



# Lighting

Lubratec® Solutions for Animal-Friendly Farm Management



# Lubratec

## Livestock environments for greater animal welfare

The Lubratec brand offers you first-class solutions for animal-friendly livestock farming and breeding. Lubratec products will help you to promote the well-being of your animals by optimising environmental conditions in barns,

encouraging natural behaviour, reducing infections and much more. The high-grade, robust and durable systems will also improve the efficiency and flexibility of your farming operations.

## Animal friendly farming is a challenge – Lubratec is the solution

The Lubratec product portfolio features a wealth of professional solutions for cutting-edge, animal-friendly housings for livestock farming and breeding. Lubratec will help you to reconcile animal welfare with efficient barn management.



**Promotion of animal-friendly livestock farming**



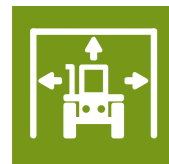
**Creation of healthy environmental conditions in barns**



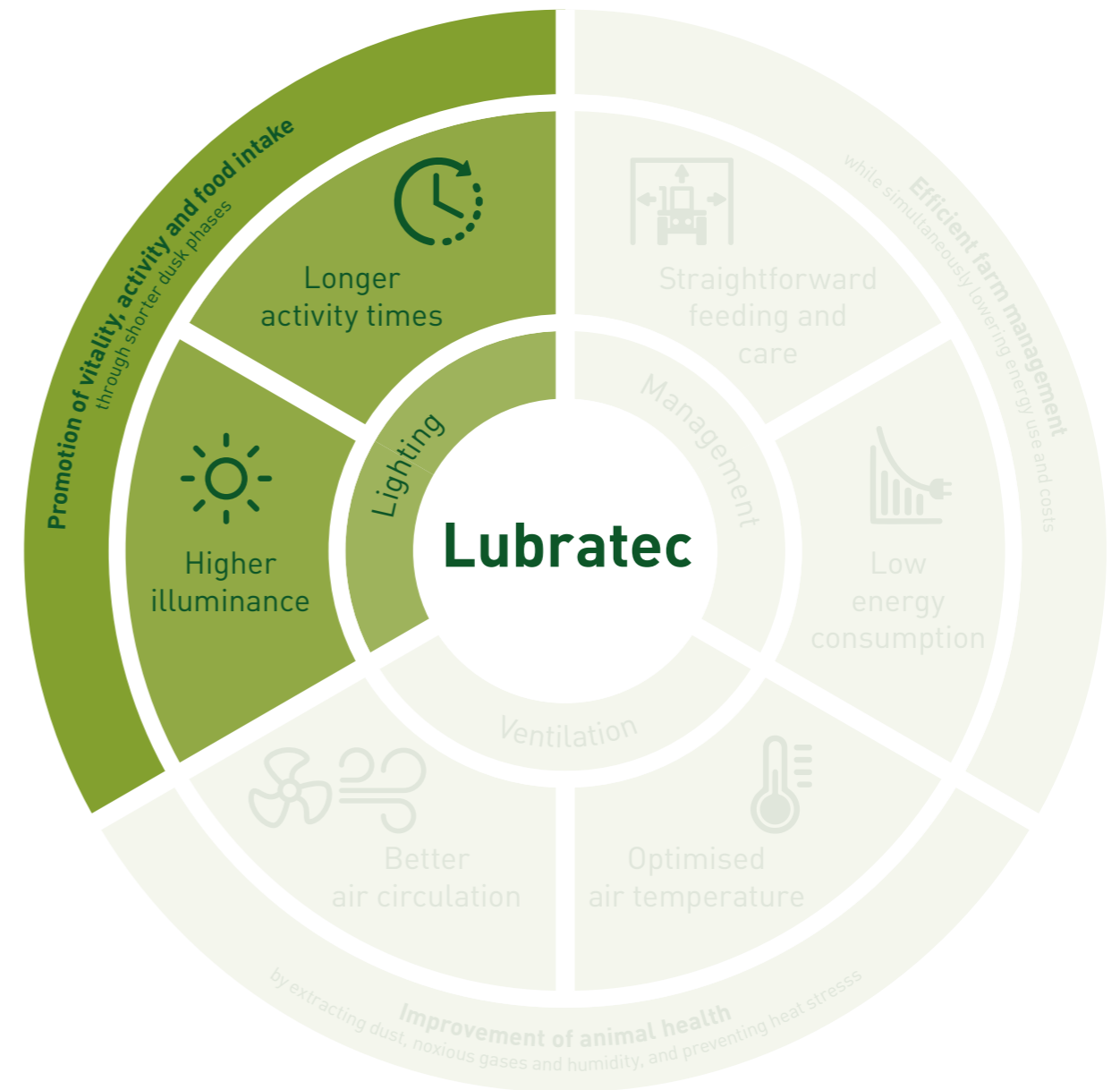
