



Lighting for **AGRICULTURE**



TREEVOS



FOR LIVESTOCK FARMING

Light fixtures with exceptional ammonia resistance

Resistance against ammonia in the air is among the essential attributes of light fixtures designated for farms where live animals are grown (e.g. cow barns, pig and poultry farms).

Our INNOVA ABS, FUTURA ABS and Prima LED ABS-range fixtures provide exceptional resistance to chemical compounds used for cleaning and as disinfectants as well as to mechanical damage and high temperatures. The excellent chemical resistance of our INNOVA-range of lighting has recently been recognized by DLG, a leading independent European testing facility. The DLG certificate states neither regular exposure to ammonia in the air nor cleaning the fixtures using a high-pressure machine and hot /cold water result in product deterioration.

Chemical resistance

Exceptional chemical resistance of the materials used to chemicals such as ammonia, lye, and alkali compounds.

Mechanical resistance

Excellent impact resistance and resistance against mechanical damage based on the materials used.

Thermal resistance

Exceptional thermal resistance to ambient temperatures ranging from -25 °C to +50 °C.



INNOVA ABS



PRIMA LED ABS



FUTURA ABS



DLG-CERTIFIED FITTINGS

Cow barns, pig farms,
poultry farms, stables

The German Agricultural Society (DLG), a leading and highly respected independent European testing organization, has rewarded our INNOVA ABS LED light fixture. **The DLG certificate states INNOVA ABS is resistant to long-term exposure to ammonia and may be washed, from a given distance, using a high-pressure machine and both cold and warm water.** The product is therefore perfectly suitable for farms where live animals are kept, food factories, meat packing plants, and agricultural facilities.

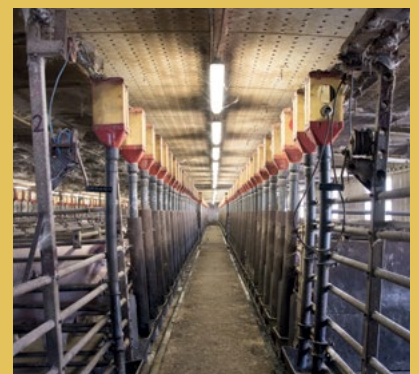
The DLG testing laboratory has confirmed that neither regular exposure to ammonia in the air, nor washing the fixture from distances stated in the report, result in the product being damaged or its life being shortened. The enclosed fixture, which cannot be dismantled, is an excellent choice for different chemically aggressive environments as well – production halls, warehouses, laboratories, car washes, etc.



INNOVA ABS



INNOVA WB ABS
INNOVA NB ABS





CONTROLLED PLANT GROWTH

Light fixtures for greenhouses

Our HORTI indoor light fixtures are designed for greenhouse gardening. They make it possible for growers to increase crop yields and their quality as well as ensure year-round production independent of the season of the year or weather. The fitting provides greenhouse owners with exceptional benefits whether it is used as a substitute for regular lights, or as an energy-efficient feature that complements the existing lighting system. The exceptional characteristics of HORTI are appreciated by greenhouse farmers regardless of what crops they grow (tomatoes, cucumbers, leaf vegetables, herbs, strawberries, cut flowers, pot plants, perennials, etc.

KEY BENEFITS OF HORTI

- Stimulates plant growth
- Improves colour, shape, and taste of crops
- Year-round production possible due to a longer growth cycle
- Cuts energy costs
- Allows farmers to control crop production even in poor weather conditions
- Lower maintenance costs compared to gas-discharge lamps
- May also be installed in low greenhouses and foil tunnels
- Decreases water consumption



FUTURA HORTI
FUTURA HORTI ABS



PERUN HORTI



CANOPUS HORTI

How does it work?

Plants respond to energy ratios in various portions of the colour spectrum. As a result, plant shape, its nutritional value, and taste can be controlled. It also allows growers to stimulate proper growth as well as speeding up the flowering process. Appropriate ambient temperature, air humidity, irrigation, and air-carbon dioxide ratio are additional significant factors affecting growth. Moreover, lighting controls various growth phases. The amount of light and the portion of the light spectrum that plants are exposed to affect growth intensity as well as flowering and fruit formation/ripening. Light quality influences plant morphology (plant shape) while various light-air ratios combined with appropriate portions of the light spectrum significantly affect their growing season and crop production.

