WHEN SET UP PROPERLY, IT WILL KILL 100 PERCENT OF WEEDS."

LEE NEWMAN, OWNER OF NEWMAN FARMS

NEWMAN FARMS

SUMTER, SOUTH CAROLINA

Lee Newman, owner of Newman Farms near Sumter, South Carolina, is constantly analyzing and searching for the most effective, cost-efficient means of running his organic farm — which includes organic tobacco, corn, soybeans, wheat, and cotton. Because his products are certified organic, all farming techniques must be meticulously evaluated.

"Controlling weeds in an organic environment where you can't use any herbicide is a challenge tobacco farmers have struggled with for years," said Newman. "It was hard to believe a propane weed flamer could really remove weeds in the way I required, but I was quickly amazed at its capabilities. When set up properly, it will kill 100 percent of weeds."

Before flame weeding, Newman Farms would remove weeds by hand, which was three to four times as expensive when compared to running the propane system. With a lower carbon content than gasoline and diesel, clean propane is also nontoxic and insoluble in water — making it safe in contact with aquifers, streams, and soil.

"I have been amazed with the system's capabilities," said Newman. "Even tobacco farmers who are not certified organic are experiencing benefits from using this method."