

“The PMSI light features are working great. The Sunrise and Sunset feature helps the birds know when to come out and when to lay eggs. It’s important the eggs are being laid in the nest instead of on the floor.”

- Iowa Cage Free
Daren Eckard,
Complex
Manager,
Goldfield,
Iowa



Recent developments in light bulb technology may help increase productivity of egg laying operations. - By Dan Henslee

In this article PMSI highlights new features available with the Command III system, including support for tools that use standard dimming techniques and modulate light color.

Product Compatibility with Adaptive Equipment:

NEW PMSI FEATURES:

- **Multiple Light Controls**
 - ▶ Set different schedules for lights in different locations.
- **Light Sequencing**
 - ▶ Turn multiple light controls on and off in a predefined sequence to help manage bird behavior.
- **Sunrise/Sunset Simulation**
 - ▶ Slowly increase light intensity in the morning and decrease in the evening to simulate natural lighting.
- **Variable Light Intensity**
 - ▶ Control dimmer output to adjust “daytime” light intensity.
 - ▶ Adjust by age if desired.
- **Event Reactive Lighting**
 - ▶ Vary light intensities and control sequencing based on customer requested events (morning vs. afternoon, feeders, midnight feeding, etc).
- **Multiple Light Stages**
 - ▶ Vary the amount or type of light within buildings by determining which bulbs are energized (when combined with interlaced groups of lighting).
- **Color Shifting Lighting**
 - ▶ Create a color shift to influence bird activity (when combined with specific types of LED lights).
 - ▶ Control groups of standard bulbs with different light spectrums to create specific color outputs.

Along with differences in genetic strain, other variables can affect flock health status. Factors that may improve production and mortality rates include better hygiene, vaccine development, and light influence.

Most producers are now using some type of energy efficient light source. PMSI currently works with the following types: Compact Fluorescent Light (CFL), Light Emitting Diode (LED), and Fluorescent tubes. There is no one-size-fits-all solution today because each type of lighting has its own set of strengths and weaknesses. PMSI is working with lighting and dimmer manufacturers in an effort to optimize these technologies for the Poultry Industry.

“We are successfully using the PMSI Variable Light Intensity Control feature. There are many varieties of birds and they respond differently to light sensitivity. When the birds are more aggressive, we can decrease the light and calm them.”

- Iowa Cage Free Farms

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Performance Criteria

Using light to increase productivity is an “up-and-coming” technology. It attempts to influence the behavior of layers by capitalizing on the effects of lighting schedule, intensity, and color. While the technology has yet to reach optimal price or use levels in the industry, it provides the best solution to simulate day and night photo-periods, as well as the light

spectrum of sunrise and sunset with PMSI controls. The dimmer influence needs to provide a controllable, evenly distributed light.

What’s Already Been Covered

Fairly simple hourly light programs continue to be used effectively in layer houses. See below for existing PMSI features already provided to control the operation of lights.

Input, Control, and Mechanical Functions:

- Light Verification Sensors
 - ▶ Verifies proper operation of light controls; alerts if problems exist
- Light Control Relays
 - ▶ On/Off control of lights with automatic advancement as a function of age

Anytime a producer has the opportunity to cut costs with a PMSI feature, we are eager to be a part of the improvement. It may be as simple as changing the type of light bulb used in an effort to reduce energy consumption. It may include influencing the behavior of the birds with light dimming or shifting the color spectrum using PMSI automation.

Additional tips/notes:

- Power factor: Not all lights draw the same current (Amps) for each watt.
- Not all lights are the same: size your lighting power, distribution, and dimming with enough room for future changes.
- Flicker: Lighting flicker not only disturbs your birds and employees, it can also drastically shorten the lifespan of CFL bulbs.

New Layer Performance Comparison Feature:

PMSI is offering a new “Bird Performance Comparison” feature which helps identify economic differences using variables within the same building. It identifies cost advantages based on the variety of cage equipment, feed rations, bird density, and bird strain. For example, PMSI is currently working with a few producers that are testing different styles of enriched cage equipment within the same barn. PMSI can separate the production data by displaying the test equipment as a separate house. This allows the management to view the distinct production data and note any differences in performance measurements such as egg count, egg weight, or livability.

The “Bird Performance Comparison” offers multiple applications. For example, you may choose to maintain and monitor different water rates or feed rations to identify the effects on bird productivity, egg size, and egg quality. Another important consideration would be to populate one side of the barn with one strain of bird and the other side with another. This may be helpful from the producer’s standpoint by providing bird performance history within the same flock by the minute, hour, day or week.

New advances in technology have increased the importance of monitoring equipment used to improved efficiency. As producers already know, seemingly small differences in production performance can have significant impact on overall profitability.

PMSI offers new “bird performance comparison” data

Today & Yesterday feed total by tier - Conventional vs. Enriched

Enriched test egg rows and tiers

Feed bin total - Conventional vs. Enriched

Feed & water rates per 100 birds - Conventional vs. Enriched

| Feed Today | 19900lb | Feed Today Enriched | 560lb |
|-----------------|---------|--------------------------|--------|
| Feed Yesterday | 59100lb | Feed Yesterday Enriched | 1450lb |
| Feed Rate | 18.3lb | Feed Rate Enriched | 18.5lb |
| Water Today | 373b | Water Today Enriched | 127 |
| Water Yesterday | 1174b | Water Yesterday Enriched | 363 |
| Water Rate | 3.9gal | Water Rate Enriched | 4.6gal |



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