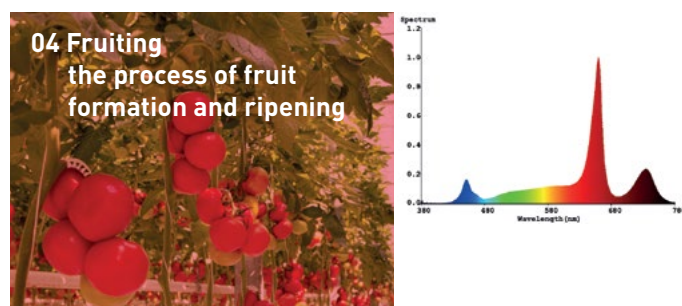
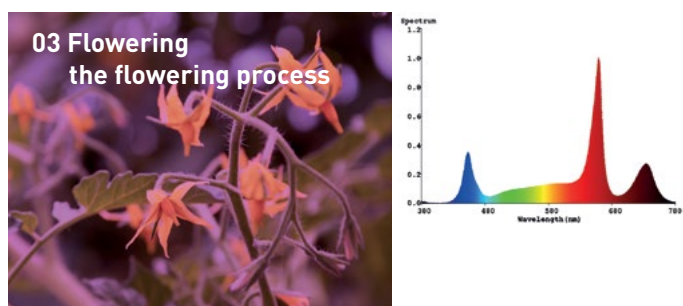
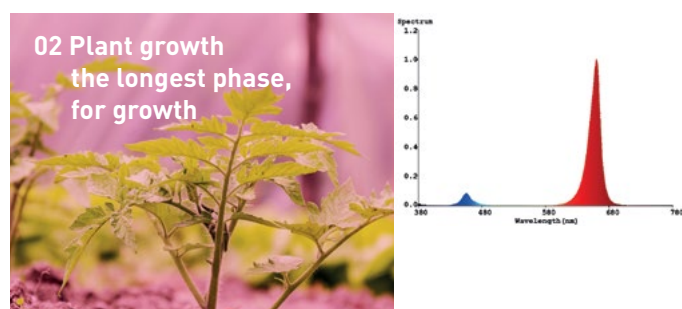
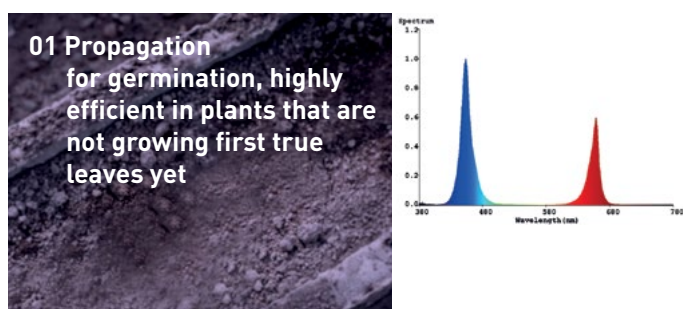
The module's colour spectrum has been set to **stimulate the 4 phases of plant growth: germination, growth, flowering, and fruit formation/ripening.**

The **green portion of the light spectrum** is virtually useless for plants. Their green leaves cause most of the energy contained in the green light to bounce back off rather than being absorbed.

Red light is used by plants for photosynthesis as well as to accelerate stem growth (elongated and stretchy stems occur when plants lack light).

Evidence exists that higher amounts of red light result in increased tomato production.

Blue light is used by plants for phototropism – plants redistribute growth hormones and adapt their shapes based on light intensity and direction; the aim is to make sure light is used as efficiently as possible.



Our HORTI light fixture contains 4 chips in 3 sections to ensure the most effective and energy-efficient lighting for your plants.

