



INTERNATIONAL

*The key to your profit!*



# Cage-Free Rearing Preparation

Leon Schouren

Global Technical Service

[schouren@hn-int.com](mailto:schouren@hn-int.com)



**Cages**



**Enriched cages**



**Barn egg**



**aviary**



**Free range**



**Organic**







Source: Big Dutchman, 2010



Source: Vencomatic, 2009

## BrownNick in The Netherlands Aviary System

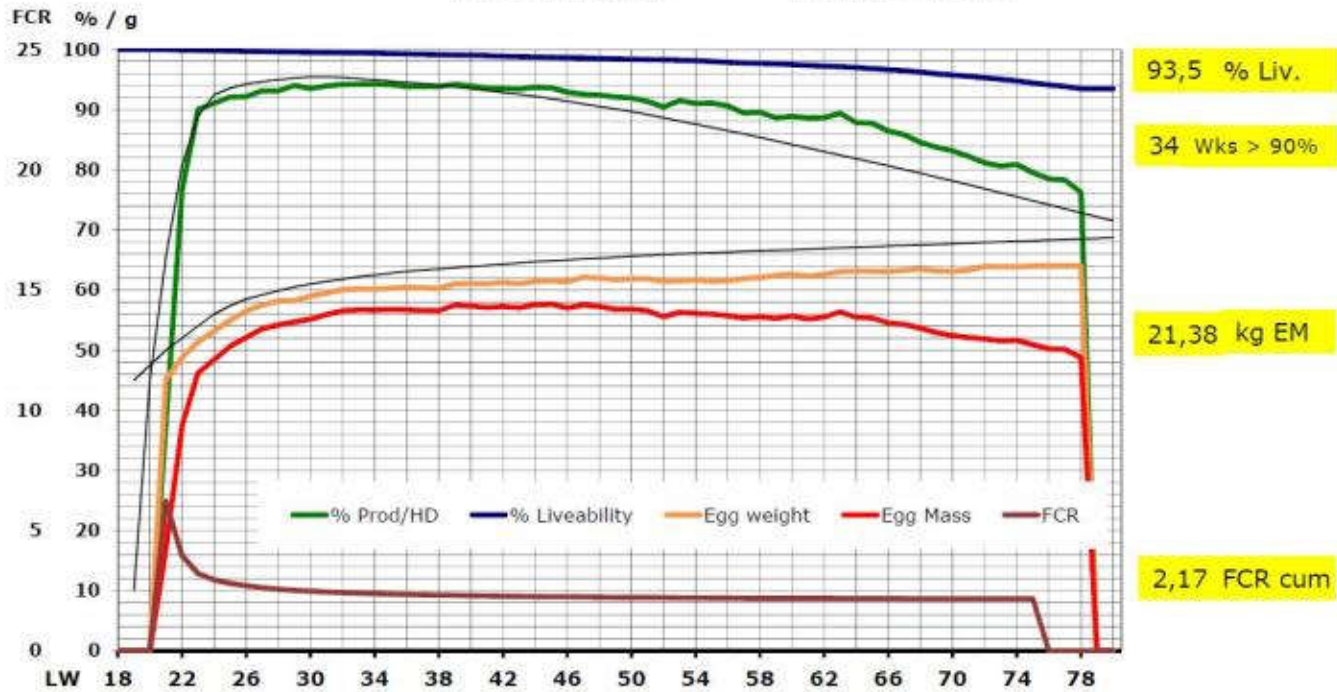


cum. EN/HH	59,0	123,7	187,4	249,5	309,5	348,4
target	66,1	131,2	193,6	252,1	306,1	341,1





## BrownNick in The Netherlands Free Range, 39.100 hens



cum. EN/HH	59,6	124,9	189,1	251,0	309,6	351,8
target	66,1	131,2	193,6	252,1	306,1	345,9

# (New) Challenges



Novatech



Untrimmed

# (New) Challenges





## Right Brooding & Rearing



**Key Success Factors  
for a Successful Laying Period**

# Do we need to do something extra?

Determine the strategic road with:

*Advisors from hatchery, feedsuppliers,  
Veterinarian*

*and/ or other involved parties*

# Rearing

## **MAKE A PLAN BEFORE STARTING TO REAR!!**

- Decide on the type of system for the pullets!
- White or Brown Layers!
- Production: Number of eggs, Kg of eggs..
- Age of the Layers!

# QUALITY CONTROL IN THE HATCHERY



# Important for rearing

*Important for alternative housing is:*

- ***Cleanness***
- ***Rest***
- ***Regularity***





# Preparing

- A thorough cleaning of the house and everything what belongs to it
  - *Wintergarden and if available, free-range area*
- **Don't forget the feed- and watersystem!**
  - *Feederbins (augers, air-exhaust, batch-weigher)*
  - *Manure storage & Manure drying accessories (airmixer / heatexchanger, airtubes) but also air-inlets and airpressure hoot*
  - *Manure-conveyor channel and egg collection room*
- **Make sure the house will be disinfected in time.**
  - *Be carefull with residues – remains of the disinfectant*

# Preparing



# Preparing

- Preparing for placement from DOC
  - *Check setting in the computers if they are O.K.*
  - *Is everything checked & tested (especially with first flock)*
- Start pre-heating the house on time. Also the equipment has to get on temperature.
  - *House temperature up to 35°-36° C.*  
*In summer time, at least 24 hours before arrival of the chicks. In wintertime **at least** 48 hours before arrival of the birds.*
  - *The first 48 – 72 hours after placement, this temperature must be maintained.*
  - *The relative humidity preferred to be at least 60%.*



## Preparing

- New poultry people.....  
(Rearing/Production) Practical training.
- Discuss before the DOC, or pullets will be placed, settings of:
  - Lights*
  - Feed*
  - Water*
- Functions & settings from computer & clocks.

# Preparing



# Preparing

- Make sure, that feed and water is available for the birds, shortly before placement.
- Consider that the birds need easy access to the feed- and watersystem.
- Waterlines have to be on the right height.
- It is better to distribute litter on the concrete floors, after the first days of pre-heating the house.

# Preparing



# FEED STRUCTURE

Homogenous mash feed structure →  
the basis for good & even feed and nutrient intake



Source: R. Pottgüter



# FEED STRUCTURE

Coarse crumbled feed, sold as starter feed!



Source: R. Pottgüter

# FEED STRUCTURE



Source: R. Pottgüter

# FEED STRUCTURE



# Water

- The optimal water temperature is about 18 - 22°C!
- Birds refuse to drink, if the water temperature is too high!
- Birds do not EAT, if they do not DRINK!



# Water





# Water



**Check the drinkers height regularly especially in first days of Rearing!**



**Too Low**

Pictures: LUBING GmbH & Co. KG



**Too High**

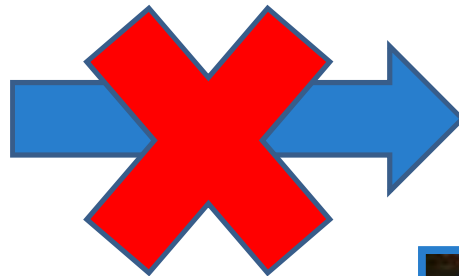


**Right Height**





The more closely the growing house and facilities resemble the future production system, the easier will be for the pullets to settle down in their new environment after transfer to laying house!