**Improvement of animal health**



**Encouragement of natural behaviour**



**Simplification of farm management**



# Lighting systems

To increase vitality and activity

In modern farm management, light is a success factor that is often underestimated. Light is vital for humans and animals and has effects on health and performance. Insufficient exposure has a negative impact on animal welfare.

Natural daylight and active lighting ensure longer active times and enhanced vitality, combined with increased feed intake. The optimal interaction of Lubratec products improves the lighting in stables and buildings.

Natural and active lighting reduces melatonin release, twilight phases and short days, for example in cattle farming. At the same time the formation of prolactin is increased. Thanks to the selection of high-quality materials, our products have all the prerequisites that modern lighting systems have to meet: long durability with maximum light yield and high economic efficiency through energy saving.

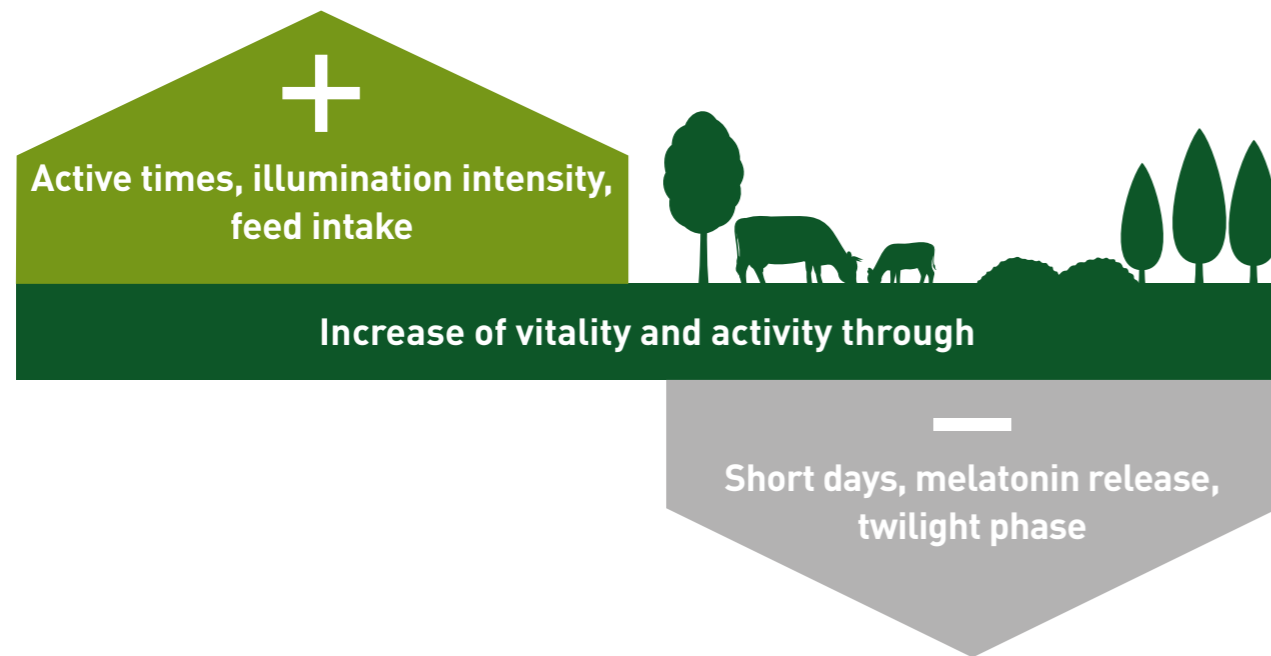
## Natural stable lighting and stable ventilation with maximum use of daylight

