



NARVA BIO vital®

NARVA BIO vital® lighting

Reduced feed consumption

Reduced water consumption

Improved uniformity

Increased egg production

Less egg displacement

Increased hen weight

The ultimate in poultry lighting solutions

experts in **LIGHT**
NARVA
Germany

NARVA BIO vital®

is an artificial light that reproduces natural sun light with its unique spectral composition. In comparison to standard lamps, that can only provide the spectral range of visible light, NARVA BIOvital® spectral composition contains additional ultraviolet light proportioned similar to that found in natural sunlight.

It is common practise that lights are dimmed during egg production. One of the benefit of NARVA BIO vital® 958 is, the lamp can be dimmed 10% more than other lamp types such as the warmer

light colour 830. The result after dimming these lamps (NARVA BIO vital® 958) would be perceived as being very similar in light level. Also, the more you dim, the more energy you save. Energy saving is another positive benefit of using NARVA BIOvital®.

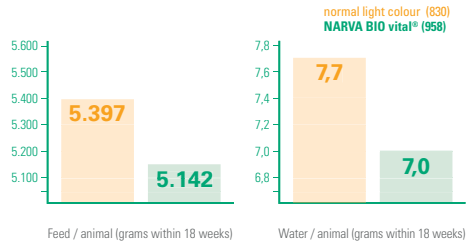
Full spectrum lamps are also beneficial to the employees. It is a proven fact that after a short period of adaptation, employees are more comfortable working under the healthier, brighter light produced by NARVA BIO vital® 958. It is also proven through research and well documented that daylight improves our attention in the work place.

Reduced feed consumption

Reduced water consumption

Reduction of feed and water consumption during breeding

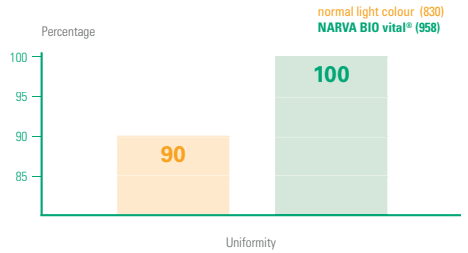
During the breeding period of 18 weeks, the consumption of chicken feed was reduced by approximately 5 % under the light of NARVA BIOvital® 958, i.e. every bird consumed about 250 g less and the farm achieved a total reduction of 7 tons. The reduction of water consumption was 9 %, i.e. 0,7 liters less per animal and about 5 m³ less water in the hen house.



Improved uniformity

Improvement of the uniformity of the animals

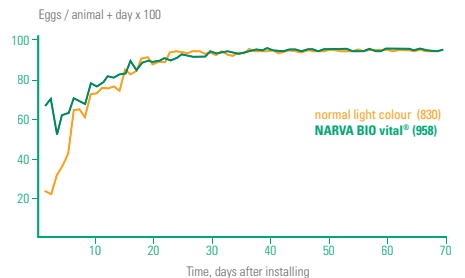
The uniformity of the hens was improved under the light NARVA BIO vital® 958. At the age of 18 weeks (depopulation and sale) all the animals had been found to be within the standard deviation of 10%. The animal weight was slightly lower under the light from NARVA BIO vital® 958 than under standard lighting, but exceeds the required minimum weight of 1.350 g. The acceptable weight loss corresponded to reduced feed consumption.



Increased egg production

Higher egg production under the light NARVA BIO vital® 958

Egg production rapidly increases under the light NARVA BIO vital® 958 when compared to standard lighting. A significant difference occurs at the early stage of production. Later on only slightly enhanced egg production is maintained under the light NARVA BIO vital® 958.



The study

Light is the basis of life on our planet. It is a source of energy and is well known to be a major factor of our well-being. The chicken's sense organs for light are not only their two eyes but also the so-called "third eye", the epiphysis or pineal gland.

In addition to the photoreceptors of the retina, the epiphysis contains another pigment for light absorption, which illustrates the complexity of this process in a chicken. In order to investigate the influence of artificial light on breeding and

egg production under field conditions, each Poultry farm had been installed with either of NARVA BIO vital® 958 lamps or with standard lamps, respectively. The light of NARVA BIO vital® 958 is similar to sunlight. For this breeding observation, both White and Brown Leghorn chicks (LSL and LB) were installed and used approximately 25.000 animals on each farm. For egg production the white Leghorn race Hy-line W 98 was installed with about 28.000 birds in each hen house.

Our investigation in Germany was carried out under field conditions to identify the effects of using NARVA BIO vital® 958 and standard 830 lamps. This study was performed by Agrar GmbH Veckenstedt in 38871 Veckenstedt for breeding and Spreenhagen Vernehrungsbetrieb für Legghennen GmbH in 15741 Bestensee with egg production. The study was carried out by Dr. sc. nat. Wilfried Dathe.

