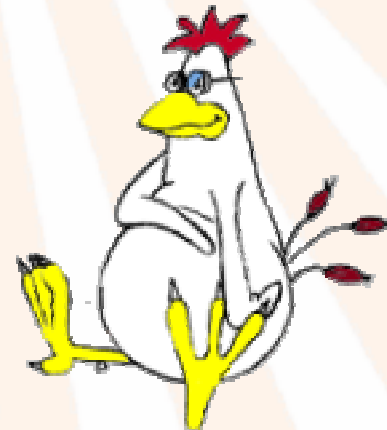




Management of layers



By: Ing. Ernst Beitler



Definition of **Management**

What **(Hu)man** can do to get good results in the **ent(d)**

It is the action you take to get the result you desire



Know your limits and don't try to manage everything

**He thinks
he can
manage
but it is
taking too long**



**I am almost sure
that I can manage**



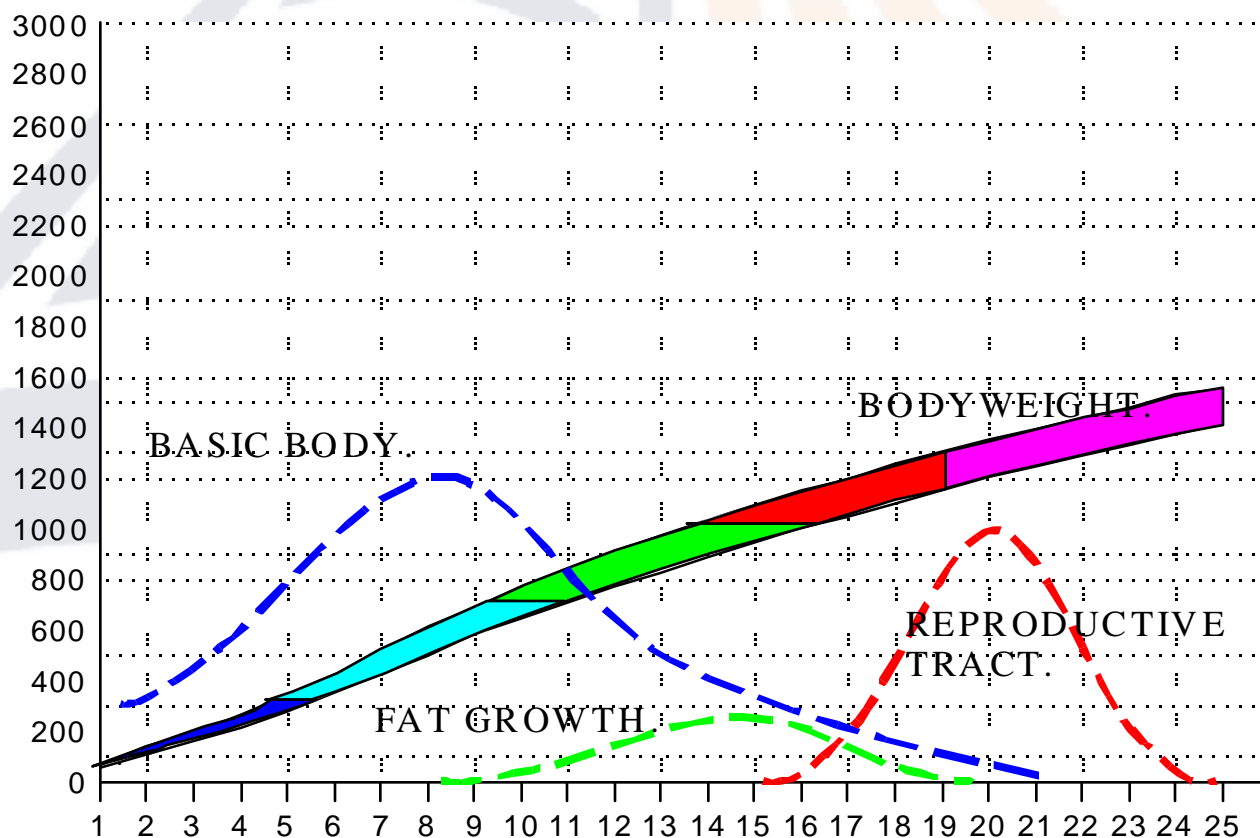
The main factors that influence layer management are:

- 1. Nutrition and feed*
- 2. Bodyweight and uniformity*
- 3. Health status*
- 4. Housing, climate and light*
- 5. Economical aspects*
- 6. Genetics and breed*









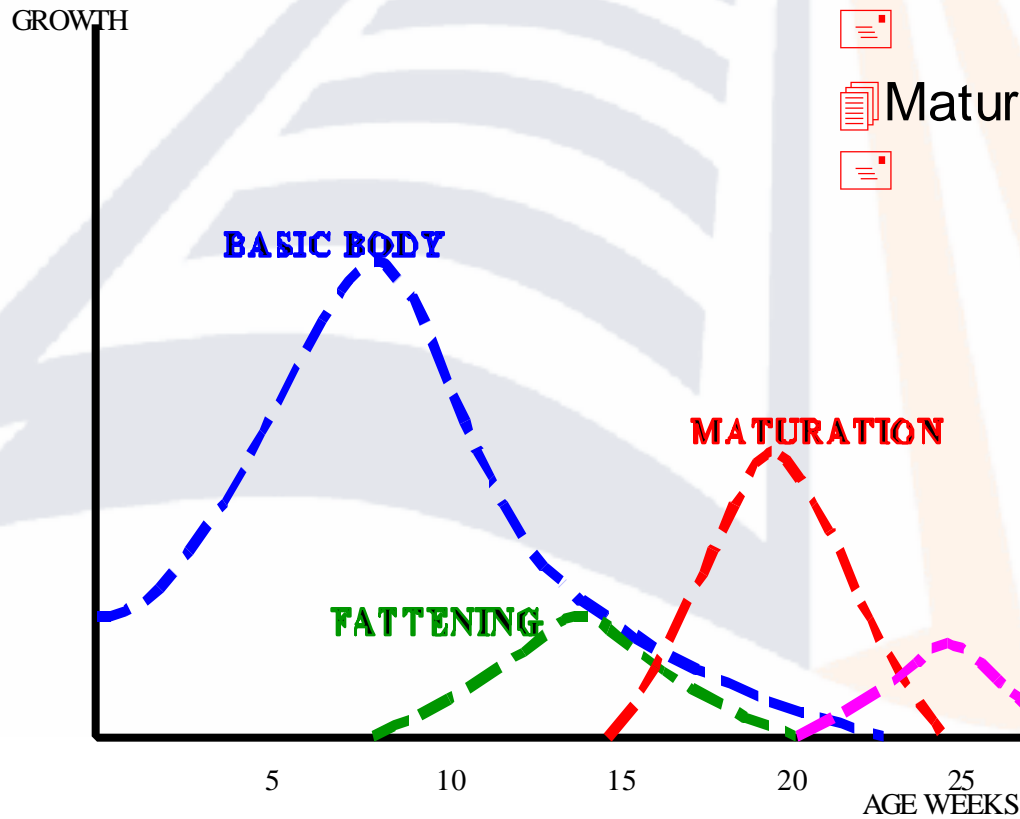
Nutrition and feed

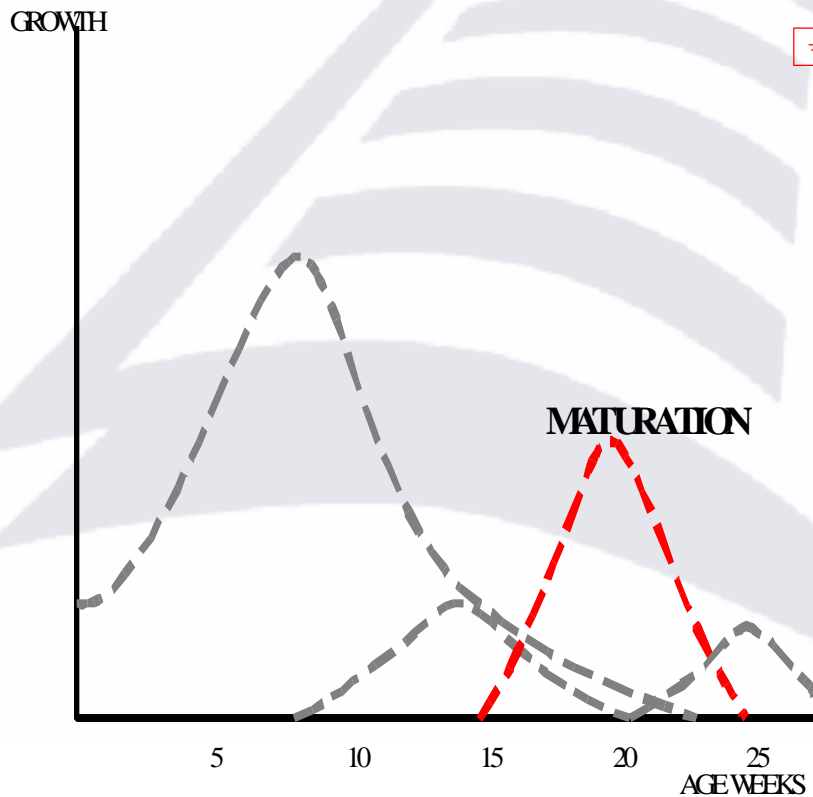
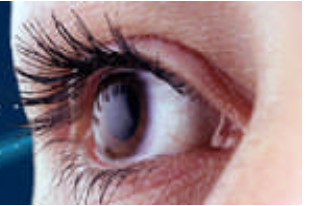
Development of the laying hen





-  Basic body, 0-10 weeks
-  functional development
-  Fattening, 10-15 weeks
-  fat deposition
-  Maturation, 15-25 weeks
-  reproductive tract





