“From Chicks to eggs improving the layer cycle”

PADRAIG MC KENNA – WHITAKER HATCHERIES

Presentation overview

Rearing period

Transfer from the rearing house to the production house

Start of Lay

What Do We Want To Achieve In Rear ?

- Good body weight by 5-6 weeks – vital for later health & productivity
- A pullet which has met the breeds bodyweight through rearing period
- Good uniformity at 16 weeks.
- A well Trained Pullet to suit its intended production system
- A well vaccinated Pullet to stand against disease Challenges it may meet

Criteria defining high quality pullets

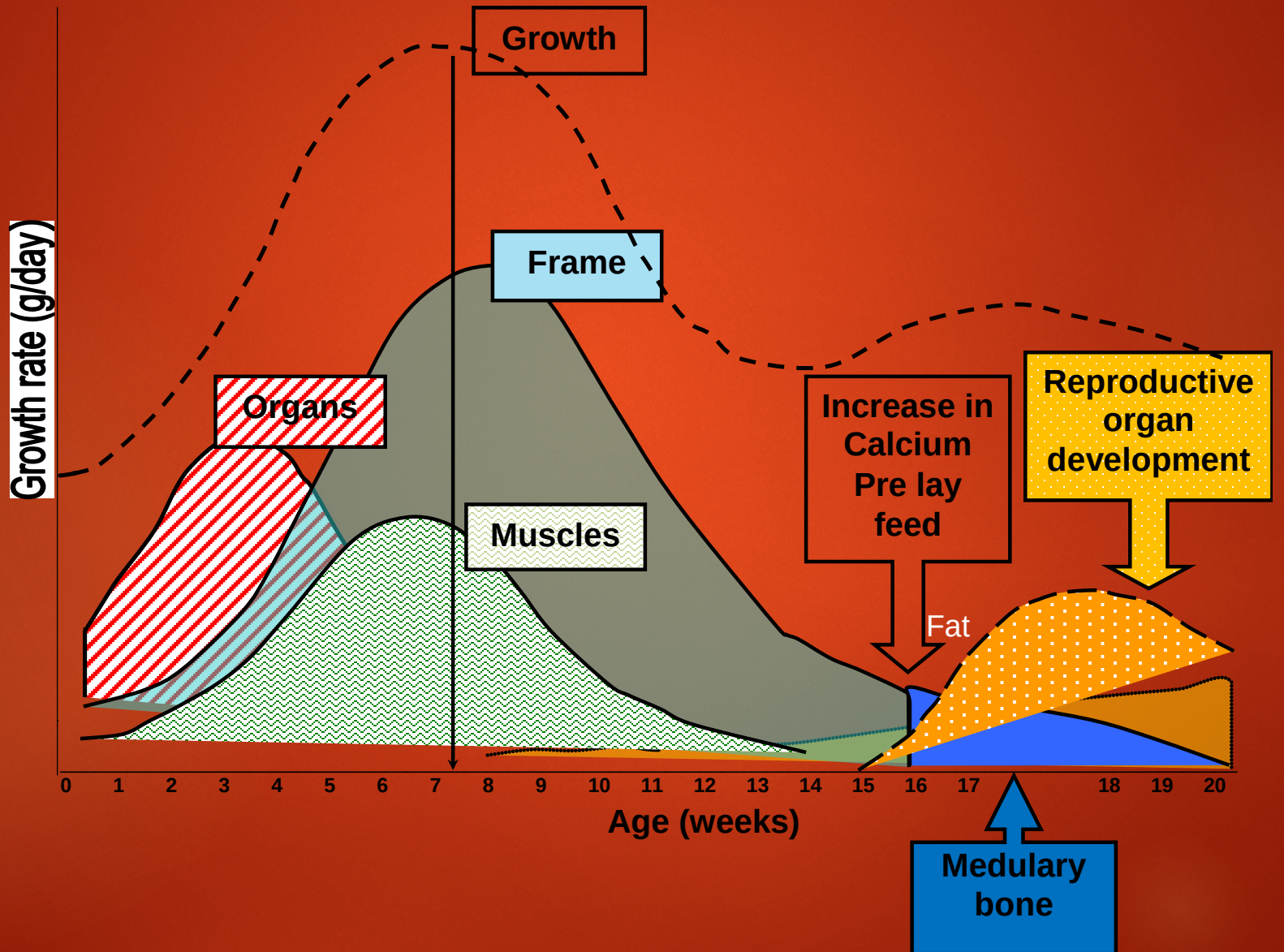
- **A flock of pullets is measured by 5 criteria:**

- **Bodyweight profile during rearing (at 5 wks and at transfer)**
- **Uniformity of the flock**
- **Feed intake capacity**
- **Age at sexual maturity**
- **Health status**

