HOG HEARTH® heat vs. heat mat comparison

Summary of logged data comparing IHT Hog Hearth® Heating System vs Heat Lamps in farrowing crates.

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Introduction

This study is to determine the true energy savings available when installing the Hog Hearth® heat mat system vs the 175 watt heat lamp in a farrowing barn.

The study was done in collaboration between MB Hydro (Energy Supplier), Hylife (Customer), Innovative Heating Technologies (Heat Mat Manufacturer – Hog Hearth®) and Greg Gulyas (Independent Engineer overseeing the trial).

The experiment is to quantify the actual energy savings Hylife would receive from replacing one 175 watt heat lamp per farrowing crate with a 5' Hog Hearth® Heat Mat (90 watts) controlled by the HMC / MSU (Heat Mat Controller / Master Sensor Unit). This trial took place over a 2 week period in one of the customer's farrowing barns, with readings of wattage, amperage and temperature being recorded every minute.

Based upon wattage ratings running at full capacity, the 90 watt 5' Hog Hearth® heat mat draws 90 watts or 49% less power than the 175 watt Heat Lamp.

The results noted below will show the increased energy savings with the Hog Hearth® heat mat used in conjunction with the HMC / MSU setup.

Comparisons from extrapolated data:

To make the comparison between the different model Hog Hearth® heat mats and the heat lamps, the recorded data has been extrapolated to the following scenarios.

Data recorded for the Hog Hearth® 5' double mat (24"x60") (designed to service two farrowing crates with an elevated divider), was used to generate information listed below for the Hog Hearth® single mat, single crate (12" x 60").

The data for the 2 heat lamp / 1 crate setup information listed below was extrapolated from the recorded results of the 1 lamp loggings.

Values given for Hog Hearth® heat mat was averaged over 24 hour time period and controlled by a Heat Mat Controller (HMC) and Master Sensor Unit (MSU).

Hog Hearth® temperature set point stabilized at 37 deg C (98 deg.F),

Average ambient room temperature was 21.56 deg. C (70.8 deg F).

