



CAN **GAS** REMAIN **KING?**

Commercial cutters are warming to the **COST SAVINGS** and environmental benefits offered by **ALTERNATIVE FUELS**

BY **RON HALL** EDITOR-AT-LARGE

Tall and outgoing, Eric Hansen's youthful enthusiasm keeps him investigating better ways to serve his landscape clients.

While his tightly run, 30-person Competitive Lawn Services is best known in the Chicago suburb of Downers Grove for providing reliable service the past 28 years, the past three years he's been moving it in a "greener" direction. He uses propane-powered mowers and handheld equipment, which he is field testing. His service trucks, including a propane-fueled Roush Ford F-350, proclaim "Green Propane Power."

He sees four benefits to propane versus gasoline: 1.) propane mowers emit a smaller amount of harmful exhaust emissions, 2.) it burns cleaner and with less carbon and he saves money with fewer oil changes and reduced maintenance costs, 3.) his units are quieter, and 4.) it's less expensive. Usually.

"Landscape companies should be looking for green initiatives that they can adopt. Using propane is something that we can do," says Hansen.

Propane (also known as LP gas or LPG)

is one of several alternative fuels now being used in mowers. Others include biodiesel, compressed natural gas (CNG) and ethanol.

Their use within the industry is growing, but it's not clear by how much.

The Outdoor Power Equipment Institute (OPEI), whose members include most mower and engine manufacturers, doesn't track the shipment of mowers manufactured or converted to use these fuels. It does track annual mower shipments as a whole, and more than 90% of the 131,798 new 2010 commercial units are powered by either gasoline or petroleum diesel, the vast majority by gasoline.

"The air-cooled gasoline products for the professional mowing industry represent good technology. The life of the engines match fairly well the rest of the components on the products," says Mark Pavcik, product line manager for John Deere's professional mowing equipment. "Contractors get good value during the life of their machines, and they're good at keeping records, so they're always moving up or trading out their machines."

Pavcik wouldn't get an argument from the >>>

COVER STORY

thousands of commercial cutters who have built their businesses on gas and diesel-powered units.

Hansen admits he's ahead of the curve in his choice of fuel, but he's pretty sure he's on the right track.

"Commercial properties and larger corporations are demanding green from the top down and some are requesting that alternative fuels be used on their facilities," he says.

Boosting development of these new fuel choices for mowers and other maintenance equipment are the U.S. EPA and the California Air Resources Board (CARB), which are pushing lawn and garden engine manufacturers to reduce exhaust and evaporative emissions.

Cost savings

But the biggest attraction, at least for end users, is probably cost. While labor is the biggest *continued on page 18*

ALTERNATIVE FUELS AT A GLANCE

» **Biodiesel** is a domestic, renewable fuel for diesel engines derived from natural oils like soybean oil. Biodiesel can be used with petroleum-based diesel fuel in existing diesel engines with little or no modification. Biodiesel is not the same thing as raw vegetable oil.

» **Compressed natural gas (CNG)** is made by compressing natural gas to less than 1% of the volume it occupies at standard atmospheric pressure. It's stored and distributed in hard containers at a pressure of 2,900 to 3,600 psi. CNG is used in traditional gasoline engines. CNG produces significantly fewer emissions of pollutants like carbon dioxide, hydrocarbons, carbon monoxide, nitrogen oxides, sulfur oxides and particulate matter, as compared to gasoline.

» **Ethanol fuel (ethyl alcohol)**, the same type of alcohol found in alcoholic beverages, is often used as a biofuel additive for gasoline. Most ethanol in the U.S. is produced from corn. Ethanol contains approximately 34% less energy per unit volume than gasoline.

Alternative fuels are considered "greener."



» **Propane (LP gas or LPG)** is normally a gas, but compressible to a transportable liquid. It is derived from other petroleum products during oil or natural gas processing.

A mixture of propane and butane, used mainly as vehicle fuel, is commonly known as liquefied petroleum gas (LPG or LP gas). An odorant is added so that people can easily smell the gas in case of a leak. About 90% of U.S. propane is domestically produced, most of it in Texas.