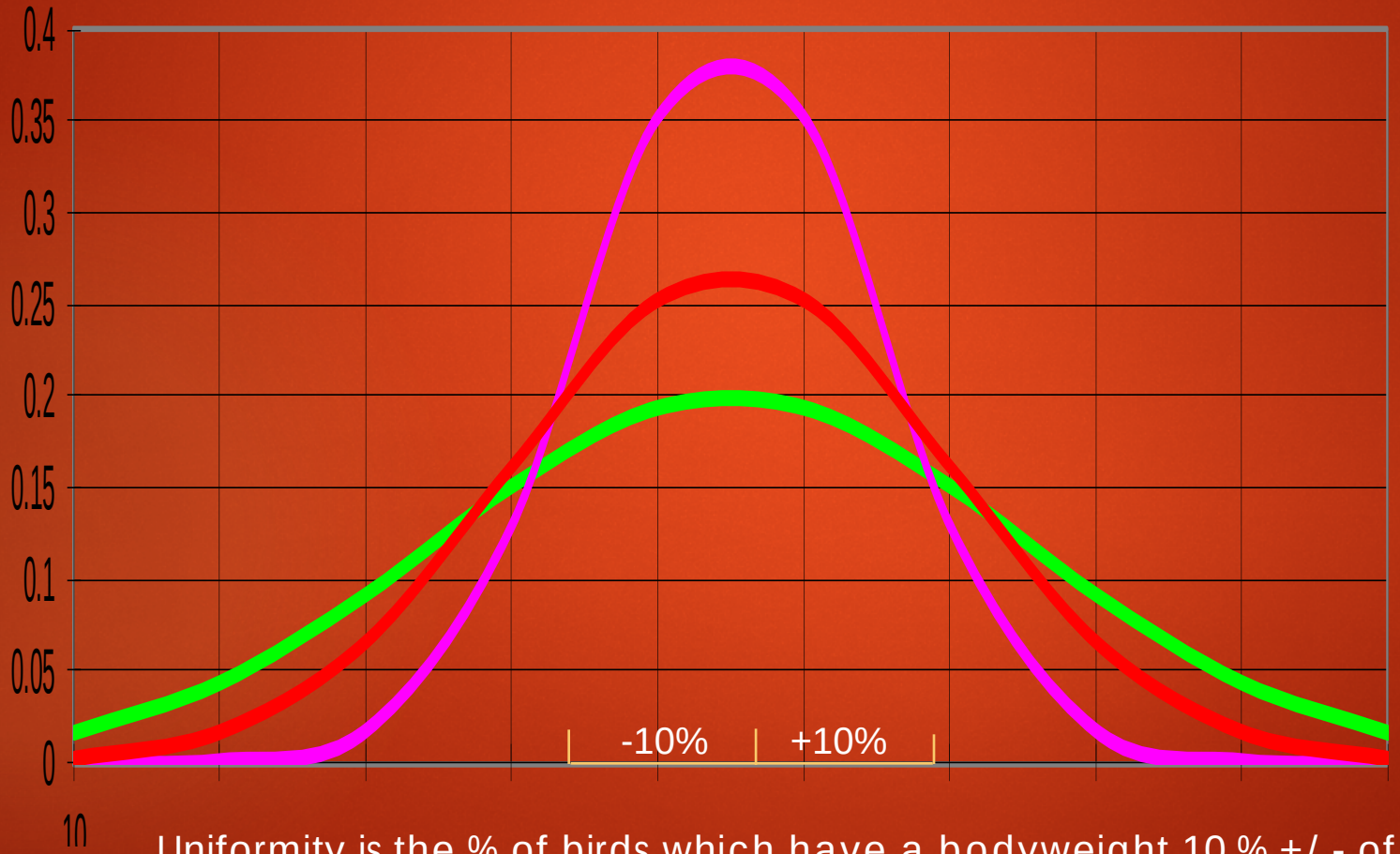
Influence of pullet quality on performance

Correlation	Body Weight 5 weeks	Body Weight 10 weeks	Body Weight 16 weeks	Uniformity 16 weeks
Early maturity (% HD prod. 20-24 weeks)	+++ 0.63	+++ 0.59	++ 0.39	0
Production persistency (% HD prod. 68-72 weeks)	+++ 0.82	0	0	++ 0.46
HH eggs up to 60 weeks	+++ 0.83	++ 0.30	0	+++ 0.54
HH eggs up to 72 weeks	+++ 0,93	0	0	+++ 0.72
Livability up to 72 weeks	+++ 0.71	0	0	+++ 0.61

Key anatomical and developmental stages



How to manage a good uniformity and what it means ?

