

AGRICULTURAL PROPANE APPLICATIONS: SWINE HEATING SYSTEMS

FACT SHEET

Nursery rooms are almost always heated with furnaces and ventilated with mechanical fans, controlled by a thermostat, in order to keep the pigs warm and dry throughout the year.

— U.S. Environmental Protection Agency

In climate-controlled swine buildings, reliable space heat is critical to maintaining the health and productivity of piglets in colder months. As farmers seek more efficient farming practices, there is an increased need for more energy-efficient and cost-effective heaters.

L.B. White, a company with 50 years of experience developing specialized heaters for agriculture, has developed Smart Sense™ a new propane-powered

variable rate heating system for swine buildings. The heating system contains electronic proportional valves that automatically manage the British thermal unit (BTU) output of L.B. White forced air heaters and radiant heat pig brooders. Fueled by propane, this system provides fuel-efficient and low-emissions primary heating that may help farmers reduce their production costs through improved temperature control.



KEY BENEFITS OF AUTOMATIC VARIABLE RATE SWINE HEATING SYSTEMS

- Variable rate technology allows for more consistent and fuel-efficient heating.
- Heating system propane consumption can range from 6,000 to 10,000 gallons per year.
- Propane-powered direct-fired building heaters are 10 percent more efficient than propane-powered indirect-fired heaters.
- Corrosion-resistant components and case design can withstand the demands of swine environments.
- Low-emissions, propane-powered technology is safe for use in buildings that house pigs.
- L.B. White heaters are certified to meet or exceed U.S. and Canadian safety standards.

CURRENT STATUS

RESEARCH > DEVELOPMENT & TESTING > DEMONSTRATION > **COMMERCIALIZATION**

COMMERCIALIZATION PHASE

- Demonstrations to document energy efficiency and improved animal productivity completed in 2012.
- The new swine enclosure heaters and control systems are commercially available.

TECHNOLOGY FEATURES

- L.B. White variable rate direct-fired heater and automatic control technology.
- Hot-surface or spark ignition configurations with an output of 60,000, 100,000, or 250,000 British thermal units (BTU).
- Advanced, time-saving monitoring system that accurately and quickly pinpoints any potential service interruptions.
- Indoor and outdoor installation options.



PROPANE-POWERED DIRECT-FIRED AGRICULTURAL HEATERS

- L.B. White heaters can be operated in buildings used for all swine growth phases. They are ideal for use in farrowing and nursery buildings, the two phases of life in which pigs are most sensitive to temperature.
- The automated variable rate enables the heaters to operate from 25 percent to 100 percent of maximum output, maintaining a room temperature within 0.5 degrees Fahrenheit of the desired temperature.
- This more consistent heat is designed to reduce operational costs and increase efficiency in day-to-day management of swine facilities.
- In addition to developing an improved heating system for swine operations, L.B. White is testing a direct-vent heater for use in greenhouses.



L.B. White Heaters

ADDITIONAL INFORMATION

PROJECTS
<ul style="list-style-type: none"> • Agricultural Heating Systems Fuel Efficiency Improvements (Docket 17289)
PARTNERS
<ul style="list-style-type: none"> • L.B. White Company Inc.

RESEARCH PROCESS

DEVELOPMENT AND TESTING			
PRODUCT	UPCOMING	IN PROGRESS	COMPLETED
L.B. White heaters	—	—	•
<ul style="list-style-type: none"> • Assemble and test initial prototype for performance validation under properly controlled conditions. • Review findings of the initial performance testing and adjust the proposed design as needed. • Release a fully assembled test unit for field testing. 			
DEMONSTRATION			
PRODUCT	UPCOMING	IN PROGRESS	COMPLETED
L.B. White Heaters	—	—	•
<ul style="list-style-type: none"> • Measure fuel consumption benefits of using the variable rate, direct-fired heater compared with conventional systems in swine farrowing, nursery, and wean-to-finish enclosures. • Demonstrate the swine enclosure heater at a Midwest swine farm to test the effects of the stable temperature environment on animal growth and health. 			

WHAT'S NEXT?

L.B. White is training their equipment dealers on the benefits of the new L.B. White Smart Sense™ automatic variable rate heating system. Since the completion of field demonstrations in 2012, L.B. White has continued outreach to the agriculture industry to communicate the operational benefits of propane-powered direct-fired heaters with automatic variable rate technology.

FOR MORE INFORMATION

To learn more about propane-powered swine heating systems and the Propane Education & Research Council, visit propane.com/agriculture. To learn more about the technology, visit L.B. White Company Inc. at lbwhite.com.

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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.