PHOTO ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.



We are actively seeking Landscaping Professionals to sell, install and service our innovative outdoor misting systems that effectively control mosquitoes and other annoying insects.

Great margins and recurring revenues!

Is this how your clients are enjoying their new landscaping?

1-866-485-7255
WWW.MISTAWAY.COM



BECOME A MISTAWAY DEALER TODAY!



continued from page 16

expense of delivering service, the cost of fuel and equipment are significant, fuel being the most unpredictable. By not making every gallon of fuel work as efficiently as possible, owners forfeit dollars out the exhaust of their mowers. This is true regardless of energy source. The memory of \$4.50 a gallon gasoline

and hated fuel surcharges three seasons ago lingers in owners' minds.

And, yes, alternative fuels offer the possibility of measurable savings.

For example, as this article was being prepared in mid-summer, Ferrell Gas in northern Ohio quoted a price of \$1.88 per gallon of propane for, say, a one-person mowing operation. Because of

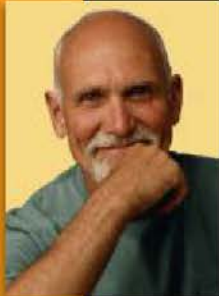
the modest amount of propane purchased, the company charges for pickup and delivery of the 33.5-lb. cylinders. However, a landscape operation using, for example, 200 gallons of fuel a week could expect to pay \$1.63 per gallon. This includes free, twice-weekly pickup and delivery by the supplier. Compare this to \$2.79 per gallon of gasoline in the same region.

Be advised, however, propane prices can be volatile because supply is affected more dramatically by weather and production issues than either gasoline or diesel. Even so, because propane is used for winter home heating, the price falls about the time that spring mowing season begins. About 90% of the propane used in the U.S. is produced

continued on page 20

25th
ANNIVERSARY

Doing one thing well for a quarter century.



People see the commitment it takes to *only* focus on **specification-grade architectural and landscape luminaries.**

They appreciate that each fixture, transformer and accessory is **designed and manufactured in the United States.** People rely on the

insightful engineering, the technical support and the hands-on training.

People value doing business with a company that's been **doing one thing well for 25 years.** It's the trust and confidence. The pride, when the lights go on.



**VISTA
PROFESSIONAL
OUTDOOR
LIGHTING**

Do one thing today. Call **800-766-VISTA** or visit **www.vistapro.com**

10 COSTLY FUEL WASTERS

1. Failing to keep mower blades sharp, tune mowers or change filters at proper intervals.

2. Cutting in extremely hot conditions.

3. Mowing the same areas of a property twice (overlapping).

4. Operating a mower when it is not cutting grass (e.g. turning, going from one jobsite to another, etc.)

5. Failing to clean accumulated grass from under a rotary deck.

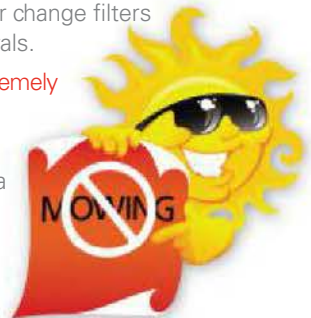
6. Inefficient or unskilled operator.

7. Cutting under loads or cutting wet or very high grass, can reduce fuel efficiency by more than 30%.

8. Mulching decks use more fuel than decks that discharge grass.

9. Mowers with hydrostatic drive use more fuel than belt-driven units.

10. Using bigger mowers than warranted on properties. Heavier mowers typically use more fuel than lighter-weight units.



COVER STORY



Biodiesel figures larger into the fuel mix for diesel mowers.

continued from page 18

domestically — 75% of that in Texas from natural gas and crude oil refining.

“It’s amazing how far LP gas has progressed since 2005 as far as availability,” says Warren Evans of Dixie Chopper, the Coatesville, IN-manufacturer that started selling propane-powered

mowers in 2006.

Evans, in a spring roundtable sponsored by the Propane Education & Research Council, listed these advantages of propane versus gasoline:

- › less carbon in the fuel
- › fewer oil changes
- › less engine wear

- › better fuel stability
- › no chance of fuel contamination
- › no fuel spillage
- › less chance of fuel theft
- › easy to store

Evans says that Dixie Chopper has been running propane-powered vehicles for three decades.