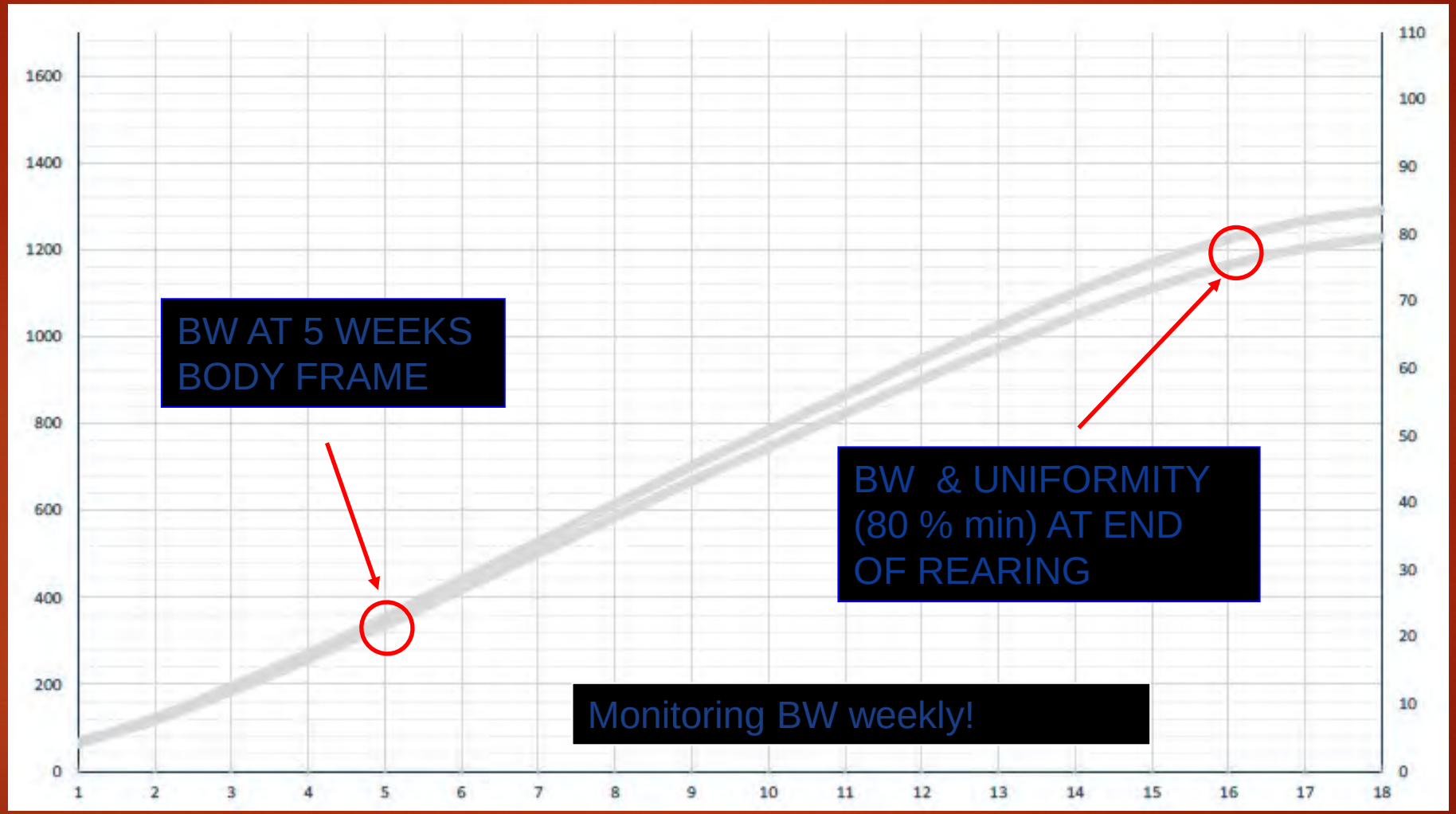


Uniformity is the % of birds which have a bodyweight 10 % +/ - of the average bodyweight of the flock

Uniformity Evaluation

Uniformity (at 16 weeks)	Evaluation
> 80%	Good
75-80%	Acceptable
< 75%	Poor

Body weight profile



Typical Pullet Bodyweight targets

Age in Weeks	Target grms	Age in Weeks	Target grms
1	65	10	840
2	105	11	940
3	170	12	1040
4	240	13	1130
5	320	14	1220
6	400	15	1300
7	510	16	1380
8	620	17	1440
9	740	18	1500

Body Weight Increase

- 0-4 wks 300 % bodyweight increase (4 wk period)
- 4-8 wks 150% bodyweight increase (4 wk period)
- 8-16 wks 120% bodyweight increase (8 wk period)

Feed specifications can help achieving good BW growth

Super Starter Feed	2950 Kcal/kg	19-20 % CP
Starter Feed	2850 Kcal/kg	17-18 % CP
Grower Feed	2750 Kcal/kg	15-16 % CP
Pre Lay Feed	2759 Kcal/kg	15-16 % CP

ME level (Kcal/kg)	BW at 5 weeks	
	Mash	Crumble
3100	375	412
2790	345	405

Rearing house to match the production house

- Colony laying system
- Flat deck laying system
- Multi tier Laying system

Type of rearing house

- Flat system (standard rearing house Feed and water on floor no perching)
- Flat system with perching (as above but perching available under BB 1.75cm)
- Platform Rearing (pullets have platforms /tables to Jump up onto from 2-3 wks)
- Aviary Rearing (Pullets are reared from young age up on system)
- Matching drinking and feeding systems

Vaccination

Vaccinations are preventative measures against infectious diseases

Which Keep your flock healthy and productive

- One of the most important weekly tasks a rearer will perform
- Can be tailored to suit specific areas/farms
- IB(infectious Bronchitis) provide most common field Challenges
- Good vaccination helps avoid secondary infection
- Optional extras include E.coli, Coccidiosis TRT Pasteurella Autogenous vaccine
- Booster Vaccines

Vaccination Programmes

Day old	Mareks	Hatchery	Injection	
Day old	Cocci	Rearer	Spray	
2 wks	MA5 (IB)	Rearer	Spray	
3 wks	Gumboro	Rearer	Water	
4 wks	4/91 (IB)	Rearer	Water	
5 wks	Clone 30 (NC)	Rearer	Water	
8 wks	MA5 (IB)	Rearer	Water	
9wks	Clone 30 (NC)	Rearer	Water	
10 wks	A.E	Rearer	Water	
11 wks				
12 wks	TRT	Rearer	Water/spray	
13 wks	4/91 (IB)	Rearer	Water	
Transfer	4 in 1	Rearer/Haulier injection Dead Vaccine		

Pullet Transfer

Most important period in the young pullets life

Trying not lose all the good work of the rearing period

The young pullet is only half way there

Body weight typically 1380gs @ 16 wks in rear

By 30wks of age 2000gs Increase of 620gs (44% increase)

Good Start = Good Flock = Good Finish !!!!!

