

Introduction of Poultry Intelligent Special LED Lighting



Speaker
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Jinsong JIANG graduated from Zhejiang University in Agricultural Engineering, focusing on “Poultry Lighting Environment Control”. He has been carrying on experiment on LED application in breeding for a long time in farms, and has rich on-site experience of the lighting requirement characteristics of poultry and the solutions on the henhouse lighting environment.

Hangzhou Light Talk Biotechnology Co., Ltd.



Company Profile

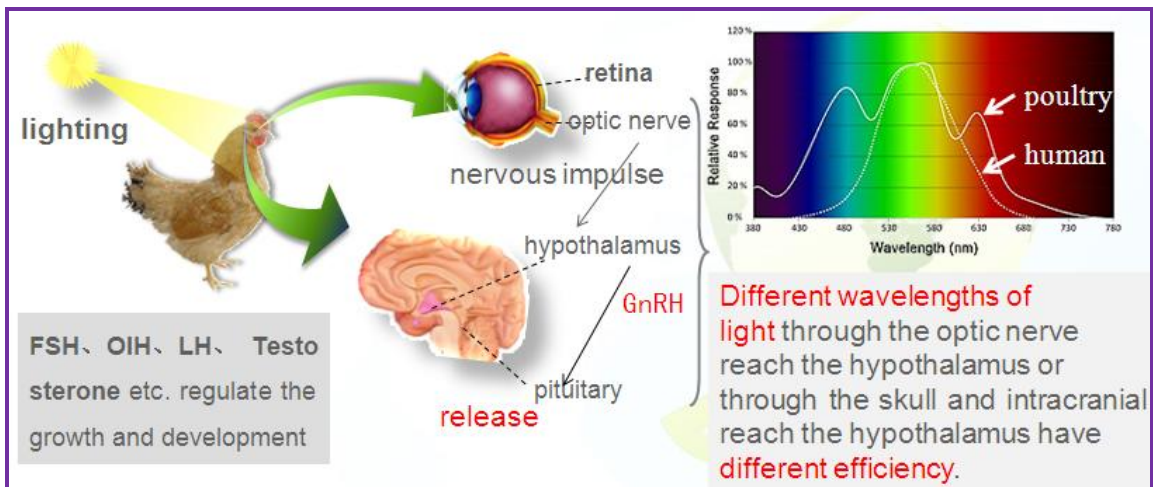
Hangzhou Light Talk Biotechnology Co., Ltd. is a technology enterprise specializing in the R&D of special LED lighting products and the design of integrated lighting solutions for intensive livestock breeding. The company has a core R&D team comprising professors, talents with PhD and Master Degrees from Zhejiang University, and has been establishing a close production-learning-research cooperation with the Zhejiang University and Institute of Semiconductors, Chinese Academy of Sciences. It has obtained proprietary intellectual property rights in special LED lighting for intensive livestock breeding, and its core technologies including special spectrum and control system have been awarded one PCT international patent and 13 invention patents.

Aiming for the physiological need of different animal breeds like chicken, duck and pig, the special LED lights developed by the company have been modulated with the optimal LED spectrum based on a wide range of researches on field system. Combined with the optimal illumination, uniformity and duration, they can create an excellent lighting environment for intensive livestock breeding, and capitalize on the physical process of superior LED lighting environment to improve the level of

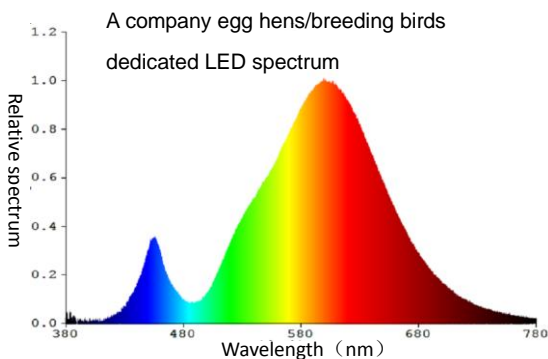
hormones in the body of livestock, significantly strengthen their physique and improve production performance. With professional thermal design, the special LED light products also take into full account the high humidity and high dust characteristics of the intensive livestock breeding environment, which can not only be waterproof and dustproof, but also significantly reduce the temperature of light body during the process of lighting and feature slower light attenuation, extend life, and save more power. In addition, through the intelligent control technology, they forms a complete set of intelligent special LED lighting system that adapt to the requirements of modern intensive livestock breeding.