“When I got my drivers license in 1981 the first vehicle I learned how to drive was a shop truck powered by propane,” he says.

At least 10 manufacturers now offer mowers with engines that operate on propane. And there’s a growing market for conversions from gasoline to propane power, as well.

Getting started

For his part, Chicagoland’s Hansen is taking it one step at a time. In 2008, after finding out as much as he could about alternative fuels, he ordered two

continued on page 22

PHOTO COURTESY: THE GRASSHOPPER CO.

You want an easy way to look up product information.
You want to find it all in one book.

YOU NEED

The Horizon Source Book



Horizon’s new 2010–2011 Source Book is here! It has all the information you need on our entire line of irrigation, specialty, landscape and equipment products.

Stop by your local Horizon store for a **FREE** copy of the catalog.

Horizon
The Edge You Need

Irrigation ♦ Specialty ♦ Landscape ♦ Equipment ♦ HorizonOnline.com

© 2010 Horizon Distributors, Inc. All Rights Reserved.

COVER STORY

continued from page 20

17-hp, propane-certified Kawasaki engines that he had installed on commercial mowers. Each conversion cost him \$800.

Because he was using less than 700 gallons of propane that season, he paid top dollar for the fuel. After meeting state and local regulations he was per-

mitted to install a fill site at his shop.

Hansen has since been ramping up the number of propane-powered units his crews use. This season he's expecting to use more than 5,000 gallons of LP gas and, of course, he's buying it at a better price. He says the propane industry, which is aggressively attempting to build its presence in the landscape market,



Propane units are becoming more common, especially on commercial and municipal sites.

needs a "step-by-step guide" to help owners like himself.

"The interest in alternative fuels is in its infancy at this point," says Garry Busboom, director of research and development for mower manufacturer Exmark. Nevertheless, Busboom predicts industry adoption will grow as property managers and owners, especially those responsible for government and large commercial properties, seek to reduce the carbon footprints on their properties.

Ruppert Landscape, Laytonsville, MD, reportedly has been testing several different models of propane-fueled units on federal property in the Washington D.C. market, and many contractors and municipalities in Texas now operate propane mower fleets exclusively.

Texas is the hottest market in the U.S. for propane mowers for several reasons. It's where most LP gas is produced. Equally significant, the Propane Council of Texas offers \$1,000 incentives for the purchase of new factory-direct LPG, zero-turn commercial mowers or a conversion of a zero-turn commercial mower with less than 200 hours of operation.

Exmark's Busboom points out propane mowers, unlike gasoline mowers, can be operated during ozone-action days in cities such as Houston when the hours of use of gas-powered equipment are restricted.

The performance factor

One of the biggest concerns with using alternative fuels is performance, the amount of energy provided by each unit of fuel. Since LPG holds 86% of the energy of gasoline, it requires more

continued on page 24



making it
easy

TurfcO is committed to engineering "easy" into each of our products, helping you get more done without having to work harder. Choose from a full line of innovative renovation equipment, including:

TurnAer™ 4 and TurnAer™ 6 Aerators

- Why walk when you can ride with the optional Chariot
- Aerate while you turn—less lifting at turns, less back strain on operators
- New front-traction drive makes transporting and loading easier than ever

Ask about our
**LIMITED-TIME
SPECIALS!**



TurnAer™ 6 with Chariot and TurnAer™ 4 Aerators

KisCutter™ Sod Cutter

- The most maneuverable, easy-to-use sod cutter on the market
- Revolutionary lightweight design—cuts as much as heavy, 300 lb. units
- Optional 9-inch blade available for curbing



KisCutter™ Sod Cutter

LS-22™ Lawn Overseeder

- Seeds over 30,000 square feet per hour
- Cutting blades are 1½-inches apart for close seed spacing and maximum germination
- All new controls located on the handle—blade clutch, lift bail and positive seed flow control are within easy reach



LS-22™ Lawn Overseeder

See Our Entire Lineup and
Order Direct: 800-679-8201
or www.turfcodirect.com



COVER STORY

continued from page 22

storage volume to produce an equivalent amount of work, according to the Consumer Energy Center.