Pullet Transfer

Transfer is a massive event

Therefor it cause major Stress

Changes in environment, Temperature, Humidity and Equipment

Best done between 16 and 17 wks

Pullet Transfer What happens on the Day

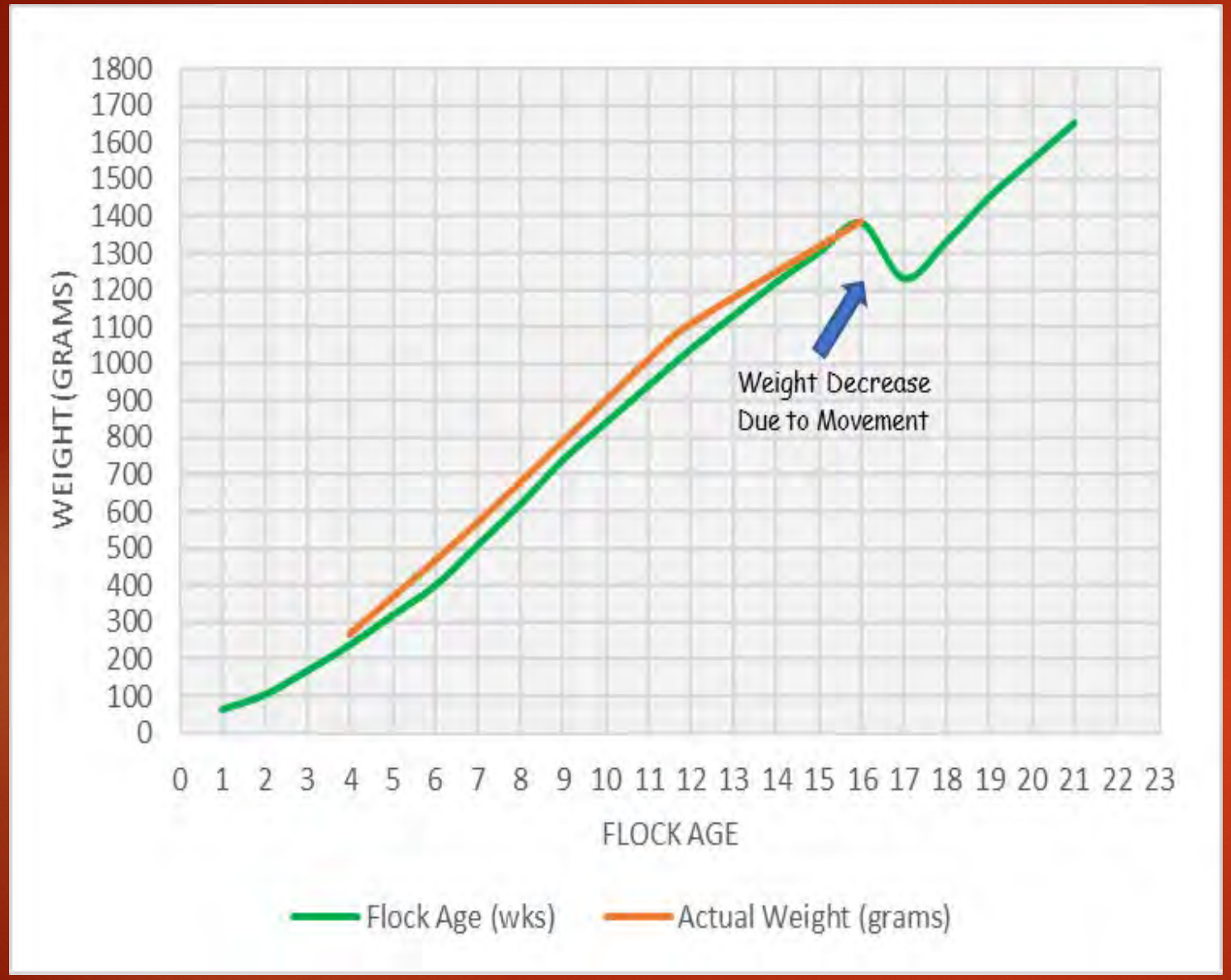
- Feeders and Drinkers raised night before
- Birds are woken up in the middle of their night
- Chased into a pen
- Caught and injected
- Loaded into a module
- Hauled for hours
- Loaded off the lorry

Pullet Transfer

- Tipped into the new production system
- Standing on wire or plastic slatted (rearing in litter)
- Doors open low temperature
- Search for Feeders/Drinkers
- New Feed type/Texture
- Water temperature
- Finally get some sleep !!!!!