The Lubratec Light Ridge is also a ventilation ridge and therefore particularly efficient in natural stable lighting and stable ventilation. The high daylight yield in the stable or riding hall is an important factor for the well-being of your animals. By using a special fabric membrane the light is widely scattered. At the same time, the building remains cool due to the highly UV-stabilized fabric foil, so there is no greenhouse effect. Warm air and exhaust air can escape directly through the lateral openings of the light ridge.

## Optimized light spectrum as performance enhancer

Provide your animals with optimum stable lighting with high energy efficiency. The modern Lubratec LED luminaires provide the ideal lighting. The light spectrum has been specially optimised for the needs of animal husbandry. The high-quality switching technology allows automatic and manual switch-on even in dimmed state.

As a supplier of lighting systems HUESKER ensures optimum conditions in the barn. Discover our products in the field of exposure systems!



# Product overview

Natural lighting

6-7



Lubratec Light Ridge

Active lighting

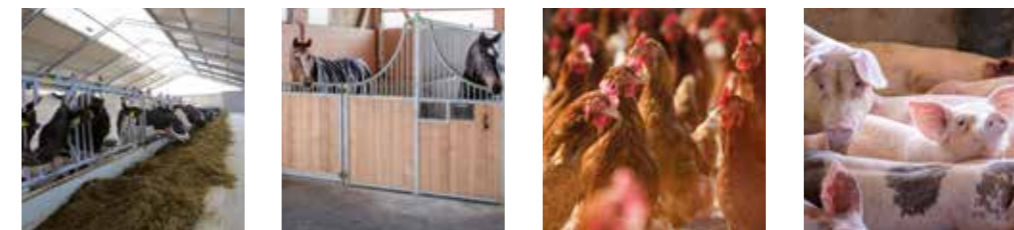
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Lubratec LED

Effects of lighting

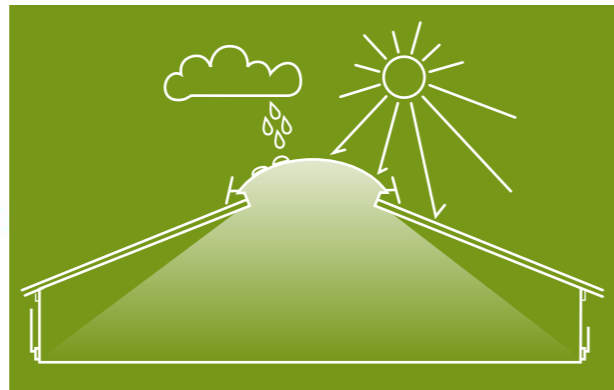
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Increase of vitality and activity

# Natural lighting

## Lubratec Light Ridge



### Product benefits

- Continuous air extraction through suction effect
- No greenhouse effect
- Optimal use of daylight – more light in the building
- Special fabric foil scatters the light and keeps the building cool
- Uniform illumination
- Extremely robust special fabric
- Stable round arches take high static loads on
- Opening width from 5 to 7 meters
- Up to 8 times more natural light in the barn\*

\* Comparison between barn with simple webbed panels and barn with Lubratec Light Ridge with an opening width of 7 meters.

### Lubratec Light Ridge membranes – highly UV-stabilized

By using the high-strength polyester fabric, which is equipped with UV-stabilized membranes, the light is widely diffused into the building and heating of the building is reduced. A slight warming takes place only directly under the foil. This warm air escapes immediately with the exhaust air through the lateral ridge openings.