That's where another emerging alternative fuel, biodiesel, shows an advantage. And biodiesel, unlike propane which is a by-product of refining, is a truly domestic product as it is made from domestically produced vegetable oils.

Diesel provides the most punch for energy dollar (even when blended with biodiesel), and diesel-powered mowers are often the choice for municipalities or landscapers with big or tough properties to cut because they produce more torque and are better able to maintain blade speed in high or wet grass versus gasoline or LPG.

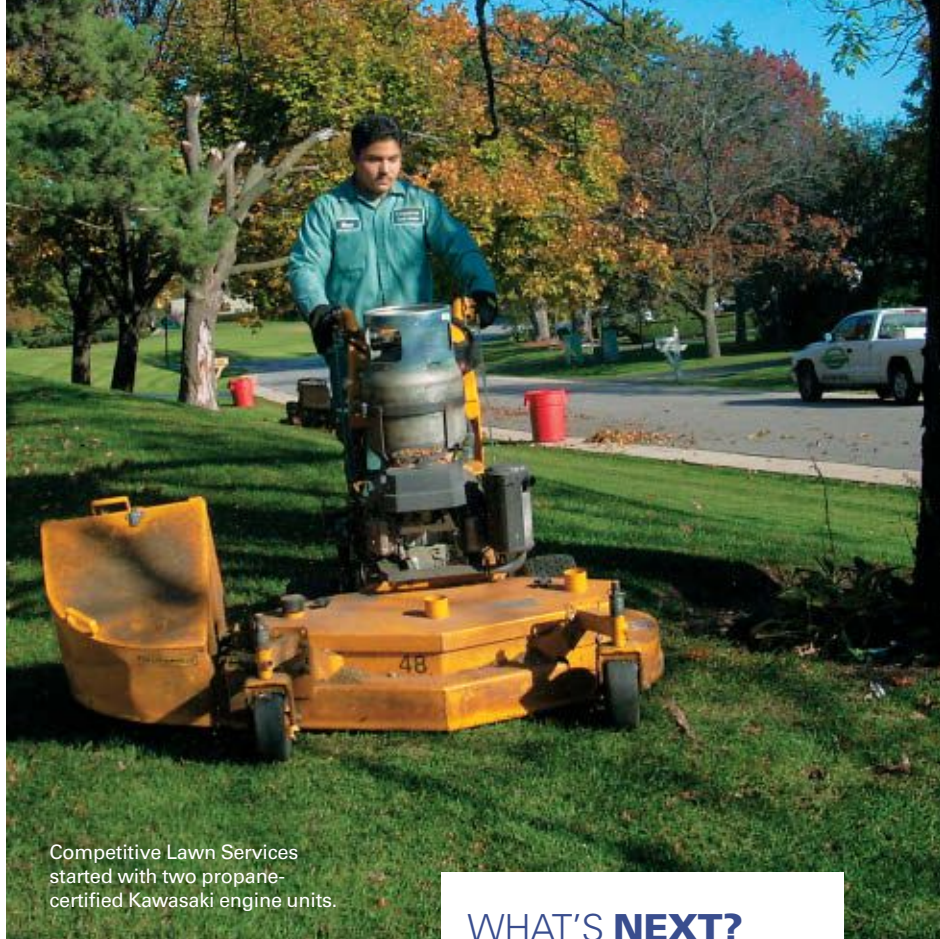
Because diesel fuel contains 12% more energy than gasoline and 52% more than propane, according to the Energy Information Center, it can produce more work per gallon of fuel. Extrapolated over 875 hours of use (35 hrs/wk X 25 wks), fuel savings can amount to as much as 500 gallons per mower, says Ray Garvey, marketing coordinator for The Grasshopper Co.

Additionally, improved engine technology, the introduction of ultra-low sulfur "clean" diesel and the growing availability of biodiesel provide new diesel-powered mowers with many of the same environmental advantages of alternative-fuel units, says Garvey.