Pullet Transfer

- Important to make transfer as smooth as possible
- Preheat house to warm up structures (Winter period)
- Light intensity increased so birds can quickly discover their new environment
- Feed in feeders Prelay as a transition feed
- Water temperature
- Light duration same plateau as rearing house
- Walk birds get them used to you
- Check crop fill in evening
- Once birds are full up let them rest



Pullet Transfer

Start of Lay

- Build our Pullet back up After the Stress of Transfer
- Bodyweight loss of between 10 and 15 %
- Can take 3 to 4 wks to get BW back to breed standard
- Easier to achieve in colony system
- Vital to monitor bodyweight and Feed/water consumption
- Success here leads to a high persistent peak and a long laying life for the flock
- This phase has a big effect on egg size

Start of lay

Target

BW at standard at 5% of lay

From 17 weeks of age to peak of lay

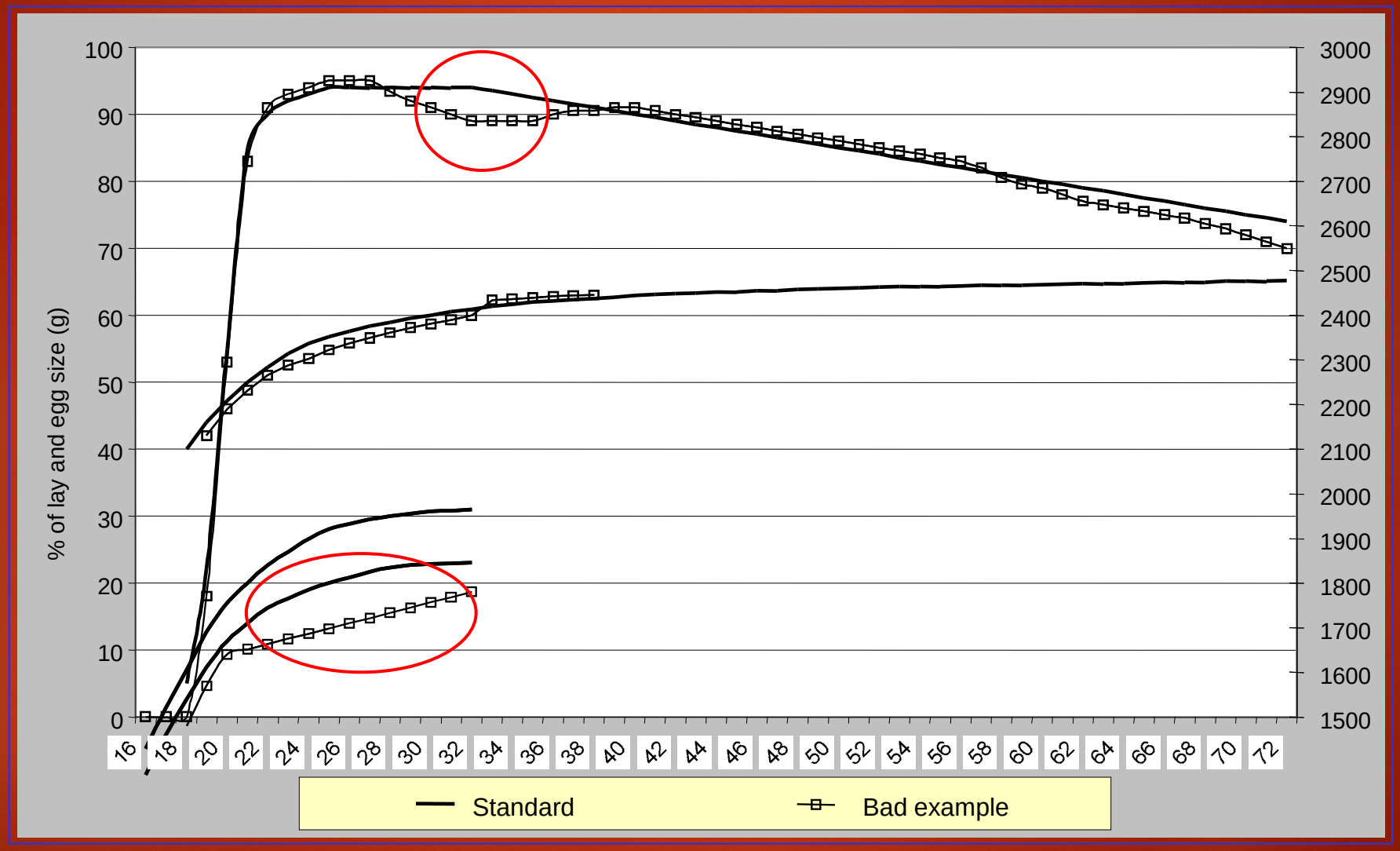
- + 25/30 % increase of body weight
- + 50% increase of feed intake

Low body weight at start of lay will lead to:

- Poor peak of lay
- Small eggs
- Poor laying persistency
- Increased mortality
- Poor eggshell quality at the end of laying period

Remember: birds continue to develop till 35 weeks of age!
Growth does not stop at transfer at 17 weeks