Spectrum	Maximum output in the spectra used	Phase
DEEP BLUE – 450 nm	410 mW/ft	plant germination
DEEP RED – 660 nm	540 mW/ft	plant growth stimulation
FAR RED – 730 nm + (WHITE)	195 mW/ft + 475 lm/ft	fruit formation and ripening



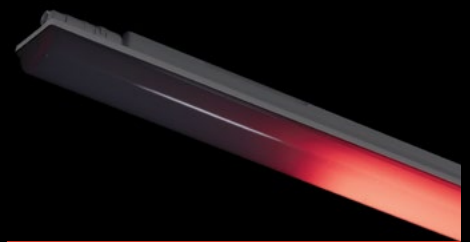
LIGHT FIXTURES FOR COW BARN

To ensure efficient production

This is a red light producing LED module that may be integrated into our INNOVA, PRIMA LED, and FUTURA-range fixtures. The product may be used as a service light, making it possible for workers to access and move around cow barns comfortably and easily (light intensity is sufficient) as well as to do all the usual tasks including milking without disturbing or interrupting the sleep cycles of the animals. Appropriate lighting and optimum distribution of fixtures **increases milk production by 6-10%**.

Customers can choose between installing a new lighting system and fitting the existing fixtures with the red light producing module. The result is selected light fittings feature a white light producing LED module to be used during the day and a red light producing LED module to be used at night.

The PRIMA LED 1.2ft luminaire contains only the RED spectrum LED module.



INNOVA ABS RED
red light



INNOVA ABS RED
white light

RED

625 nm	narrow spectrum
550 lm	from the fixture
12 W	Wattage





BLUE

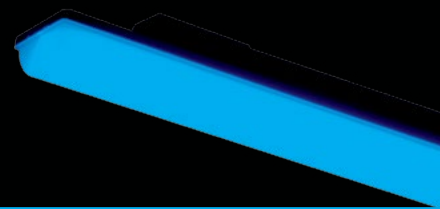
FOR POULTRY FARMS

To calm hens

The blue spectrum LED module may be integrated into our INNOVA, PRIMA LED or FUTURA luminaires. The behaviour of hens is adversely affected by inappropriate illumination, commonly resulting in stress, aggression and even cannibalism. These are all deviations from the standard behaviour that have a negative impact on profitability of poultry farms. Blue light stimulates growth as well as the sexual development of poultry by increasing the level of plasma androgens.

Blue light has stress-relieving properties in hens as well as improves the feed conversion rate. If hens are placed in a room with blue light, they perceive the room as being dark.

The INNOVA luminaire may contain either the BLUE spectrum LED module or the BLUE spectrum module together with the white spectrum module. The PRIMA LED 1.2ft luminaire contains only the BLUE spectrum LED module.



INNOVA ABS BLUE
blue light



INNOVA ABS BLUE
white light

BLUE

450 nm	narrow spectrum
7,75 W	radiant flux
16 W	Wattage





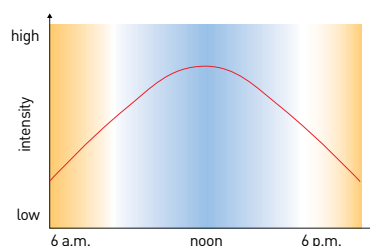
TUNABLE WHITE

For livestock farms

A module that boosts circadian rhythms.

These rhythms ensure the proper timing of all of the processes in the body as well as coordinating the various activities of the organs.

It is these rhythms that make body temperature, blood pressure, alertness, attention, energy consumption, and digestive and immune system activity, fluctuate. The light fixture is a perfect choice for livestock farms. The module makes it possible to adjust correlated colour temperature (CCT) from warm to cool white (2700 K – 6500 K) as well as lighting intensity (dimming) using a Digital Addressable



A day starts at 2700 K. The blue sky at noon has a colour temperature of 5000 K, which gradually decreases back to 2700 K.

Lighting Interface (DALI). The dimming function may be incorporated in an automated system or may be user-controlled on an as-needed basis.

Most TREVOS luminaires may be fitted with this module.

TREVOS

Established in 1990, fully Czech-owned, TREVOS produces both commercial and interior light fixtures. The company builds on its own research and development efforts, extensive professional knowledge, and protected know-how. In addition to the Czech market, TREVOS also supplies its high-quality state-of-the-art fittings to over 60 countries in the world. The company's business strategy relies on innovation and commitment to top quality while keeping its products affordable.

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