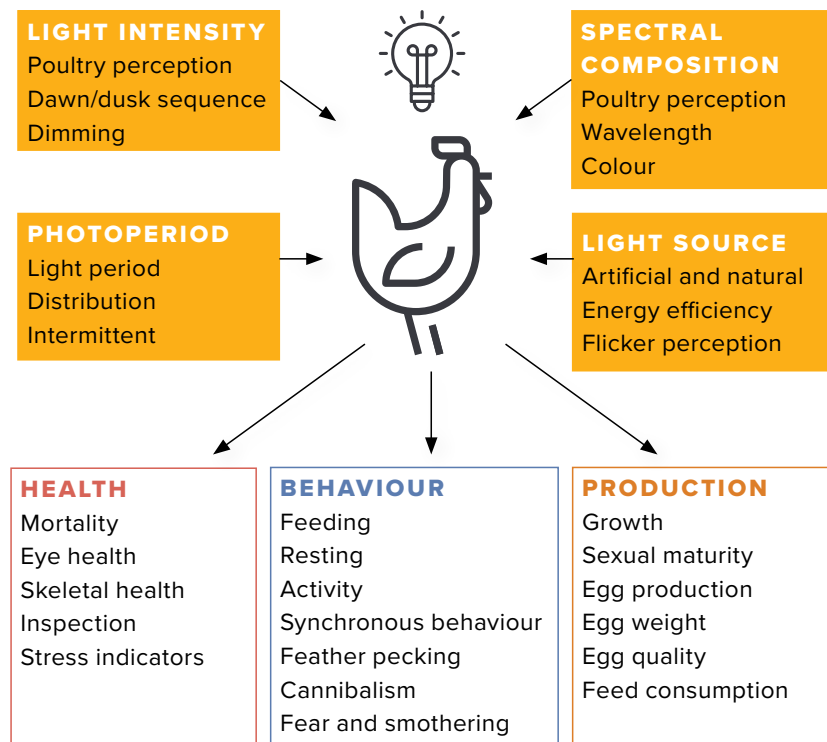


HEN WELFARE PROJECTS

THE IMPORTANCE OF LIGHTING

- Laying hens are housed in different systems that use artificial lighting programmes
- Lighting is complex because it includes several characteristics, including photoperiod, intensity, and spectral composition
- The characteristics of light have interactive effects on production, health and behaviour
- Sensitivity to light is different between hens and humans



THE LIGHTING PROVIDED TO HENS:

- ▶ Will determine the age at which a hen starts laying and the number of eggs produced
- ▶ Will impact on bird health
- ▶ Influences their behaviour, including feeding, activity and feather pecking
- ▶ Needs to take into account the fact that hens perceive light differently to humans

HEN WELFARE PROJECTS

LIGHTING AND BIRD PRODUCTION

The lighting program for pullets and laying hens impacts on **production**:

1) Growth and sexual maturity

2) Egg production and quality

PHOTOPERIOD

The main effect of photoperiod during the rearing phase is the impact on the timing of sexual maturity

Growing pullets respond more to a change in photoperiod than to the initial or final photoperiod

An increase in photoperiod will stimulate reproduction, whereas a decrease in photoperiod will terminate lay

Early sexual maturity maximises egg numbers but gives smaller eggs

Late maturity maximises egg size at the expense of egg numbers

Intermittent lighting does not increase egg yield but offers a saving in feed consumption

LIGHT INTENSITY

An increase in light intensity is used to improve egg

Very high intensities may reduce production and quality

Sexual maturation is only affected by very low light intensities

SPECTRAL COMPOSITION

Egg laying is under the control of deep brain photoreceptors which require red light

Egg production is inhibited by blue and green light

Egg size is improved by exposure to green or blue light compared to red light

Egg shell strength is improved by exposure to green light compared to white and blue light

HEN WELFARE PROJECTS

LIGHTING AND BIRD BEHAVIOUR

The lighting program for pullets and laying hens impacts on **behaviour**:

PHOTOPERIOD

- ▶ Using lighting regimes to synchronise behaviour may provide welfare and production benefits
- ▶ Early experiences of chicks and pullets not only affect the behaviour of the young bird but they can also have effects on behaviour that extend into production

LIGHT INTENSITY

- ▶ Influences the distribution of behaviours over the photoperiod
- ▶ Preferred light intensity is different between ages and bird type
- ▶ Overall activity levels in birds increase with light intensity
- ▶ Higher light intensities result in higher incidences and severity of feather pecking

SPECTRAL COMPOSITION

- ▶ Hens show decreased feeding time in green light compared to red or white light
- ▶ Hens are thought to be calmer in blue light, compared to other wavelengths
- ▶ Hens show increased foraging time when exposed to green light compared to red light
- ▶ Red light has no impact on feather pecking

For more information, visit: australianeggs.org.au

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HEN WELFARE PROJECTS

LIGHTING AND BIRD HEALTH

The lighting program for pullets and laying hens impacts on **health**:

PHOTOPERIOD

- ▶ Intermittent lighting programmes may decrease mortality
- ▶ There are conflicting reports on the effects of photoperiod on mortality
- ▶ Intermittent lighting programmes are thought to improve immune

LIGHT INTENSITY

- ▶ Light intensity (commercial range) does not affect mortality
- ▶ Low light intensities do not support normal eye development
- ▶ Skeletal health may improve at higher light intensities
- ▶ Low light intensities can make inspection difficult
- ▶ No evidence to suggest that low intensities are stressful

SPECTRAL COMPOSITION

- ▶ Green and blue light have been shown to improve immune function

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