# Rearingsystem

- Pullets reared in a traditional floor system should be placed in a traditional floor house.  
Only aviary reared pullets should be placed in an multitier layer house!
- Behaviour of the birds will partly be determined in the rearing phase.
  - *Several colours clothes / coveralls*
  - *Don't act to carefully*

# Rearingsystem



# Rearing (Jump-start/Nivo-Varia)



# Rearing (Row Systems)



- ✗ Learn how to jump
- ✗ Enrichment first days in cages
- ✗ Ventilation block by system

# QUALITY CONTROL IN THE HATCHERY



## ARRIVAL AT FARM

- ✓ HEAT (35 - 36° C)
- ✓ HUMIDITY (60 – 70%)
- ✓ LIGHT (maximum intensity during the first days)
- ✓ FRESH AIR
- ✓ WATER & FEED



# Arrival at Farm (FSP)

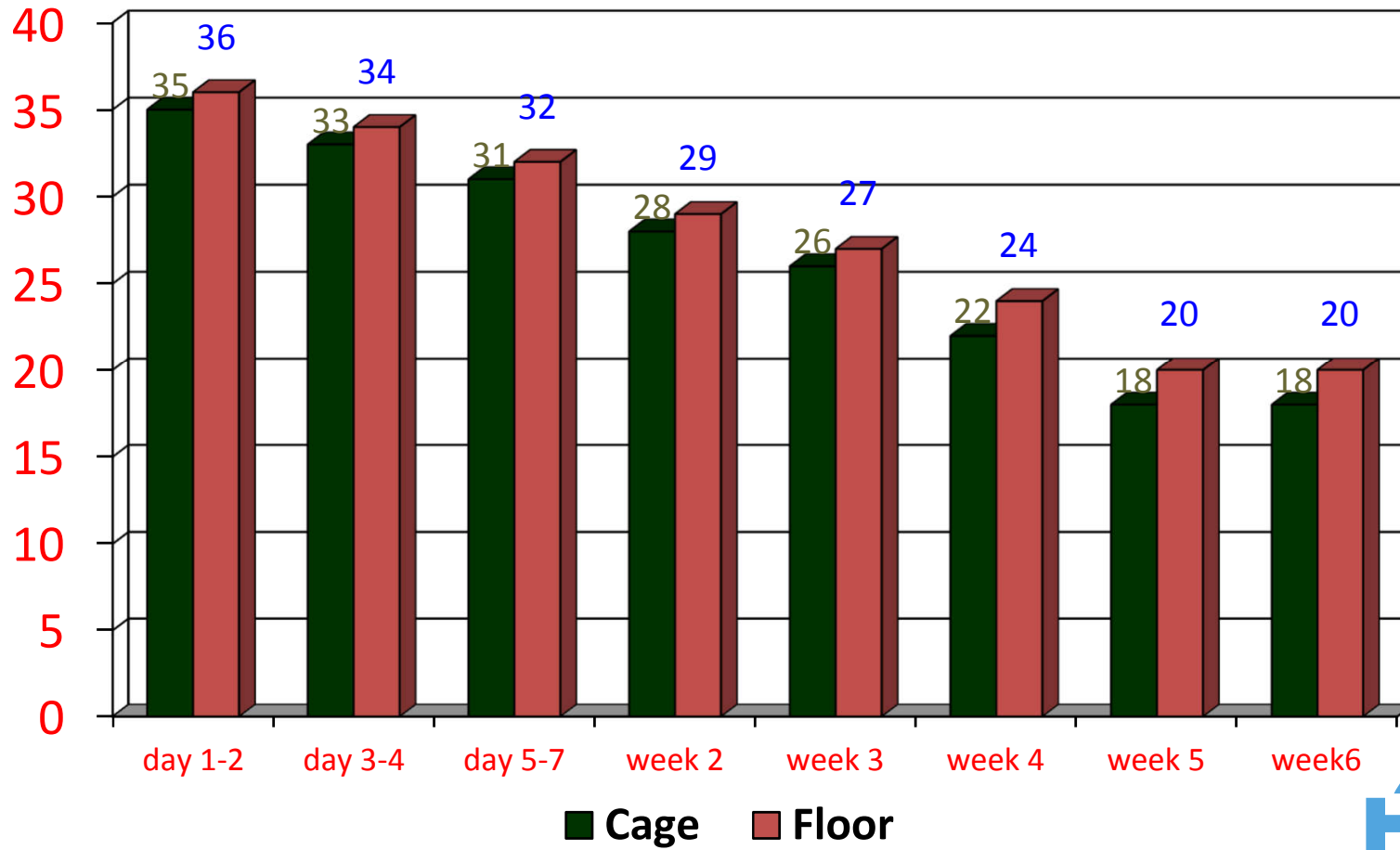
- Temperature: Concrete/shavings/Paper.
- Chick temperature
- Water (Temp)
- Relative humidity
- Body weights

	Standard:	Settings:	Actual						
Room Temperature:	35-36 C 95 - 97 F								
Floor Temperature:	Concrete: 28 C / 82,5 F Shavings: > 32 C / 90 F Paper: > 32 C / 90 F								
Chick's Temperature:	♀ 40-40,3C 104 - 104,5 F ♂								
Drinkwater Temperature:	20 - 25 C 88 - 77 F								
Relative Humidity	> 60%								
O2	> 20%								
CO2	< 0,3%								
CO	< 40 ppm								
NH3	< 20 ppm								
H2S	< 5 ppm								
Körpergewichten	♀ ♂								
Lichting: (LUX)	20 - 40 Lux								
Wasser - Futterproben									



# TEMPERATURE

Always reduce temperature gradually!



# Temperature



# TEMPERATURE

- Optimum chick body temperature is 40° - 40.6° C! (104 - 105F)
- Day-old chicks can't regulate their own body temperature! (poikilothermic)
- Incorrect ambient conditions have a direct affect on the body temperature of the chicks!
- Day-old chick body temperature can drop quickly!
- Day-old chicks can't adjust metabolism under low body temperatures!
- Day-old chicks are able to regulate body temperature at about 4-5 days of age! (poikilothermic to homeothermic)

Measuring Chick Body Temperature  
Optimum 40-41° C (104-106° F)



Adjust House Temperature according to the Chick Body Temperature!

# Practical experiences!!



## Arrival at Farm

*Target roomtemperature* 35-36C<sup>°</sup>

➤ *Average roomtemperature* 30C<sup>°</sup>

➤ *Min. roomtemperature* 26 C<sup>°</sup>

➤ *Max. roomtemperature* 37 C<sup>°</sup>

## Arrival at Farm

Target concrete temperature	28C°
➤ Average concrete temperature	23C°
➤ Min. concrete temperature	16C°
➤ Max. concrete temperature	35C°

# Arrival at Farm

## Paper/shaving temperature

- Target paper/shaving temperature > 32 C°**
- **Everage paper/shaving temperature 31 C°**
  - **Min. paper/shaving temperature 26 C°**
  - **Max. paper/shaving temperature 35 C°**



## Arrival at Farm

Target chick temperature	40-41C°
➤ Average chick temperature	39C°
➤ Min. chick temperature	37C°
➤ Max. chick temperature	>41C°