Growth at onset of lay



Start of Lay

- Egg weight profile is determine at start of lay
- Bodyweight at first egg is linked average egg weight
- Lighting programme must be adopted according to your egg weight target
- Therefor light stimulation must be done according to bodyweight instead of age

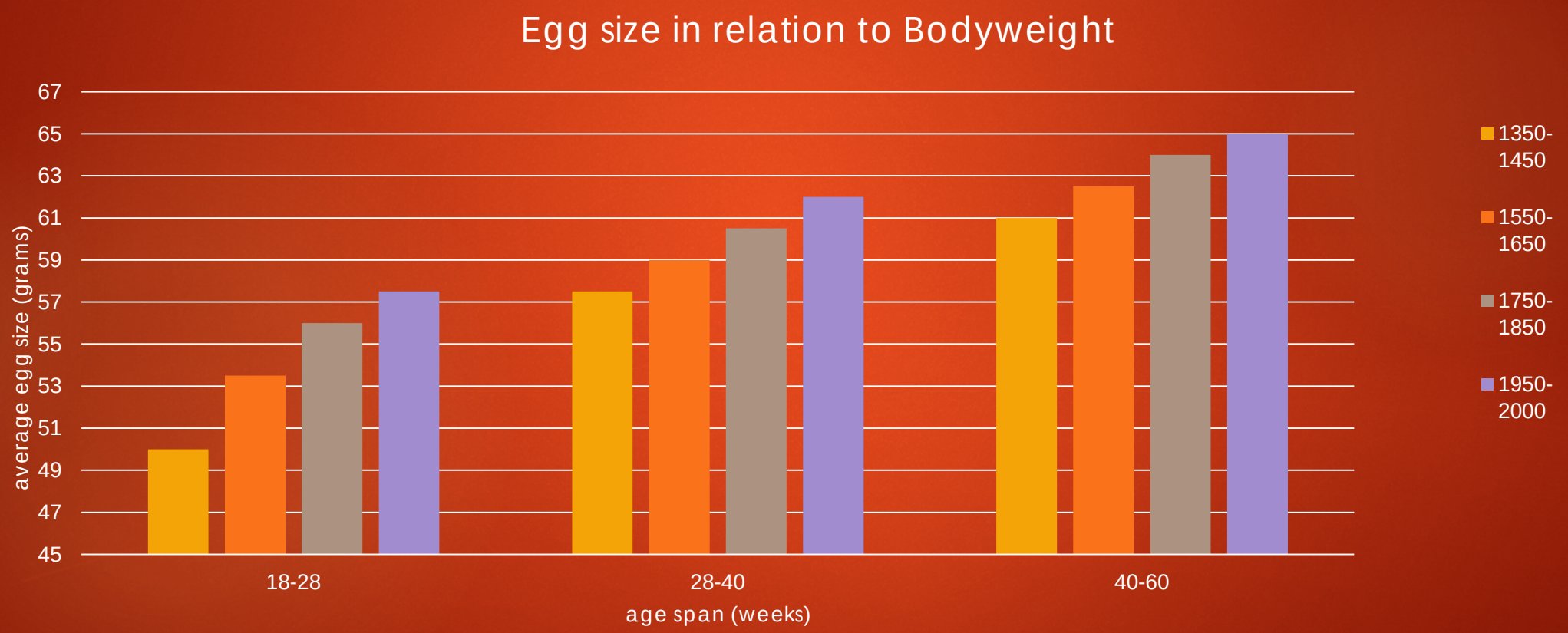
The Main Factor : Body Weight at First Egg

Period week	Pullet bodyweight at first egg (g)			
	1300 to 1500	1500 to 1700	1700 to 1900	> 1900
18 - 28	49.8	53.3	56.1	57.6
28 - 40	57.6	59.2	61.0	62.4
40 - 60	61.7	62.6	64.6	65.8

