

# SAVING ENERGY ON YOUR FARM

## LED LIGHTING IN POULTRY BARN



Climate Action Initiative  
BC AGRICULTURE & FOOD

*Until recently incandescent lamps have been the industry standard for lighting in poultry barns. However, starting in January 2014, new regulations in BC will prevent the distribution of both 75 and 100 watt incandescent bulbs in the province. Poultry producers using these lamps will need to find alternative lighting solutions. Fortunately there is already a more efficient alternative on the market that is well suited to poultry barns: **LED lighting**.*



### Incandescent Lighting Technology

The incandescent bulb has long been the standard choice in barn lighting, in part because of its low upfront cost. However, these lamps are only 5% efficient at converting electricity into light and with a rated life of 750 – 2,000 hours they require frequent replacement. Incandescent bulbs are also prone to significant light level reduction over time due to dust and dirt build up. This decreases the useable light output by about 25% over an average of 1,000 hours of lamp life.



### LED Lighting Technology

LED lamps are around four times more efficient in converting electricity to light than incandescent lamps. Certain LED lamps are well suited to poultry barn environments and can come in a number of wattage options, including 8 watt and 12.5 watt lamps. It is important to note that some LED lamps are susceptible to moisture penetration and may not be suitable for poultry applications. Careful product selection is therefore very important. LED lamps have a rated life of 25,000 to 50,000 hours and are less susceptible to dust and dirt build up than incandescent bulbs. Light level output typically decreases by 10 to 15% in over 20,000 hours of operation. Some of the significant operating benefits LED lamps provide include:

- Lower electricity costs (due to higher light output per watt),
- Reduction in lamp replacement and maintenance costs (extended lamp life),
- Reduction in light depreciation (due to less dust and dirt build up).

**REBATES!** Changing from incandescent lamps to LED is currently eligible for a rebate from BC Hydro and LiveSmart BC. To find out how to access this rebate for your site, **contact the BC Agriculture Energy Advisor** (see next page) – a FREE resource funded through the LiveSmart BC Small Business Program.

## CASE STUDY: Sweetbriar Poultry Farm Ltd

Sweetbriar Poultry Farm, located in BC’s Lower Mainland, operates two broiler barns year-round. In 2011, farm owner, Allen James, upgraded to LED lighting systems in both barns with a total area of 18,200 ft<sup>2</sup>. He replaced all 100 watt incandescent lamps with an increased quantity of 8 watt LED screw in lamps and electronic dimmers. Low cost Y-shape screw-in adapters were used to increase the number of lamps. The retrofit was carried out between flocks.



With these changes in place, Sweetbriar Poultry Farm expects to see **\$5,500 savings each year in electricity costs**. This is equivalent to a decrease in Sweetbriar’s annual lighting energy consumption each year of more than 80%. The LED lamps used for this project cost approximately \$28 each and were eligible for a BC Hydro rebate. The following table summarizes the project financials and the time it will take for the project to pay for itself.

Cost Savings	Project Cost	Rebate*	Simple Payback
\$5,500 / year	\$9,400	\$1,500	1.4 years

\* From BC Hydro, equivalent to \$8.80 per lamp replaced (including 10% top-up from LiveSmart BC).

The table below summarizes the lighting layout before and after the retrofit for both barns. Sweetbriar used an increased quantity of LED lamps, since the light output of an 8 watt LED is less than that of a 100 watt incandescent.

Technology	Wattage	Barn 1	Barn 2
		Number of bulbs	Number of bulbs
Incandescent	100 watt	72	99
LED	8 watt	120	165

Sweetbriar Poultry Farm reports a steady productivity and no change in bird behaviour with use of the new LED lights. James stated, “We’re really happy with the new lighting. Reduced maintenance efforts due to the longer life of the LED lamps was an added bonus for us in addition to the cost savings.”

### Resources

- **BC Agriculture Energy Advisor:** [www.bcagclimateaction.ca/energy](http://www.bcagclimateaction.ca/energy)  
Ph: 604-205-5510 | Email: [ag.advisor@prismengineering.com](mailto:ag.advisor@prismengineering.com)
- BC Hydro PIP: [www.bchydro.com/rebates\\_savings/product\\_incentive\\_program.html](http://www.bchydro.com/rebates_savings/product_incentive_program.html)
- LiveSmart BC Small Business Program: [www.livesmartbc.ca/incentives/small-business](http://www.livesmartbc.ca/incentives/small-business)



*DISCLAIMER: All savings, capital costs, and incentive amounts shown in this sheet are not guaranteed. It is recommended that the producer contacts the BC Agriculture Energy Advisor to better quantify these for their own site before proceeding with a project.*