He adds that Grasshopper tested propane for mowers extensively in the 1970s before deciding diesel offered its mowing customers more advantages than other energy sources.

Toro, which has done extensive testing on biodiesel fuels and other fuels for years, offers diesel mowers that accept up to 20% biodiesel (B20) in a blend with petroleum diesel. Biodiesel, says the company, is a non-toxic, clean-burning fuel that is biodegradable.

Toro says that B20 is approved for use for all of its 2008 or newer diesel-powered mowers, and offers biodiesel kits to refit 2003 or newer diesel-powered commercial equipment.



Competitive Lawn Services started with two propane-certified Kawasaki engine units.

In spite of appealing reasons for using biodiesel/petrodiesel blends, acceptance by landscape contractors to date has not been robust.

"Biodiesel hasn't really taken off as well as we had initially hoped, and we believe one of the biggest reasons has to do with the pricing disparity that now exists between gas and diesel fuels," says Randy Harris, senior marketing manager for Toro Landscape Contractor Equipment, Bloomington, MN.

"For years diesel fuel prices were much lower than gas. But, about the time we introduced our B20 equipment, diesel fuel prices shot up well beyond gas prices, and remain higher even today. More than anything else, that seemed to put a damper on the appeal of diesel and, ultimately, biodiesel.

"In addition, many contractors express concern about limited availability of biodiesel fueling stations, while others worry about their crews inadvertently mixing-up diesel and gas when refueling."

The National Biodiesel Board maintains a list of retail locations selling biodiesel on its website (biodiesel.org).

WHAT'S NEXT?

- » Increased adoption of alternative fuels, especially for mowing government and large commercial sites.
- » More prodding from environmental groups, farmers and government for the use of renewable fuels such as biodiesels and ethanol.
- » More use of fuel injection on engines.
- » Catalytic converters for the exhaust systems of gasoline- and diesel-powered mowers.
- » Greater control over fuel spillage and fuel theft.
- » Growing adoption of low-permeation fuel systems.

The site lists 1,334 locations across the nation. By contrast there are an estimated 115,200 retail operations selling gasoline in the U.S.

John Deere's new diesel mowers also accept B20.

"We and every other manufacturer are looking to step our way up to higher and higher contents for biofuels," says Deere's Pavcik. "We're dedicated to coming out with alternative-fuel machines, but we want to make sure they deliver the power and job productivity that customers want."

Gas still a contender

Does this growing attention to alternative fuels mean the end to gasoline units? Don't count on it, says Pavcik.

Engine manufacturers remain confident they can produce small, spark-ignited gasoline engines that meet all emission requirements and still offer great value for the price, he says.

"Technology coming to the small, air-cooled gasoline engines is becoming similar to the technology in the gasoline engines in today's automobiles," he says. "Fuel injection is coming on pretty strong. It offers the mower operator

between 10% to 30% fuel savings, depending on where they're running it in the duty cycle."

Manufacturers are making progress in curbing emissions, as well, he points out. Today's mowers generate significantly less exhaust emissions than they did in 1995, when California first regulated small-engine emissions.

Equipping new mowers with closed-loop fuel injection equipped with oxygen sensors and catalytic converters will reduce emissions even more.

While alternative-fueled units offer specific advantages, gas-powered units will remain commercial mowers' work-horse into the near future.

Beyond that . . . we'll see. **LM**

BIODIESEL PRECAUTIONS



- » Make sure you buy biodiesel from a reputable source.
- » Buy fuel that is already blended. This will help ensure that the biodiesel has been properly handled and treated for climatic needs.
- » Never buy from someone making fuel in his or her garage or backyard.
- » Biodiesel is a cleaning agent, which means petroleum deposits may end up in the fuel filter until the system is clean. Stick to your regular maintenance schedule unless your mower feels sluggish when accelerating. This is a symptom of a plugged filter and should be checked immediately.

Source: *The National Biodiesel Board*

NEW RESOURCES & TRAINING

PROFESSIONAL COMMUNITY

REAL-LIFE STORIES



Connecting the Professional Snow & Ice Management Industry