Lewis et al, 1995

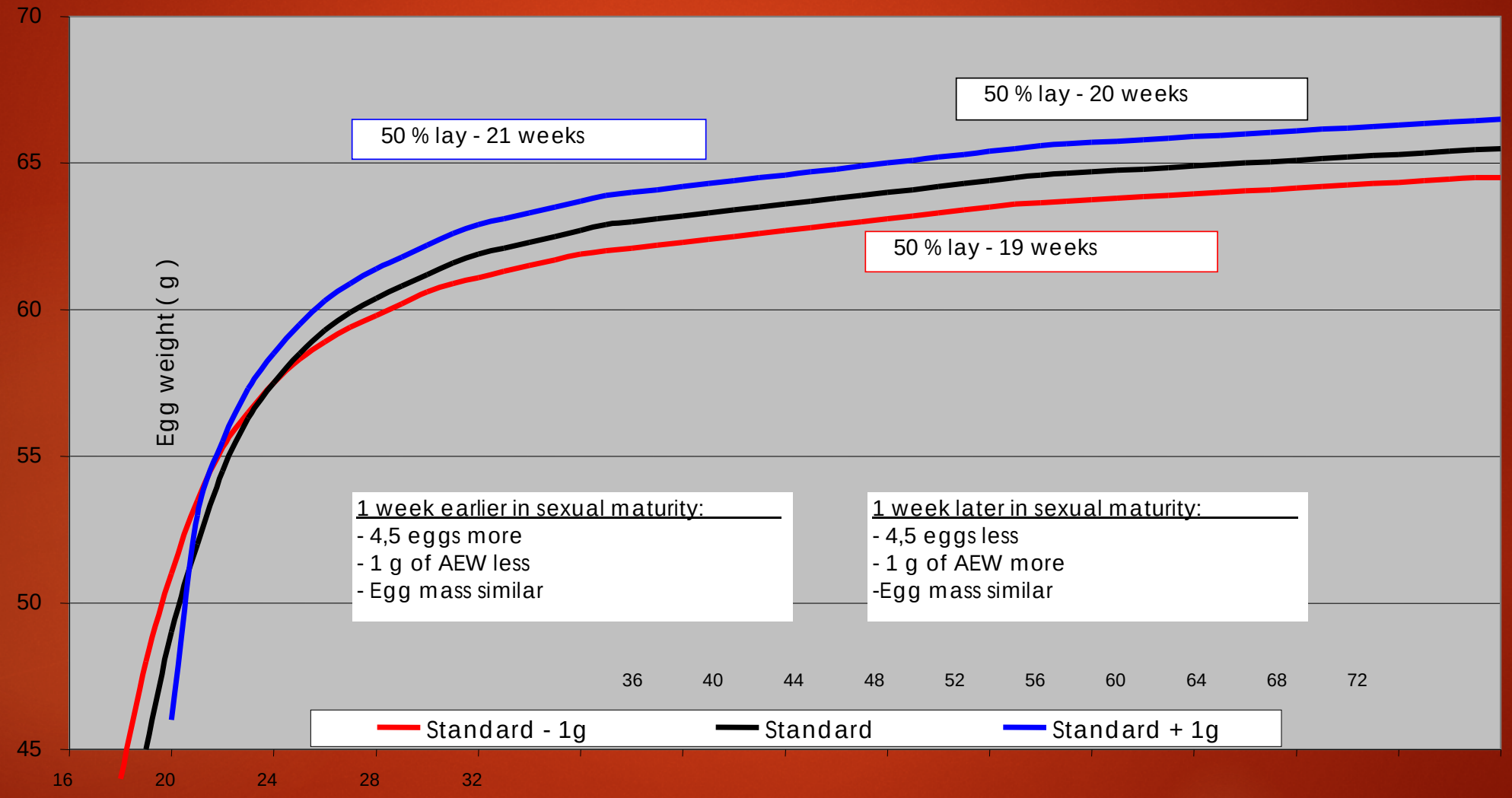
Effect of actual body weight on egg size