After 6 years of R&D and demonstrations, the products officially came onto the market in 2014. Thanks to the incredible cost-effectiveness, they were rapidly recognized by users and have been applied in more than 50 leading breeding enterprises in Beijing, Sichuan and so on.

R&D Background



Lighting Research on Breeding Chickens



Long wave promotes hormone secretion to achieve high yield

Short wave promotes calcium absorption to ensure good shell

Only reasonable proportion can ascend together.



Project: The Correlation of Breeding bird's Egg Production under Different Wavelengths

Study site: a poultry company - national high-quality breeders



Common non-professional design - uneven illumination



Light Talk specialized design - even illumination

Even illumination -- according to the layout of hen house and the design of coop → **Lay eggs evenly**

Effects of Trial Breeding

<p>Lighting Control</p> <p>Automatically/semi-automatically controlled the brightness, adjusted the brightness phase by phase, and had no stress switch, fully eliminating the cumbersome process and negative stress of the traditional manual assembly and disassembly bulbs for adjusting.</p>	<p>Weight of Chickens out of Cage</p> <p>Combined with optimal brightness and illumination length, the special spectrum significantly improved the production performance of poultry, increasing the weight of broilers out of cage by 1.53%, and increasing the accumulated eggs by 2.05%.</p>
<p>Energy Consumption/Maintenance/Safety</p> <p>Saved over 50% of energy than traditional lighting; when the LED lighting fixtures failed to work, the maintenance cost could reduce by more than 80%; using low voltage DC power completely avoid personal and animal injuries and deaths from electric leakage.</p>	<p>Death Rate</p> <p>Combined with optimal brightness and illumination length, the special spectrum greatly enhanced the physical health of poultry and their resistance to epidemic diseases, with the reduction of disappointment rate of massive demonstrations by 2.15%.</p>
<p>Breeding Environment</p> <p>After analyzing the physical and chemical properties of poultry manure under the condition of breeding with LED lighting, the experiment found that the moisture content of manure was reduced by 11.3%, making for limiting ammonia production and improving the breeding environment.</p>	<p>FCR/Ratio of Feed to Egg</p> <p>Combined with optimal brightness and illumination length, the special spectrum significantly improved the absorption and utilization of feed nutrient by poultry, and reduced the average FCR and average ratio of feed to egg by 2.04% and 2.01% respectively.</p>

Effects of Production Breeding

A breeding company installed Light Talk's special LED lighting system for livestock breeding in its independent henhouse with an area of 1,680 square meters to breed white chickens. After the application for several batches, the company reported that the effect was fairly good, with improved state of health of broilers, lower death rate, reduced feed conversion ratio (FCR) on year-on-year basis, and reduced power consumption, bringing more benefits to the company.

The investment recovery period is around eight to twelve months based on practical projects in China.

**Working Agenda of
2016 ISA-India International Solid State Lighting Workshop
Section I: Poultry Intelligent Special LED Lighting**

New Delhi, India

14:00 – 17:00, October 5th, 2016

Hosted by ISA

Supported by ELCOMA

14:00-14:10	Welcome Address ISA ELCOMA
14:10-14:50	“R&D and Promotion on Poultry Intelligent Special LED Lighting” Mr. Jinsong JIANG General Manager Hangzhou Light Talk Biotechnology Co., Ltd.
14:50-15:50	Question & Answer
15:50-16:10	Coffee Break
16:10-16:50	Free Discussion
16:50-17:00	Summary
17:00	Adjourn



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