

# Shedding a light on dairy production

The importance of lighting in dairy cow sheds is often underplayed. But its impact on cow welfare and production can be significant, as **Jeremy Hunt** reports

Improvements made to cow housing often omit to consider the importance of light. However, while research continues to prove light can have a significant impact on cow health, breeding performance as well as milk production, the precise amount of light, the quality of that light and its duration in terms of how long cows are exposed to it, are all key factors that must be considered.

Leading dairy cow vet Owen

Atkinson of Shropshire-based vets Lambert, Leonard and May, is urging dairy farmers to look closely at the lighting systems in their cattle accommodation as part of his work with the cow behavioural assessment programme Cow Signals.

#### PRODUCTION BENEFITS

"More light and the correct level of light in a cow shed can contribute towards higher feed intakes and an increased level of milk production,

but cows will also show better heat signs if their environment is adequately lit. In conditions where the correct amount of light is provided cows are more active and heats are easier to detect.

"And although daylight is clearly more economical than providing electric light, cows require an optimum of 16 hours a day – a level that can only be achieved by supplementary lighting," says Mr Atkinson.

Research in the UK and USA has shown that dairy cows on correctly managed lighting regimes will produce 5-16% more milk a day.

Feed intakes have been shown to increase to match the increased level of production; and as well as heat activity being more easily detected in brighter conditions, the lighter environment is believed to improve the rate of mounting – a situation that can broadly be attributed to cows feeling happier. →p49



\* In conditions where the correct amount of light is provided cows are more active and heats are easier to detect

TIM SCRIVENER



Cows don't like moving into dark spaces, so all areas should be well lit.

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#### TOP TEN LIGHTING TIPS

- \* Buy a light meter
- \* Make sure cows receive 16 hours of light at a minimum of 162 lux and up to 200 lux
- \* Ensure a eight-hour dark period of 54 lux or less
- \* Observe cow behaviour
- \* Create an even spread of light throughout the building
- \* Lactating cows need more light than dry cows
- \* Makes bulling activity easier to detect
- \* Turning lights on just before milking can gets cows involved in normal daytime activity before milking
- \* Make sure cubicles are well lit
- \* Pay attention to lighting around darker areas such as out of parlour feeders





JONATHAN PAGE

More light encourages bulling activity – and makes it easier to monitor.

When lighting is adjusted to provide the correct environment, cows are more relaxed and rest for longer periods thus increasing cudding time and contributing to less stress and helping improve production.

#### ASSESSING LIGHT LEVELS

A light meter – costing £20-30 – is an invaluable piece of kit to evaluate and maintain the correct light levels in dairy cow buildings. To make an assessment of the light concentration, the meter should be held about 3ft off the ground at various locations with the aim of making adjustments that will create an even spread of light throughout the building.

Light levels are measured in

terms of “lux”. The 16-hour light period should provide a minimum of 162 lux and up to 200 lux while the “dark” period of eight hours should provide less than 54 lux.

It's not advisable to provide lighting all through the night for dairy cows. Lighting sheds all day as well as all night in winter is a waste of money say vets. But the physiology of cows means they are dependent on a “day and a night” regime to allow normal breeding functions such as the formation of eggs and their release from the ovaries.

Creating 200 lux of light intensity requires about 70 neon tubes for every 100 cows. As a comparison a full moon emits the equivalent of 50 lux.



TIM SCRIVENER

Correct lighting levels in a shed can increase feed intake and milk production.

“Because more light encourages bulling activity – and makes it easier to monitor – some farmers are now adjusting the timer switch so that the lights in buildings are turned on about half an hour before morning milking.

“This means that by the time the farmer comes outside to start milking, the herd is already involved in normal daytime activity,” says Mr Atkinson.

Lactating cows need considerably more light than dry cows. Research has shown that dry cows are most suited to an “artificial winter” in terms of their daily light levels.

#### COLOURED LIGHTING

There is often debate about the most suitable colour of light – white or yellow? But it seems colour isn't important to the cow, although some farmers say cows are quieter with orange or yellow light.

The key to achieving the most

**\* A light meter is an invaluable piece of kit to evaluate and maintain the correct light levels in dairy cow buildings**

#### CASE STUDY

### Ben Yates

SHROPSHIRE

\* Find an electrician who is prepared to work with you to achieve the precise lighting requirements for your dairy cows, either in a new building or as part of improvements to existing accommodation – so says Shropshire herd manager Ben Yates, who is reaping the benefits of correct lighting provided for the 210-cow herd he manages.

“If it's a new shed it's something you only do once so it's worth getting it absolutely right. And even as part of a building improvement plan, it's an investment that's well worth while,” says Mr Yates, who runs the herd for Wilfred Maddocks at Newport.

A new loose-housing system – the shed measures 90ft x 260ft – provides 200 lux of light for 18 hours a day, with lights turning on half an hour before morning milking.

The new parlour provides 500 lux of light. “Some have joked that you could get sunburnt milking our

cows but we spend five hours a day milking and it's amazing the difference it makes,” says Mr Yates.

He says he was fortunate to have an electrician prepared to take on board precisely how much light was needed – and then “gen-up” on how it could be delivered.

Light is delivered from 23 rows of low bay fittings, which are sealed units that keep out dust and moisture. Cows are provided with an 18-hour day and according to Mr Yates “thrive off the routine”.

“Our cows have a regular daily pattern of light as well as two ‘night lights’ to avoid total blackness in the shed. It took about a year to really settle in, but we now have an environment perfect for the cows and also for us to work in. There are no dark corners anywhere,” says Mr Yates.

The new lighting system has had an impact on fertility and production. “We are feeding more but getting more milk and our fertility has improved considerably. We use pedometers and cow activity has noticeably increased.”

successful lighting system is to create an even spread of light throughout the building.

Appropriate siting (height and distribution) of lights is important but in many situations a big difference can be made simply by cleaning or replacing bulbs, cleaning covers and repairs.

And it's also important to look at where lighting is actually sited in buildings. Mr Atkinson suggests watching cow behaviour to give an indication of where lighting can be improved or introduced.

#### OBSERVING COW BEHAVIOUR

“Cows don't like moving into dark places, so make sure there's adequate light in and around out of parlour feeders which are often located in the darker areas.

“There should also be enough light near water troughs as well as the area that the cows move into as they exit the parlour.

“Make sure the cubicles are well lit because that's where cows spend nine to 14 hours every day.”

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