## Arrival at Farm

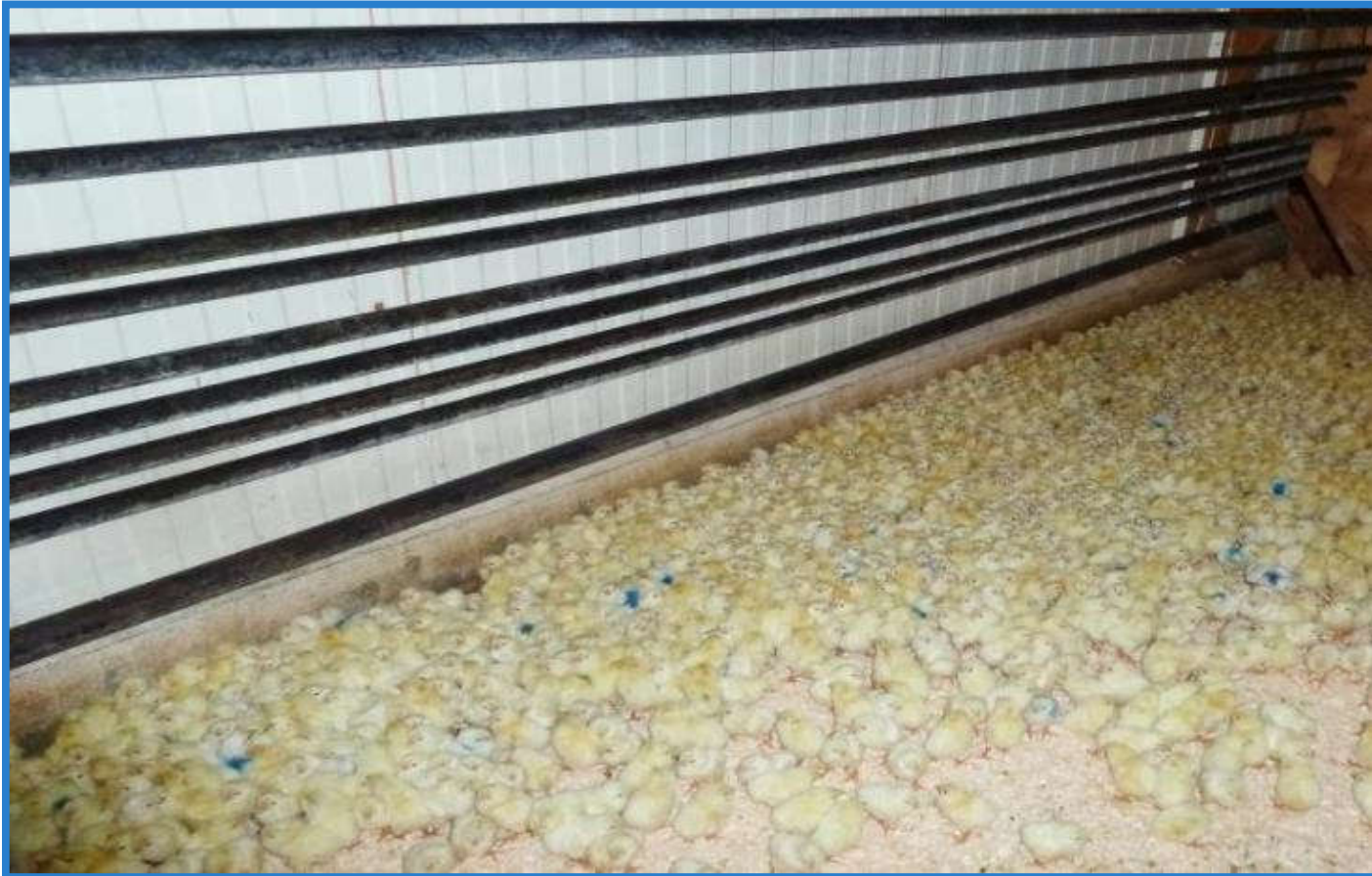
Target water temperature 20-25C°

- Average water temperature 25C°
- Min. water temperature 19C°
- Max. water temperature 35C°

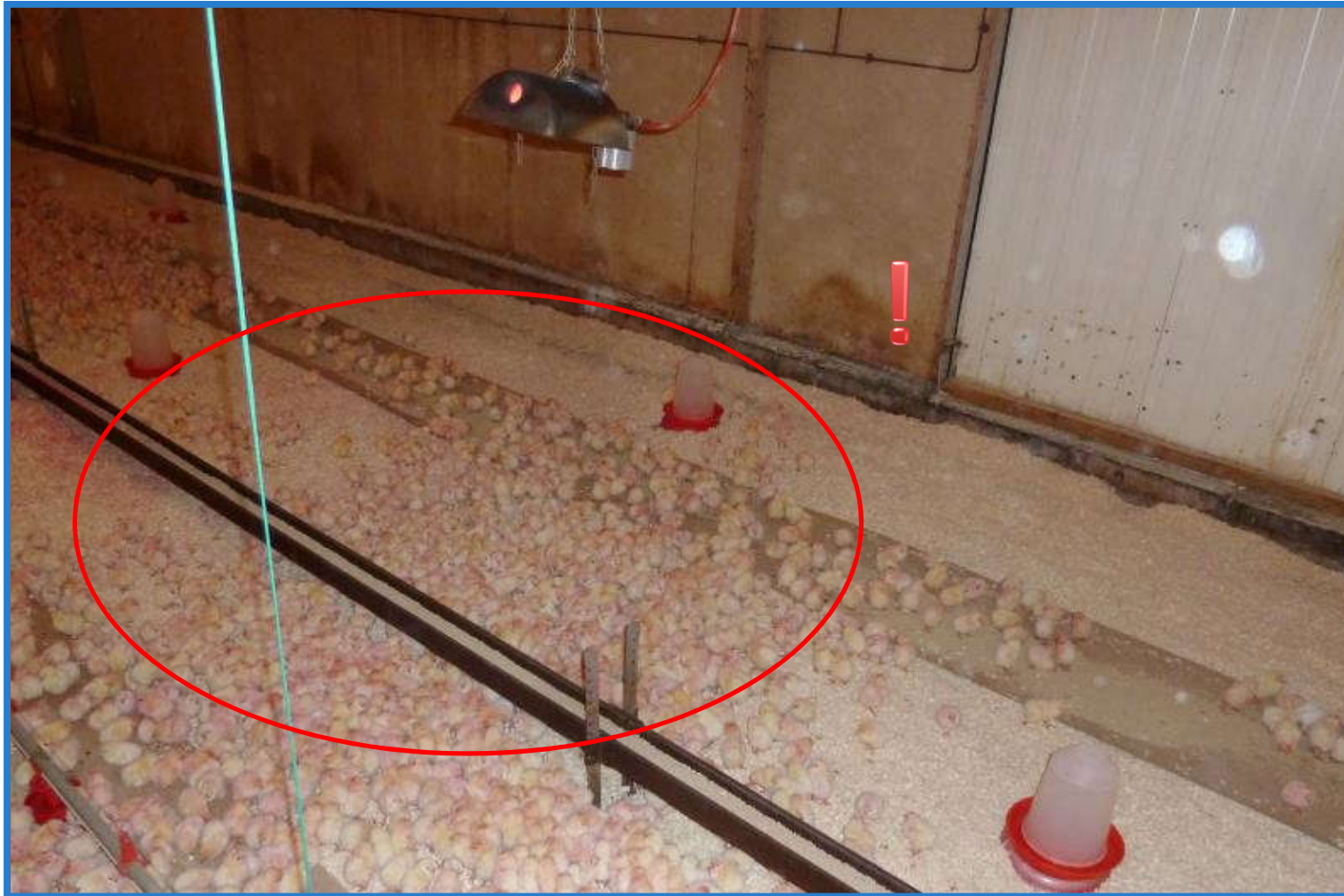
## Arrival at Farm

Target relative humidity	> 60%
➤ Average relative humidity	40%
➤ Min. relative humidity	22%
➤ Max. relative humidity	63%