Art. no. HWSKYTEX55RA1

### UNIQUE SPECIAL FABRIC

**TARPAULIN PES-PVC 55 SKY:**  
High strength polyester fabric with double-sided PVC coating for maximum light penetration

## Supervised specialist assembly on site



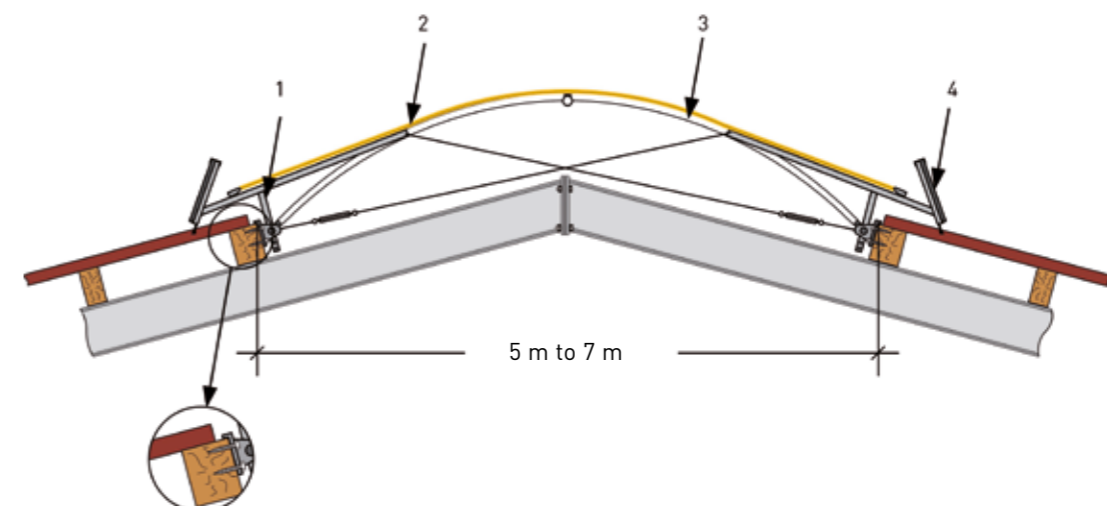
### We help with professional installation – use our installation service!

- Installation accompanied by a HUESKER chief fitter
- Pre-assembly of the elements on the floor
- Putting on the elements and placing the tarpaulin with a crane
- Unwinding and tensioning the tarpaulin
- Installation of the wind deflectors and the gable cladding

### Technical details

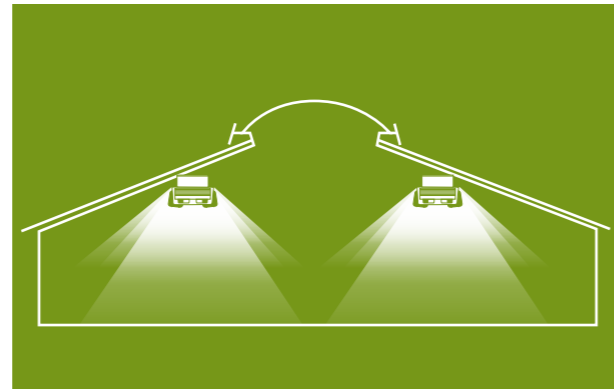
The robust arch assembly made of hot-dip galvanised steel and sturdy woven membrane provide the maximum degree of structural safety.

- |                                                                                                                         |                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b> Robust hot-dip galvanised steel brackets</p> <p><b>2</b> UV-stable, polyester-woven-reinforced membrane</p> | <p><b>3</b> Galvanised and powder-coated oval tube arches</p> <p><b>4</b> Wind deflectors made of plastic-coated steel sections</p> |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|



# Active lighting

## Lubratec LED



### Product benefits

- Optimized light spectrum for animals
- Highest light output per watt
- Up to 60% energy savings
- Long service life due to high-quality materials
- Promotion of vitamin D production
- Water and moisture resistant

Overview Lubratec LED	LED SINGLE	LED DOUBLE	LED TRIPLE
Colour temperature (full spectrum)	5,000 K		
Luminous efficacy in lumen per watt	> 135 lm/W		
Type LED chip	High-power ceramic		
Wattage (max.)	105 W	210 W	315 W
Material support frame	Stainless steel		
Material housing with heatsink	High quality aluminium		
Expected service life	> 15 years		
IP rating	IP67		
Acid resistance	+ (good)		
Dimensions (LxBxH)	540 x 95 x 220 mm	510 x 310 x 220 mm	530 x 410 x 220 mm
Weight	~ 7 kg	~ 12 kg	~ 17 kg