☐ Moderate growth stimulation

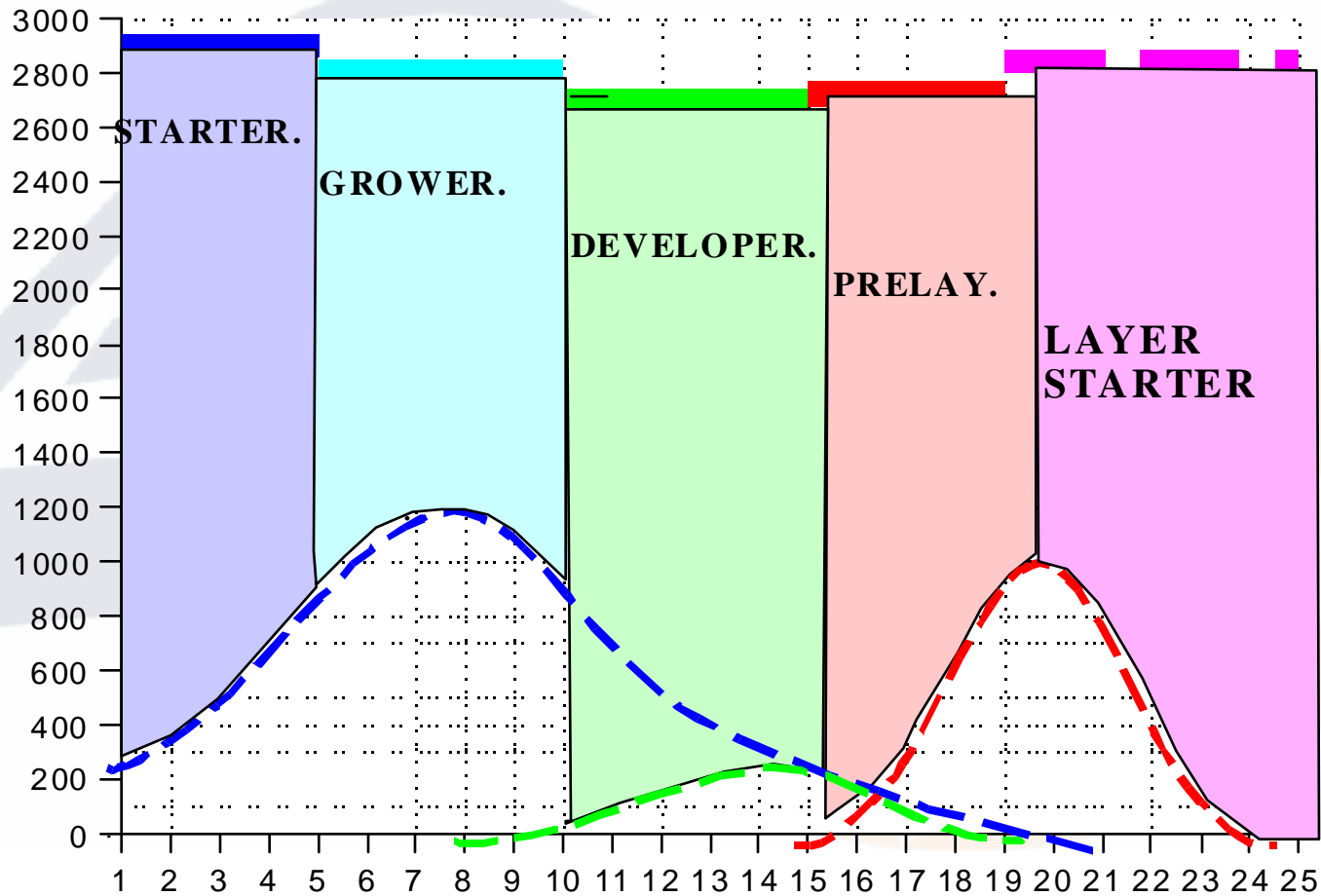
☐ Good development of the oviduct

↙ higher production

↙ higher egg weight



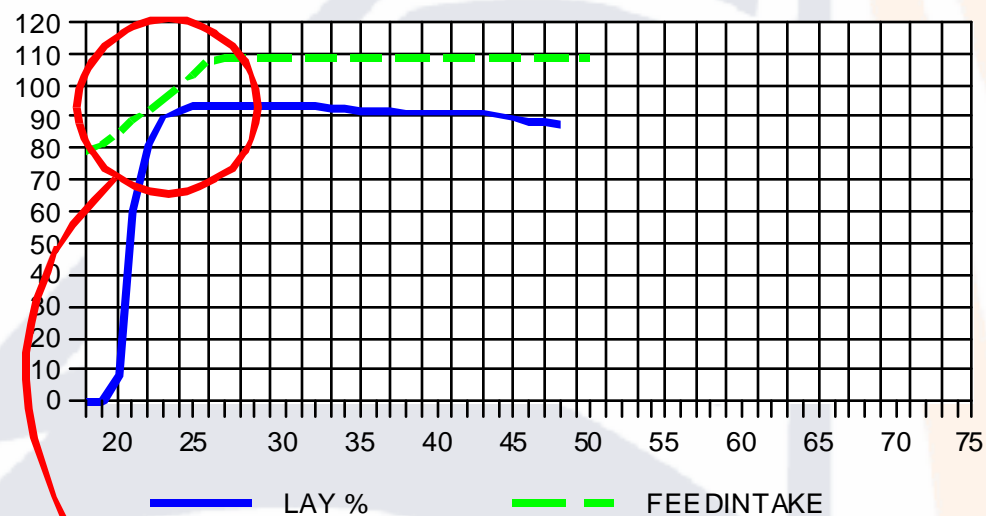
Phase feeding in rearing and pre laying period





Phase 1 in production

PRODUCTION CURVE



LAYER STARTER

- ☐ Till week 25: layer starter
- ☐ - laying and non-laying hens
- ☐ - stress energy metabolism
- ☐ - stress on calcium metabolism



Layer feed after 25 weeks of age

1. Phase feeding is necessary
2. Diet formulation based on:
 - Feed intake of the hen
 - Egg weight
 - Weight gain of the hen
3. Laying percentage not the right criteria!
4. What recommendations are needed.