# Temperature



# Temperature



# Temperature



# Temperature



**(Clean) water**





# (Clean)Water

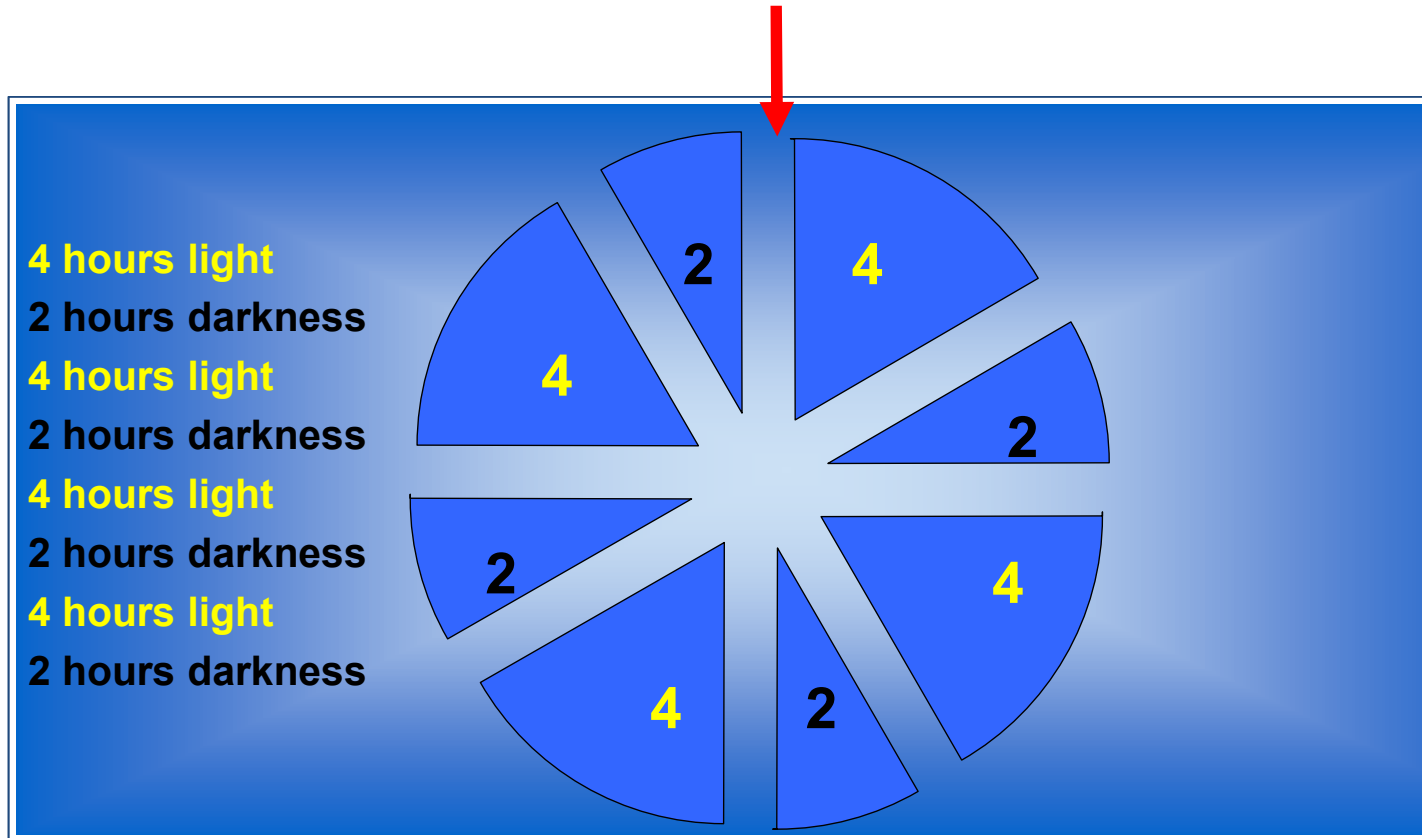


## Intermittent Lighting Program

### Advantages:

- chicks are resting or sleeping at the same time!
- Weak chicks will be stimulated by stronger ones to move and for eating and to drinking!
- Flock is behaving uniform – better judgement of the birds!
- Reduced first week mortality!

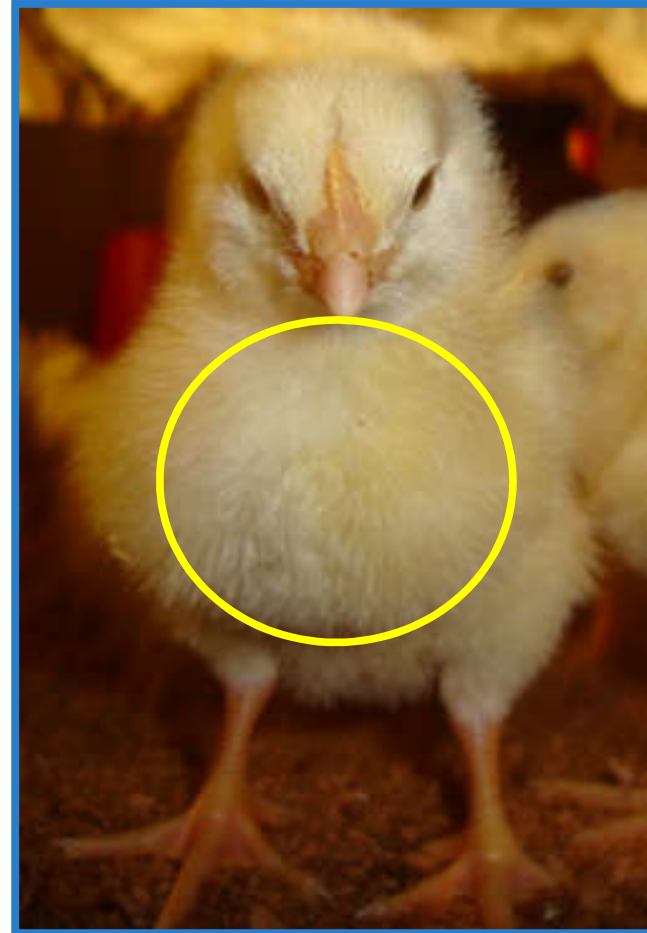
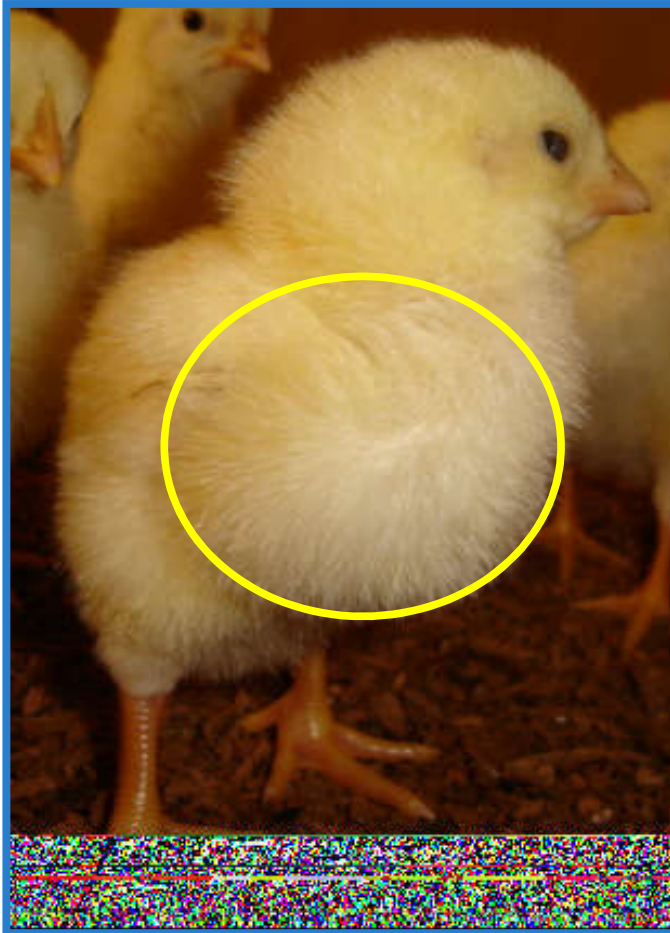
# Intermittent Lighting Program