## Technical specifications Lubratec LED luminaires

Lubratec LED Single



Lubratec LED Double



Lubratec LED Triple



The ceramic high-power LED chips generate light at 5,000 K, producing 135 lumens per watt. The cast aluminium housing with cooling fins is powder-coated. A robust flat glass, which is securely screwed all around, seals the interior with the IP67 protection class. The brackets of the suspension are made of stainless steel

and ensure a safe and durable fastening. The switching technology allows manual switch-on even in dimmed state as well as automatic switch-on depending on the time of day and daylight. The switching technology can also put certain LED lights into night light mode.

## Increased animal welfare and energy savings

The question of the right lighting for barns and halls are often neglected. However, it is also decisive for the well-being, performance and health of the animals and people who spend time there every day. This applies to both new buildings and when the old exposure system is replaced.

The lighting of barns and halls requires careful planning to satisfy both humans and animals. Topics such as good illumination, high energy efficiency and simple installation and maintenance are the main economic aspects. The increase of animal welfare is another factor to which the LED lighting pays in.

Due to the different anatomy of the animals compared to humans, there are also special requirements for exposure systems that should be considered. Animals see differently than we humans. By the arrangement of the eyes at the side of the head and the different structure of their eyes they take light differently. Therefore, exposure systems in the animal area should have a light spectrum that is particularly animal-friendly. At the same time, it is important that the lighting is as even as possible. But not only your animals benefit from environmentally friendly LED lighting. The right lighting of the building is also more pleasant for people and, in case of doubt, even prevents accidents at work. Good, bright light contributes to the well-being of animals and humans and is the basis for increased productivity.

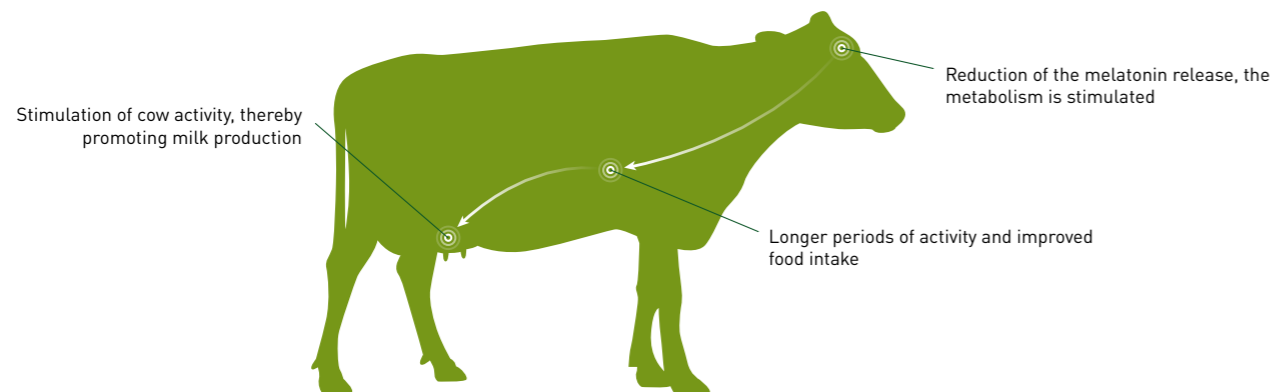
# Light programme for cattle


## Lighting in the cattle shed

Light is a vital factor in the cattle shed. It has a positive effect on your animals. Sufficient and correct lighting in the barn promotes education of vitamin A/Betacarotin and vitamin D3. To the hormone balance of dairy cows, light also has a positive influence. The melatonin release (sleep hormone) is inhibited, which leads to longer active times. Barns that are too dark are perceived as twilight


by cows, which promotes the release of melatonin and thus inhibits the production of prolactin. This results in a reduced activity time and food intake, and the animals' metabolism decreases. Lower metabolic activities have negative consequences on the oestrus behaviour and fertility of the animals. The reduced feed intake also reduces the milk yield of the cows.