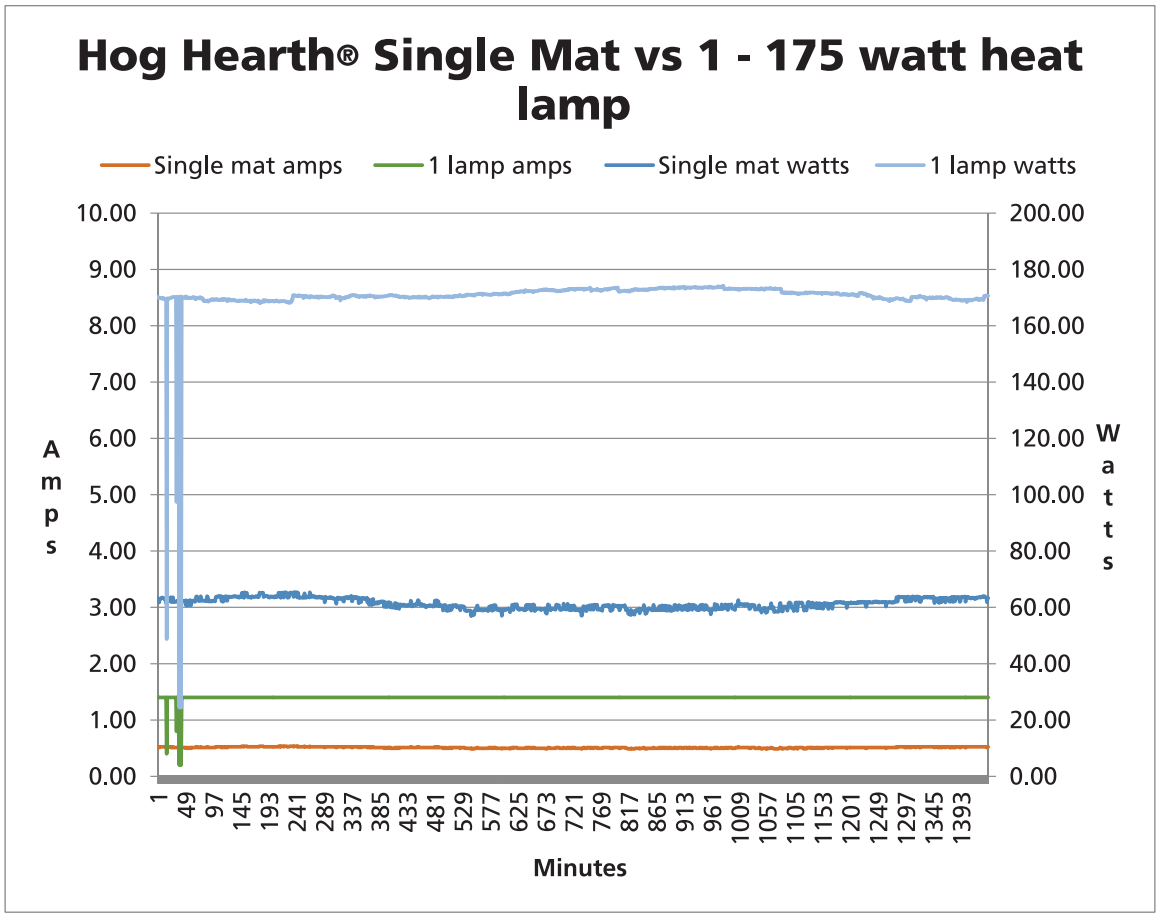

Figure: 1

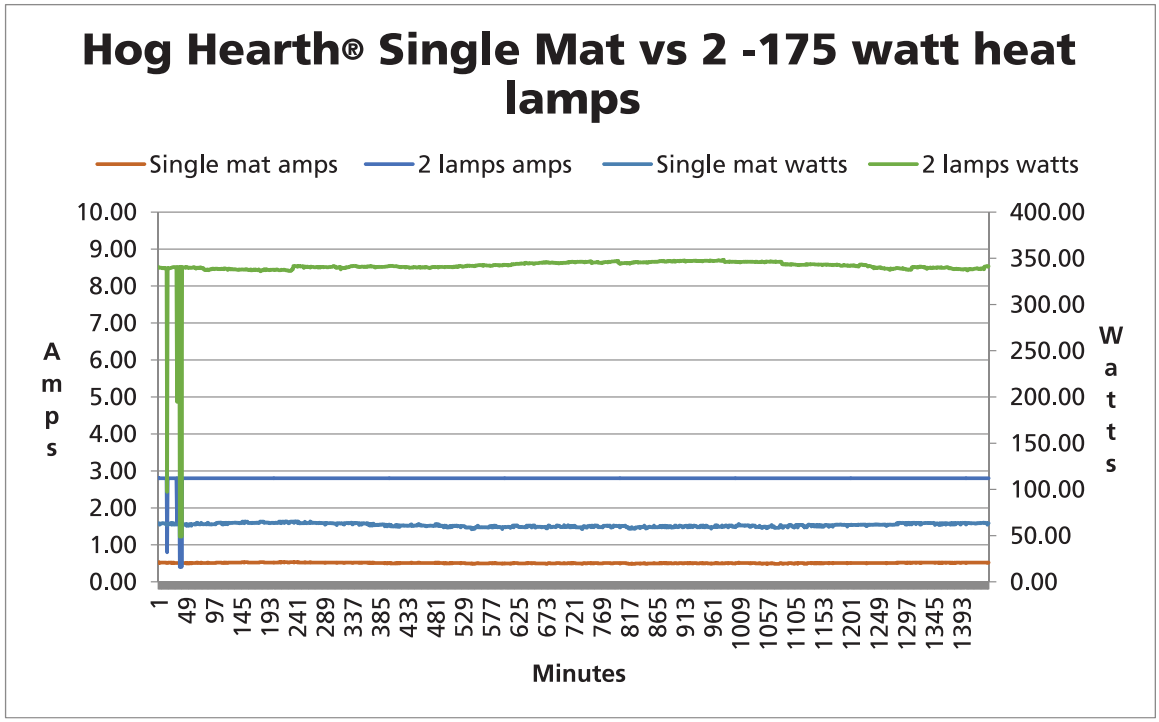

Figure: 2

Conclusion

These results highlight the increased advantages of controlling the energy efficient Hog Hearth® Heat mat system with the HMC.

The HMC with the MSU allows the mat temperature to be monitored and controlled to a specified setpoint set by the user, achieving higher efficiencies by reducing running watts.

By using the Hog Hearth® heating system with the MSU, average crate wattage of 90 watts was further reduced to 61.35 watts or an energy saving of 32%.

The results recorded showed an actual increased savings above and beyond the manufacturers stated watt versus watt comparisons of both heating components.

1-175 Watt, (170.74 measured watts) heat lamp consumed an average 4.10 kwh of power per 24 hours (per crate)

2-175 Watt, (341.48 calculated watts) heat lamps consumed an average 8.21 kwh of power per 24 hours (per crate)

1-Single 5' Hog Hearth® heat Mat (61.35 watts) consumed an average 1.48 kwh of power per 24 hours (per crate)

Based on these test results, Hylife would see a 64% reduction in energy costs per crate when replacing the 175 watt heat lamp with the Hog Hearth® Heating System.