# Intermittent Lighting Program

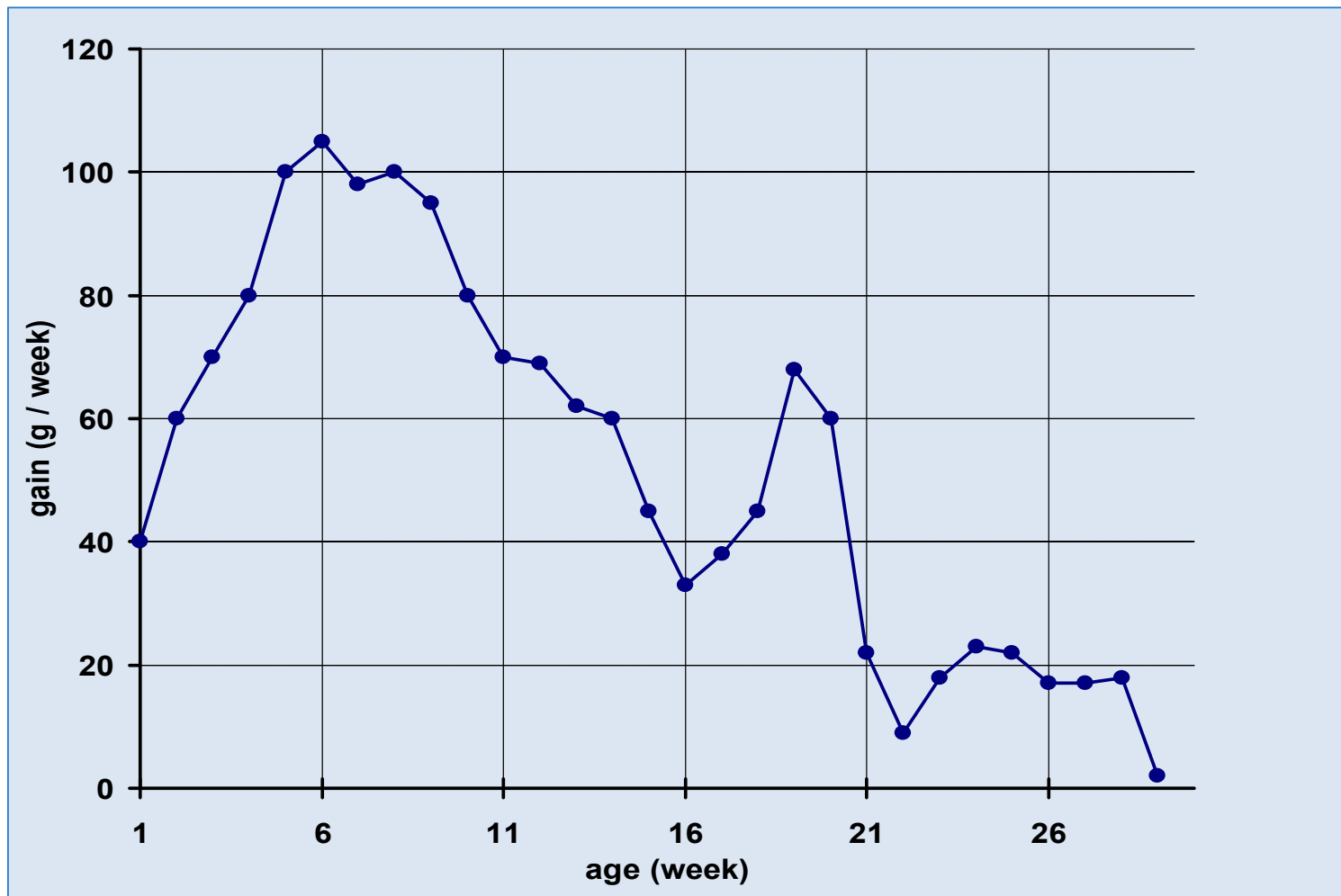


## FEED INTAKE



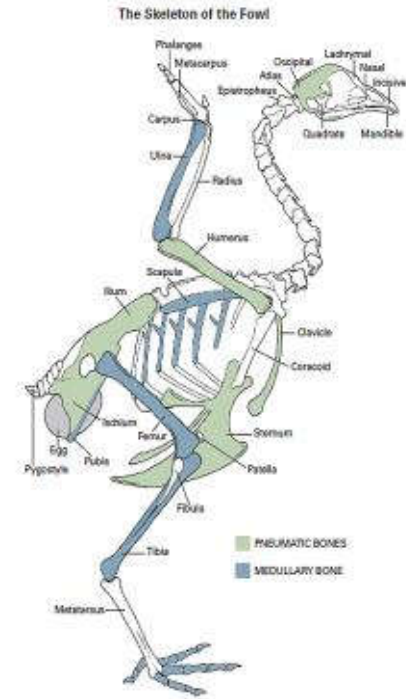
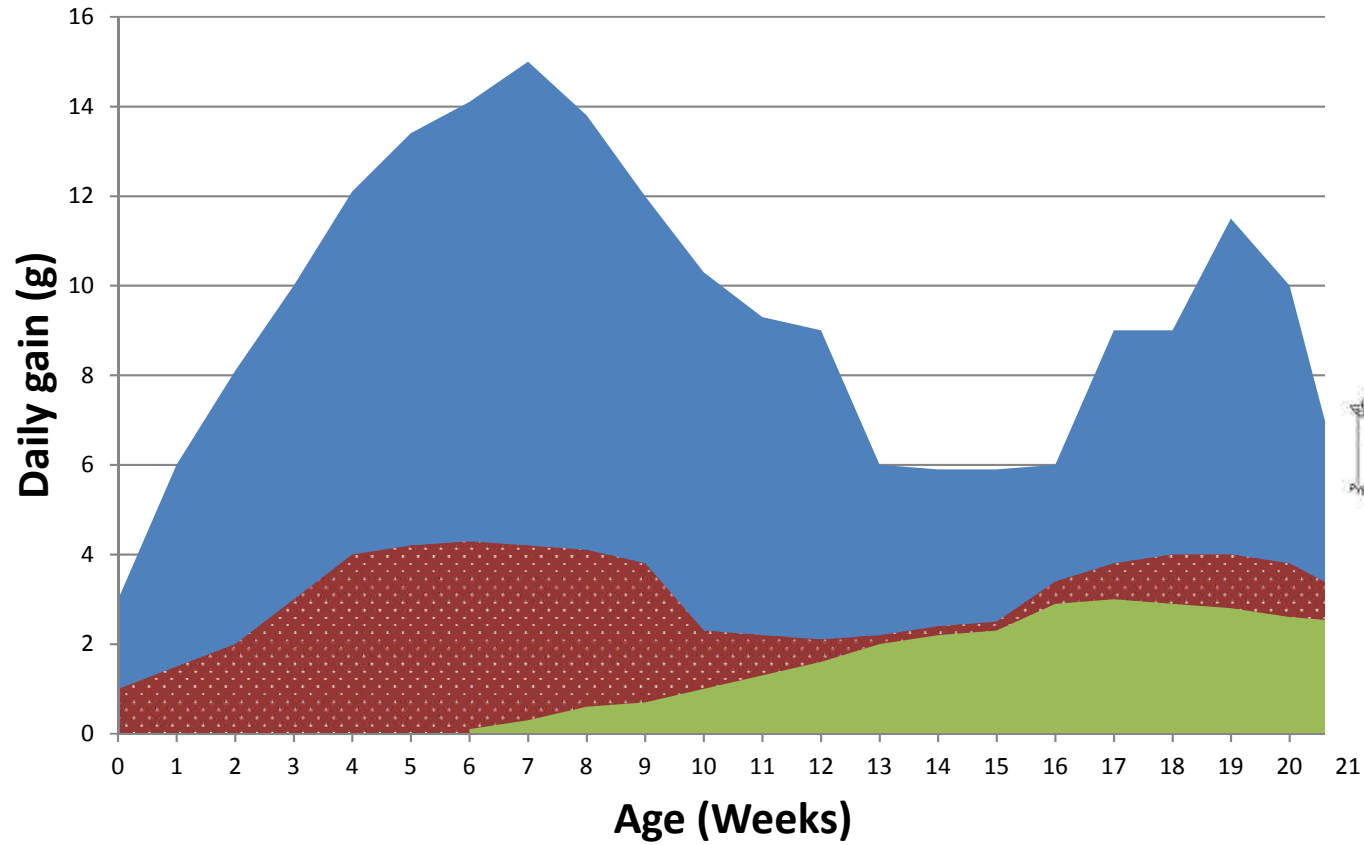
**Crop filled 80 % after 8 hours / 90 % after 24 hours !**

