

Technology Fact Sheet

Thermal weed control is an environmentally friendly alternative to herbicides that is approved for use in organic farming and conventional farming operations.

After successful research efforts, new easy-to-use propane flaming technology is being developed to better address the diverse weed control needs of growers seeking more sustainable, energy-efficient farming practices. This hooded weed flamer is safe and effective in a variety of weather conditions and crop growth stages, and it allows farmers to return to the field immediately after weed treatment.



Flaming can be as effective as chemical weed control treatments. The benefits of flaming are that it does not leave chemical residues and is not affected by weather variability.
— Organic Farming Research Foundation



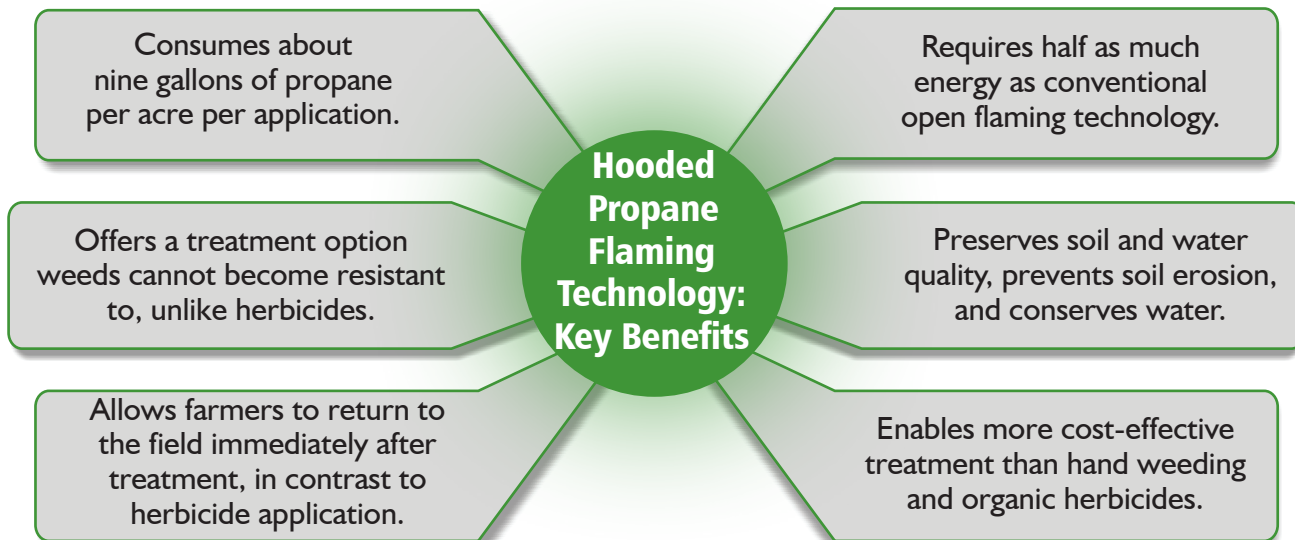
Current Status: Demonstration

Research Development and Testing Demonstration **Commercialization**

- PERC and the University of Nebraska, Lincoln have collaborated on several research projects to test the efficiency and efficacy of hooded flaming technology.
- Agricultural Flaming Innovations (AFI) has secured patents and plans to commercialize the new product in 2012 through a partnership with Behlen Manufacturing.

Technology Features

- Multiple hood configurations to enable treatment throughout the growing season.
- Versatile torch designs for various crop treatments.
- Dual-stage filtering process to prevent plugged torch nozzles.
- Easy-to-use safety features, including flame sensors and remote re-ignition.



For more information on this and other research projects, go to www.agpropane.com.

A Closer Look

Propane Flaming Technology: How It Works

- The hooded weed flamer uses propane-fueled flames to transfer heat to weeds over a short exposure time. The flamer does not burn the weeds; rather, the resulting cell structure damage and disruption of photosynthesis causes the weeds to wither and die.
- Torch hoods better focus the flames and protect them from the elements to kill weeds more effectively and reduce fuel consumption. A split-hood configuration allows more mature crops to flow through the machine undamaged while an adjustable torch mount enables a wider range of treatment capabilities.
- A separate flamer-cultivator prototype has been designed to control weeds by flaming in the intra-row space and cultivating in the inter-row space. The unit dramatically increases energy efficiency (four gallons of propane per acre per application), reduces task time, and consolidates two tasks into one piece of equipment.



Testing of propane flaming with torch hood

Projects:

Commercialization of Efficient Flame Weed Control Equipment ([Docket 17385](#))
Integration of Propane Flaming and Mechanical Cultivation for Effective Weed Control in Agriculture ([Docket 16711](#))
Innovative Propane Flaming Technology for Crop Production ([Docket 15920](#))

Partners:

Behlen Manufacturing Co., University of Nebraska, Lincoln

Research Process (✓ = completed; ► = in progress; ★ = upcoming)

Development and Testing ✓

- Evaluate newly designed torches with flaming hoods and incorporate them into a four-row weed flamer.
- Conduct testing of four-row flamers on corn and soybeans at two different testing sites.
- Evaluate six methods of weed control that include hand weeding, mechanical cultivation, and flaming to determine the most effective treatment plan.

Commercialization ►

- Commercialize the hooded flaming system in various row widths, including four-row and eight-row units.

What's Next?

Commercialization of the hooded weed flamer is taking place in 2012 and beyond. The University of Nebraska, Lincoln is also developing a how-to manual to transfer their research to farmers, explaining how to effectively use flaming for weed control.



FOR MORE INFORMATION:

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