### Benefits of correct lighting



 **Promotion of vitamin A and vitamin D3 production**

 **Increase of vitality and feed intake**

 **Inhibition of melatonin release – longer active periods**

 **Improvement of the metabolism – promotion of oestrus and fertility**

### Influence on milk yield

In autumn and winter the days are short. Artificially prolonged daylight hours through proper lighting can increase milk yield between 5 and 16%, as has been proven in several studies. Melatonin, which only forms in the dark, is the antagonist to the body's own growth factor IGF-1, which increases performance and stimulates milk production. The additional lighting means that less of the hormone melatonin is produced and the growth factor IGF-1 is increased. With an optimal lighting duration of 16 hours with a light intensity of approx. 140 lux, the

performance-enhancing effect sets in after 4 weeks. The animals need a total of 8 hours of darkness, otherwise the opposite effect is achieved. The increase in milk yield results in a feed intake increased by approx. 8%, which has a positive effect on the animals' energy balance. According to these studies, the lying periods, which have a positive effect on milk production, are extended. The additional light has no effect on the protein and lactose content of the milk.

Lighting comparison*	LIFETIME in hours	LUMINOUS EFFICACY in lumens per watt	ELECTRICITY COSTS per animal place (€) at illuminance of 80 lux
<b>Fluorescent lights (standard)</b> Spot illumination with shorter lifetime	6,000 – 8,000	60	4.70
<b>Sodium vapour lights</b> High heat generation	30,000	120 – 140	3.05
<b>LED luminaires</b> Uniform illumination with optimized light spectrum	25,000 – 45,000	135 – 250	2.93

\* Bavarian State Office for Agriculture (LfL) "Light and Lighting Programs".

## + Benefits of LED lighting systems

- Good light yield
- Good colour reproduction (75 – 95%)
- Instant luminosity
- Dimmability
- Color temperature selectable (2,700 – 6,000 K)
- Adaptation of the spectrum of lamp to the needs of the animal
- Low maintenance requirements
- Long service life
- Reduced power consumption

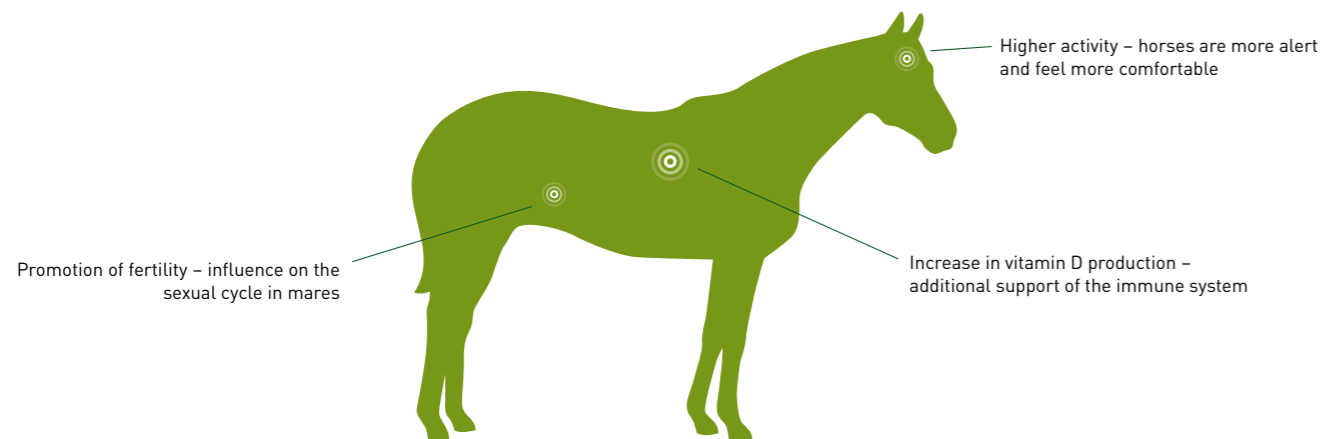
# Light programme for horses

## Lighting in the stables and riding hall

Light has a direct influence on your animals in the stables and riding hall. Sufficient and correct lighting has an effect on the well-being and motivation in both buildings. With the right and sufficient exposure, melatonin secretion is inhibited. This makes your horses more alert and active. The change of coat is also partly triggered by melatonin. Prolonged periods of darkness increase the melatonin level in the body. Especially in winter this is a sign of the organism for the natural change of coat.