# Body Weight Development



LSL: source Kwackel, 1999

# Body Weight Development

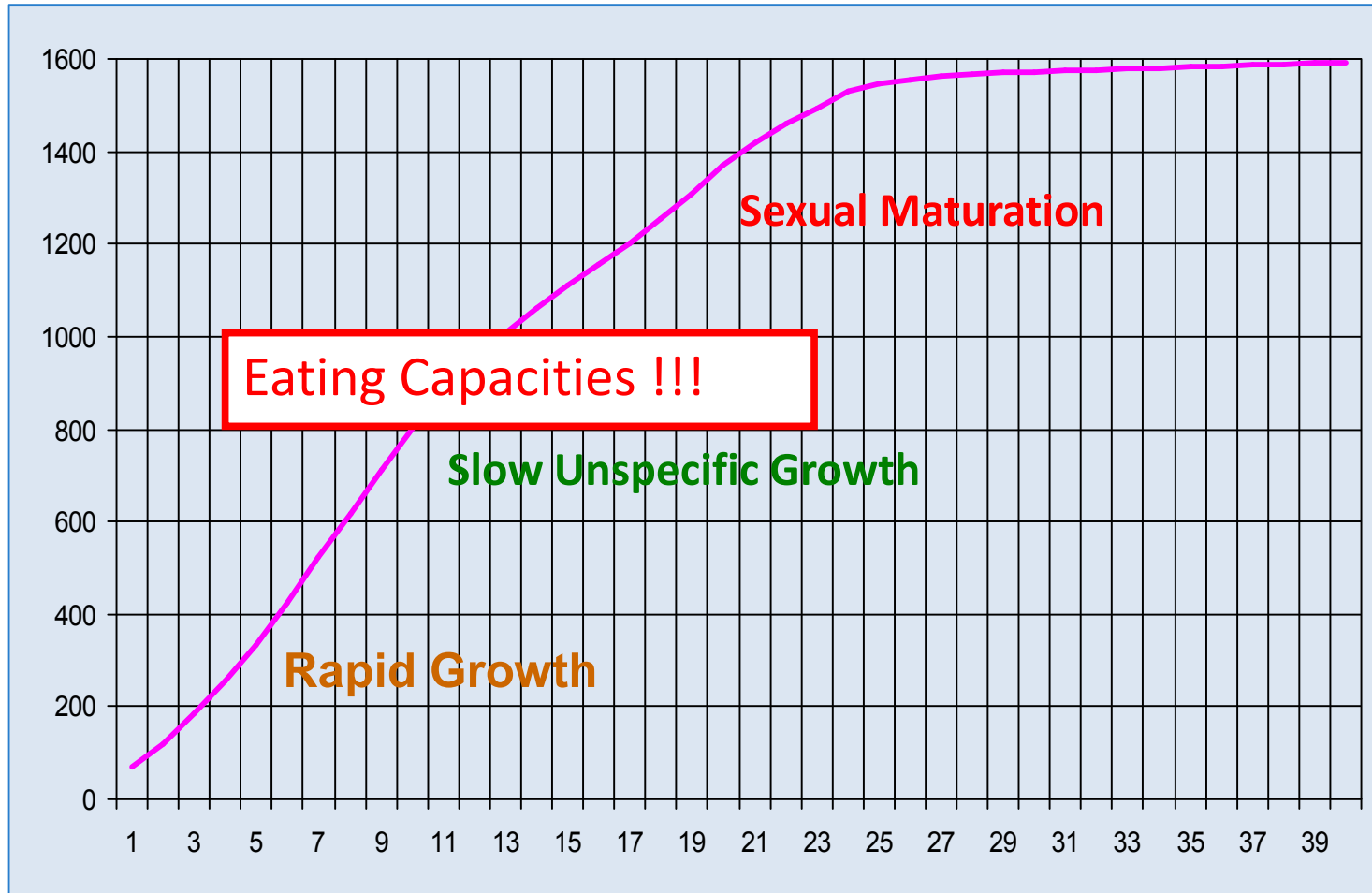


■ protein ■ bones ■ fat

Ysilevitz, 2007



# Body Weight Development





# Beak Treatment



# Beak Treatment



# Beak Trimming Evaluation



Too long



Not straight



Too hot and too short



Too hot



Not straight and too short

