

More red means more green

New LED light bulb boosts hen reproduction and profitability—and cuts energy costs

BY SAMANTHA BEATTIE

A six-watt LED light bulb designed for poultry barns significantly boosts egg laying while reducing on-farm energy consumption. This unique bulb emits red-spectrum light—casting a reddish-purple glow—that stimulates the release of reproductive hormones in hens.

Animal and Poultry Science Prof. Gregoy Bedecarrats developed the bulb after four years of extensive research into how vision and light affect reproduction. To ensure the bulbs could withstand the dusty and wet poultry-barn environment, Bedecarrats and industry partner Thies Electric Distributing Co. put their product through three upgrades. Now, the one-piece aluminum-sealed bulb housing unit is dustproof and waterproof, as well as easy to clean.

The project began with a special line of naturally blind birds that laid more eggs than their sighted counterparts, indicating that the type of light the eye sees is not important for reproduction, says Bedecarrats. Instead, he says, it's more beneficial if the photoreceptors located in the brain are absorbing light.

The type of light that reaches hens' brains most effectively is not the full-spectrum light emitted by regular bulbs, but rather



Graduate student Mikayla Baxter (left) and Prof. Gregoy Bedecarrats are developing new technology that promotes egg production.

the red-spectrum light. When red-spectrum light hits the photoreceptors in the hens' brains, the response is similar to turning on a master switch. Hormones are released that signal the gonads to produce more eggs.

Bedecarrats found pilot farms that installed the red-spectrum bulb experienced a two per cent increase in egg laying. That

may not sound like much, but it translates into 900 more eggs per day in a modern barn with 45,000 hens.

What's more, the six- or 10-watt bulbs used for red-spectrum light are more energy efficient than traditional 60-watt incandescent bulbs (which are being phased out in Ontario,



Red hues emanate from this specially designed light bulb.

anyway), reducing energy consumption by more than 90 per cent.

The red-spectrum bulb is a financial management tool because it lasts, theoretically, at least five years longer than a conventional bulb, reduces barn energy consumption and boosts egg production. The bulb was released in July and is now available for purchase. Currently, it costs about \$45, but its price is expected to drop as its popularity grows. For his part, Bedecarrats is promoting the data that supports its use. ■

■ Collaborators include Animal and Poultry Science Prof. Tina Widowski, Agriculture and Agri-Food Canada's Dr. Stephanie Torrey, Agviro Inc. engineer Ron MacDonald, and Thies Electrical Distributing Co.

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