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improvements on your farm  
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## Energy Efficient Farms: Lighting



Lighting on farms can account for anywhere between 15-30% of farm energy costs. With the long days put in on farms, good lighting systems are necessary on all parts of the farm – work sheds, livestock barns, dairy parlors, and throughout the farm yard. As such, on most farms the easiest way to make significant savings on your utility bill is to improve the efficiency of your lighting equipment. The biggest improvements in lighting can be made by replacing incandescent bulbs with florescents. This practice alone can cut those lighting costs by up to 75%.

### Additional Facts:

- Even some of the older florescent bulbs (T-12) are now due to be replaced with newer T-8 or T-5 bulbs, which will increase the quality of light and reduce costs.
- Motion sensors and timers also help to conserve energy when light is unnecessary. These devices turn lights on or off based on a predetermined schedule or whenever someone leaves a given area.
- Light emitting diodes, or LEDs, promise to use even less energy (up to 30% less) than CFLs, while still producing high quality light. Additionally, manufacturers are beginning to make advances in dimming and color changing lights, which could be useful in poultry or dairy operations. Prices are beginning to come down on these lights, making them a potentially sound investment.

### Key Terms

**Watts** – amount of electricity a bulb consumes, not necessarily how much light it produces

**Lumens** – how much light a particular bulb gives off.

**Color temperature** – measures the warmth of the light, in degrees Kelvin (k). Higher color temperature is more like sunlight. Can be especially important in livestock barns.

### Utility Rebates

Replacing old light fixtures will generally provide a greater rebate that when dealing with new construction.

- Utilities generally base their rebates on a “per bulb” or “per watt saved” basis.

### Low Cost Preventative Maintenance

Keep fixtures, lamps and lenses clean to allow the maximum amount of light from each bulb.

- Continuously turning lights on and off will reduce the life of the bulb.

- Make sure lamps in dirty or moist areas have the proper enclosures to ensure long bulb life.

### Long Day Lighting and Energy Efficiency

After waiting for many years for research to show its viability, many dairy farmers are now turning to long-day lighting to boost their milk production. Long day lighting is the practice of exposing cattle to ‘day’ lighting conditions more hours (usually 16-18) per day than the sun and seasons may allow. Research has shown exposing cows to this extended period of light can increase milk production 4-5 pounds per cow per day.

Lighting in this system requires at least a light level of at least 15 or more foot-candles at cow level. Efficient lighting systems will be especially important for producers switching to this system, as lights will be using electricity a larger part of the day. However, with the right efficiency upgrades, many farmers see little up tick in their electricity bills, and those that do see paybacks within a year.

### Additional Resources

#### Energy Efficient Lighting for the Farm

See: <http://attra.ncat.org/attra-pub/farmlighting.html#quality>

#### Choosing the Right Type of Light

See: [http://www.uwex.edu/energy/lighting\\_CH.html](http://www.uwex.edu/energy/lighting_CH.html)

#### Lighting Energy Savings Calculator

See: [http://www.ruralenergy.wisc.edu/conservation/lighting/default\\_lighting.aspx](http://www.ruralenergy.wisc.edu/conservation/lighting/default_lighting.aspx)