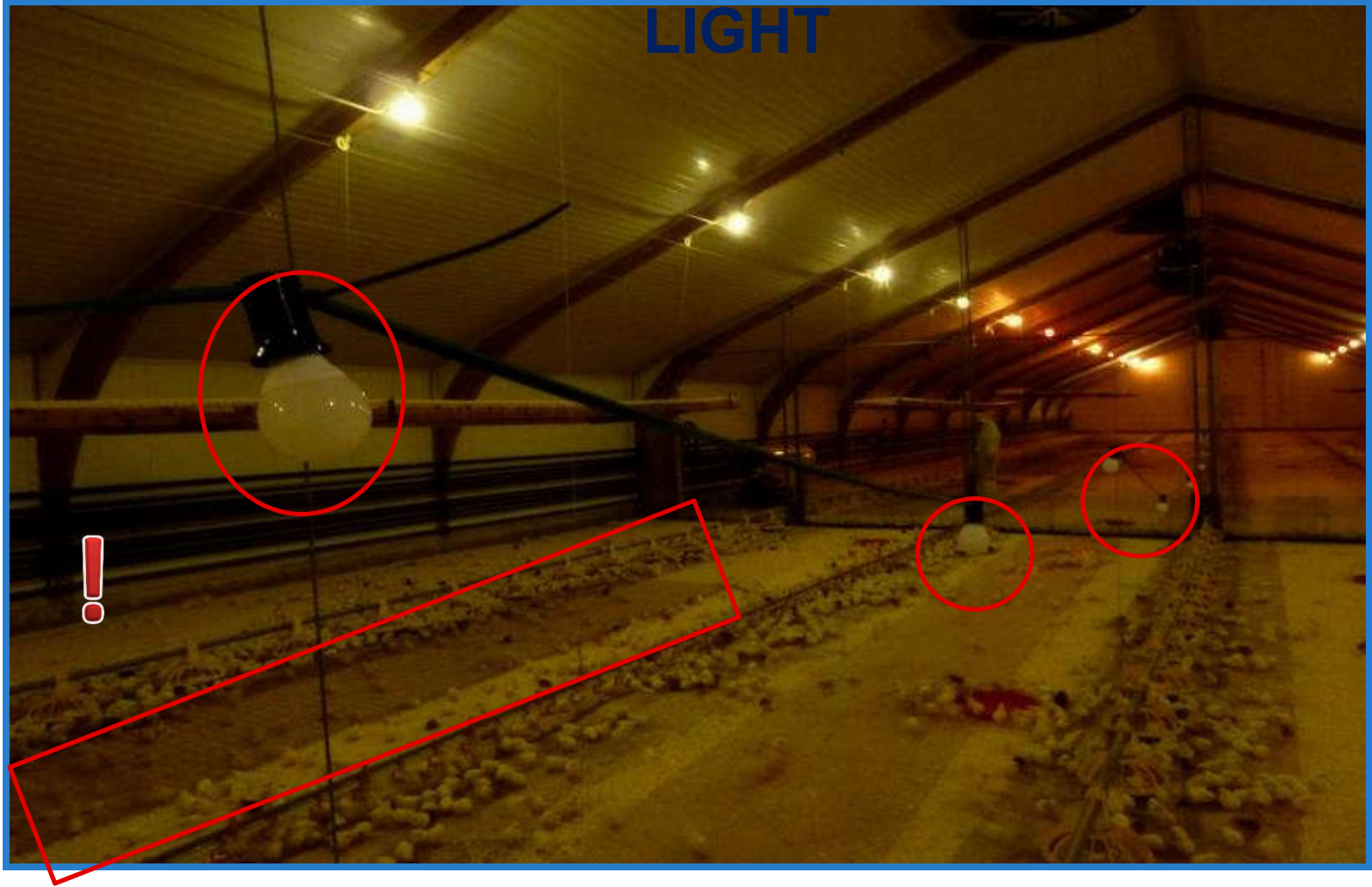
# IR-Beaktreatment



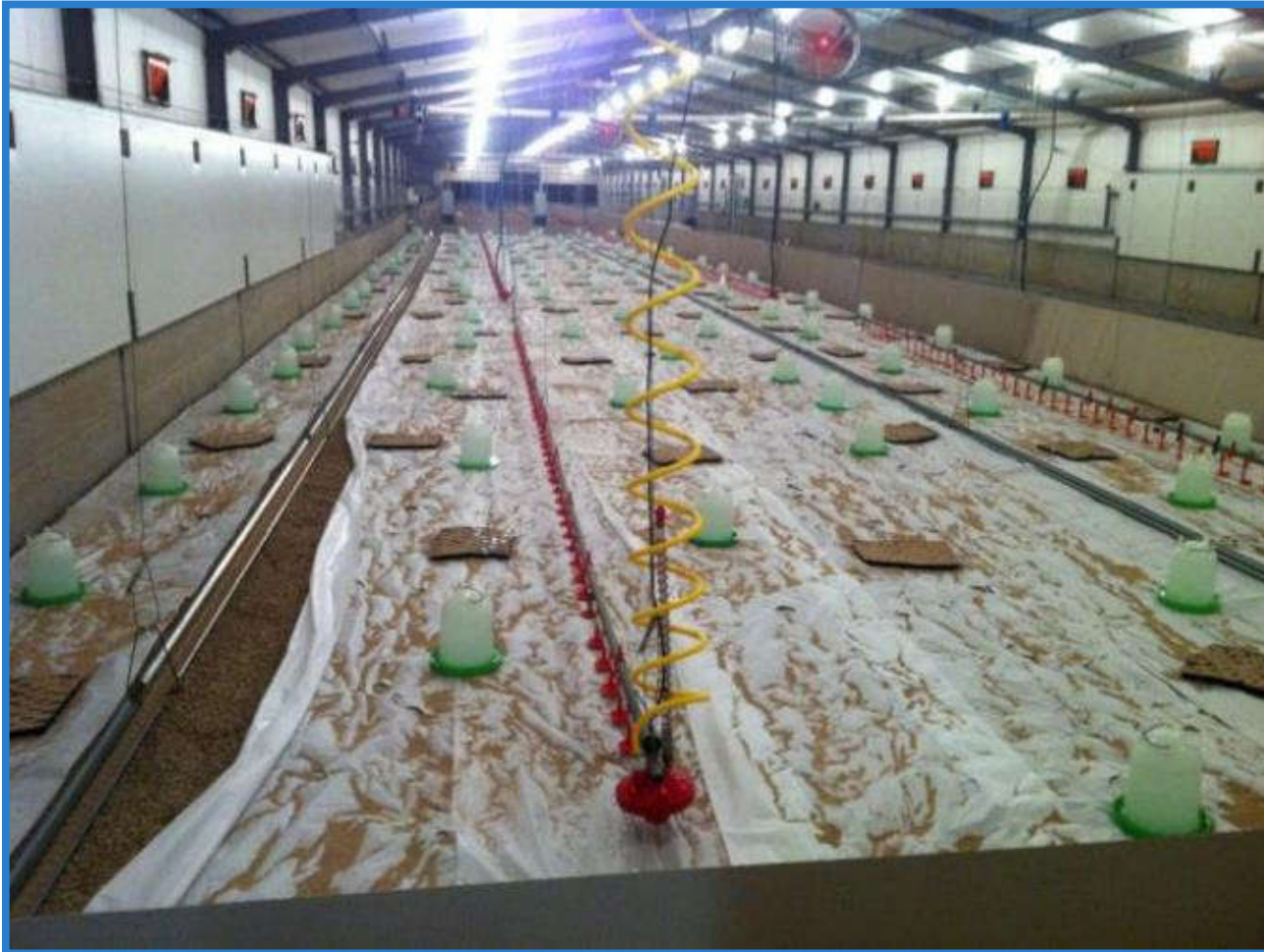
## LIGHT



- Use high - maximum - light intensity during the first days without shadow points!
- Apply Intermittent Lighting Program up to 7-10 days after arrival.
- After that switch back to the regular step down lighting program.