Sufficient lighting is important for the production of vitamin D, which helps build bones and teeth. In addition, vitamin D strengthens the immune system and helps to process stress. If there is a lack of light, horses become a bit more cumbersome when riding. With mares, light also has an influence on fertility. Due to too little light supply, mares become less likely or not at all to get in heat. With good lighting management prevent this and ideally it can even influence the mare's sexual cycle.

### Benefits of correct lighting



**Inhibition of the melatonin distribution**



**Improved fertility of the mare**



**Support of the immune system**



**Measurable stress reduction**

### Additional positive effects

Every horse has the need for social contact with other horses. If this is not possible, at least visual contact is recommended. In dark stables there is a danger that the visual contact to other horses is restricted. This can lead to behavioural disorders such as weaving and cropping. In indoor riding arenas, good lighting can prevent

shadows and light spots from forming. Especially young horses react very jumpy to this. Casting shadows in indoor riding arenas increases the risk, that horses get frightened because they cannot adapt so quickly to changing light conditions.

Good stable and riding hall lighting with the right illuminance and the right lighting programme has the following positive effects:

- More active and healthier horses
- Possibility for better visual contact
- Better fertility
- Thinner winter coat
- Uniform and reflection-free illumination



Optimal training and tournament conditions through the use of Lubratec LED luminaires.

### Product benefits

- Up to 60% energy savings through targeted, adjustable light scattering
- Health-promoting lighting
- Long service life, as water and moisture resistant
- Dust-insensitive

# HUESKER

## The know how behind the Lubratec systems

Building on its 150 year plus corporate history, HUESKER boasts a long and successful track record of innovation in the agricultural sector. We offer wide-ranging solutions in the fields of animal welfare, agricultural technology, bio-

gas, liquid manure and silage protection. Described below are our key service offerings that are designed to simplify your work. Please feel free to talk to us about your needs and let our experts assist you with your requirements.

**We will assist you in developing a feel-good package for your animals and yourself.**

### Production

We will fabricate and assemble your Lubratec solution at our production sites in Germany to give you the full benefit of our 150 year-plus experience in textile manufacturing. Our products are specially designed for reliability and durability so that our customers can focus their full attention on their livestock.

### Customisation

Custom-fabrication of your products is the centrepiece of our service portfolio. Your job is to specify the size, colour and technical performance. Our job is to deliver the solution. This way, you receive a product which meets your requirements and expectations.

### Digitisation

Are you already thinking ahead to "Barn 4.0"? So are we. Which is why we view the further refinement and networking of our products as a key priority. Our modern Lubratec technology allows simple monitoring and control of the barn environment to ensure maximum comfort for your livestock at all times.

### Installation

To guarantee that everything functions properly to provide you and your animals with the full benefits of Lubratec from day one, all products are installed by experienced operatives. Our on-site service can also be used to arrange for expert instruction in the operation of our various systems.

### Maintenance service

On request, HUESKER will also perform the annual maintenance on your Lubratec products to ensure that they enjoy a particularly long and trouble-free service life. The time you save on upkeep will then be free for you to spend with your animals.

### Consulting and design

With a wealth of experience gathered on numerous projects, our experts will be delighted to advise you on the design of your new-build or refurbishment scheme. If you so wish, we will liaise directly with your architect to ensure the entire design process runs smoothly.





Lubratec® is a registered trademark of HUESKER Synthetic GmbH.  
HUESKER Synthetic is certified to ISO 9001 and ISO 50001.



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 **HUESKER**  
Ideen. Ingenieure. Innovationen.