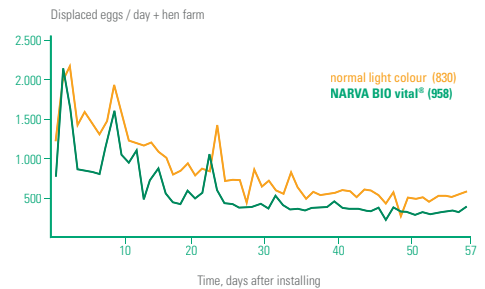
Less egg displacement

Less displacement of eggs under the light NARVA BIO vital® 958

When we compare identical conditions, the hens displace significantly fewer eggs under the light of NARVA BIO vital® 958 than the result recorded under standard lighting conditions. There was a significant decrease in soiled and broken eggs. This decrease also reflects a saving with labour cost.

Poultry farm 1: 29.000 animals – light colour 830 (standard)

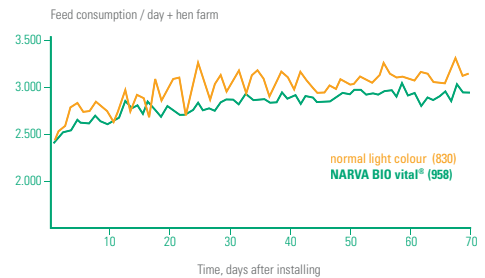
Poultry farm 2: 28.200 animals – light colour 958 (NARVA BIO vital®)



Reduced feed consumption

Feed consumption under the light NARVA BIO vital® 958

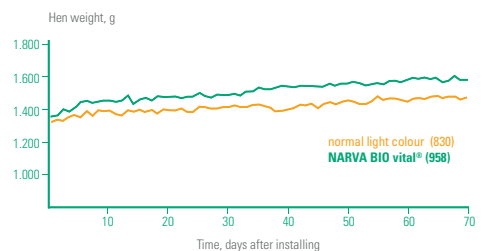
The period of observation started at installing (30 August 2010) and extended over a period of about two months (7 November). The daily consumption of chicken feed under NARVA BIO vital® 958 is not significantly lower than the curve of the control group under light 830. However, in relation to the total feed consumed, the results in the saving of feed was approximately 225 g/hen or 6,27 tons/hen farm under NARVA BIO vital® 958.



Increased hen weight

Development of the hen weight under the light NARVA BIO vital® 958

The hen weights increased faster under the conditions of NARVA BIO vital® 958 as compared with the control group under the light 830. As no increased feed consumption was detected, this development may be due to a better use of feed.





NARVA BIO vital® – like sun light

Technical data and how to order

Name of item	Nominal power W	Luminous colour	Colour reproduction	Nominal luminous flux, lm	Energy label	Base	Max. size		Lamps, packing unit	Order number
							Diameter mm	Length mm		
LT-T8 NARVA BIO vital®										
LT 15 W/958	15	958 NARVA BIO vital®	1A	750	B	G 13	26	438	25	11015H 0013
LT 18 W/958	18	958 NARVA BIO vital®	1A	1.150	B	G 13	26	590	25	11018H 0018
LT 30 W/958	30	958 NARVA BIO vital®	1A	2.000	B	G 13	26	895	25	11030H 0013
LT 36 W/958	36	958 NARVA BIO vital®	1A	2.800	B	G 13	26	1.200	25	11036H 0018
LT 58 W/958	58	958 NARVA BIO vital®	1A	4.500	B	G 13	26	1.500	25	11058H 0015
LT-T5 NARVA BIO vital®										
LT 14 W T5-EQ/958	14	958 NARVA BIO vital®	1A	925	B	G 5	16	549	25	17114T5H 0003
LT 21 W T5-EQ/958	21	958 NARVA BIO vital®	1A	1.450	B	G 5	16	849	25	17121T5H 0003
LT 28 W T5-EQ/958	28	958 NARVA BIO vital®	1A	2.000	B	G 5	16	1.149	25	17128T5H 0004
LT 35 W T5-EQ/958	35	958 NARVA BIO vital®	1A	2.500	B	G 5	16	1.449	25	17135T5H 0004
LT 24 W T5-EQ/958	24	958 NARVA BIO vital®	1A	1.400	B	G 5	16	549	25	17124T5HQH 0004
LT 39 W T5-EQ/958	39	958 NARVA BIO vital®	1A	2.450	B	G 5	16	849	25	17139T5HQH 0005
LT 49 W T5-EQ/958	49	958 NARVA BIO vital®	1A	3.400	B	G 5	16	1.449	25	17149T5HQH 0004
LT 54 W T5-EQ/958	54	958 NARVA BIO vital®	1A	3.500	B	G 5	16	1.149	25	17154T5HQH 0006
LT 80 W T5-EQ/958	80	958 NARVA BIO vital®	1A	4.900	B	G 5	16	1.449	25	17180T5HQH 0005

We reserve the right to alter specifications without prior notice.

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