On egg size in brown layers



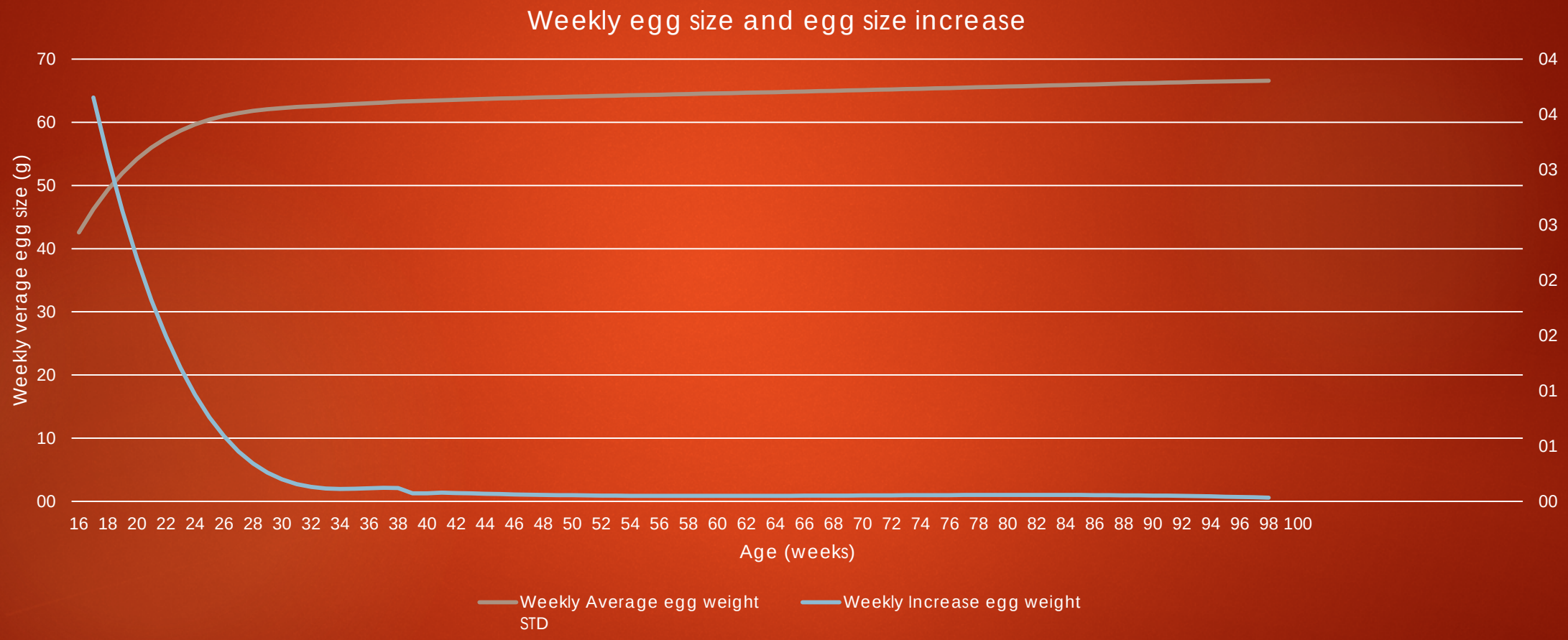
Hendrix Genetics, 2020

Adaption of Egg Weight Distribution



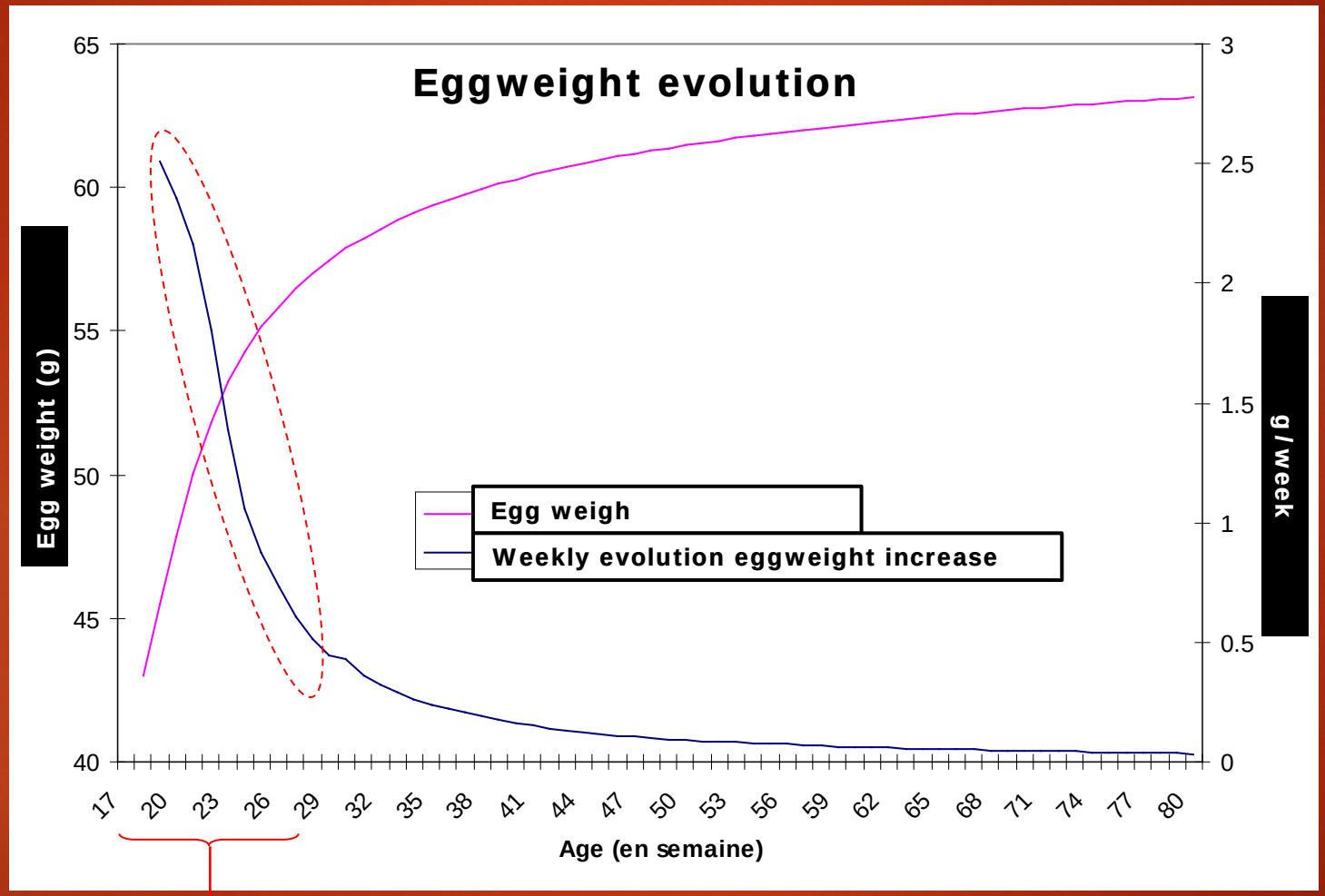
Egg size development

Weekly egg size increase in brown layers



Hendrix Genetics, 2020

Start of lay = egg weight management period



Optimal period to control the egg weight through nutrition : after it is too late or nutritionnal response is lower

To Conclude

- Rearing is investment phase of the laying cycle
- Good pullets will lead to a high peak of production with good persistency
- Transfer is a stressful period where the bird has to adopt to a lot of changes we need to make this as smooth as possible
- Start of lay second phase of the rearing period bodyweight and feed consumption increase
- Start of lay has a big influence on your egg weight profile

All Questions Welcome

WITH AID AND CONSTRUCTION OF SLIDES, MANY THANKS TO

- HENDRIX GENETICS FOR SOME OF THE DATA PROVIDED