# LIGHT



# LIGHT





# LIGHT

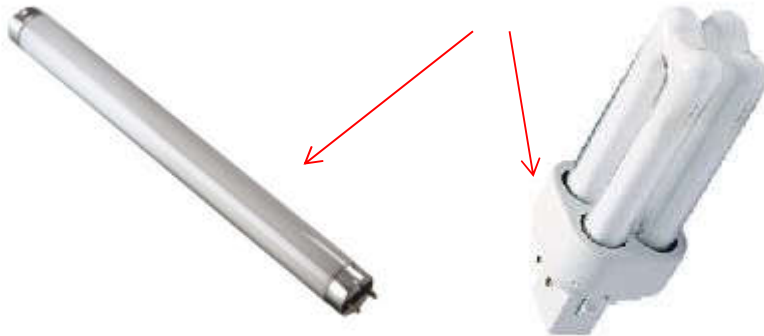


# LIGHT



In most countries forbidden soon !

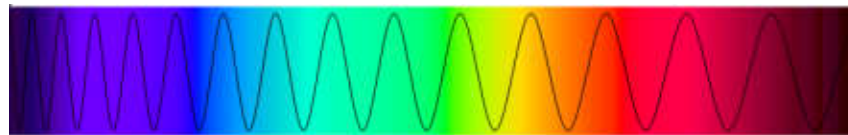
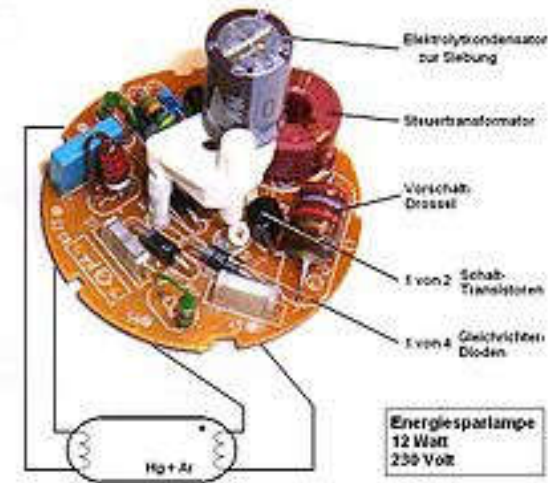
KVG = electro magnetically power supply unit



When operating on 50-60 Hz  
They make birds nervous !

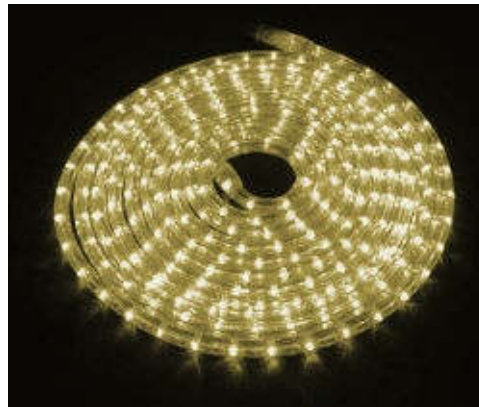
# LIGHT

EVG = electronic power supply unit

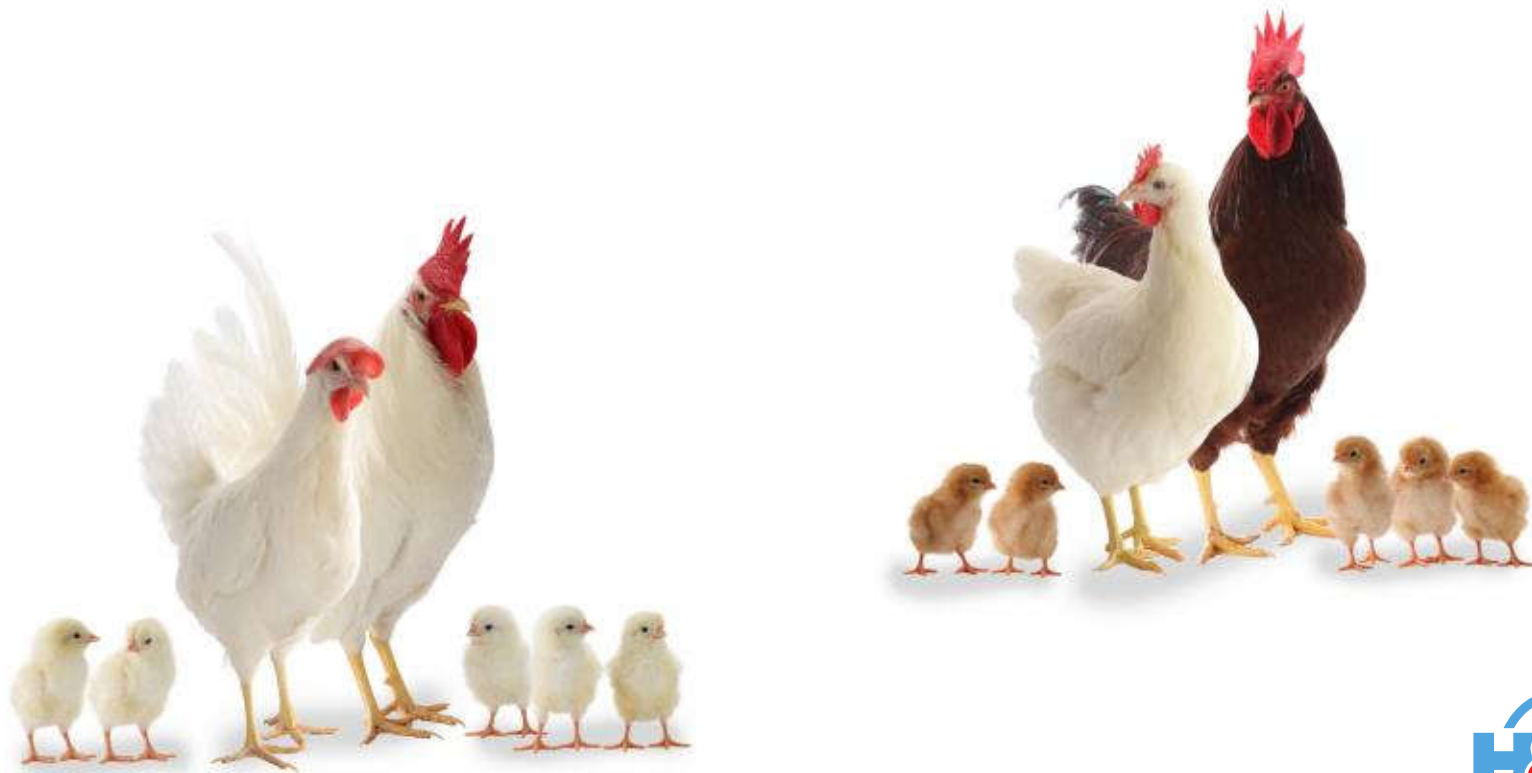


# Light Emitting Diodes

(good enough for layers?)



**Brooding, Rearing and achieving top pullet quality are the predisposition for good start of production and the key for a successful laying period!**



**Thank you for your attention!**