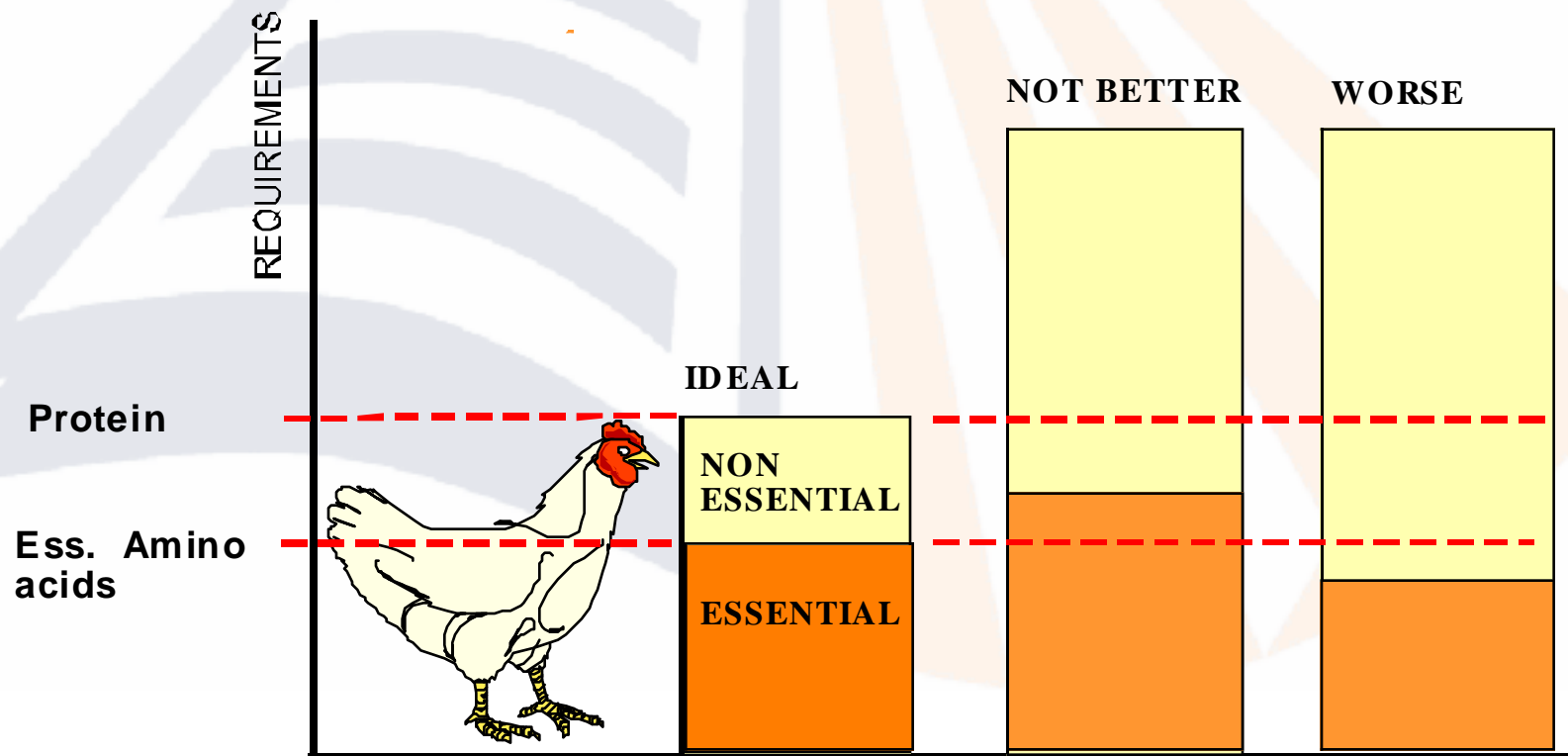


Phase feeding during the laying period

- Phase I** From point of lay until after peak production. The pullet starts laying but is still growing. In this stage the bird requires more crude protein for growth and for reaching peak production. Essential amino acids are very important in this stage
- Phase II** The bird has stopped growing and production is still high but decreasing. A lower cp % will do as well as less P.
- Phase III** No growth and less egg mass production. A lower cp% than in Phase II is needed. Some extra Ca can be included in the feed to improve the eggshell quality since the resorption of Ca decreases towards the end of production. Less P is needed than in Phase II.



Putting correct requirement figures is necessary for optimal diet formulation





Calcium (Ca) and Phosphorus (P)

Ca:

- Formation and maintenance of the skeletal structure
- Prevent leg weakness and decalcification of bones
- Egg shell formation
- Muscle contraction and cardiac function
- Blood clotting

P:

- Formation and maintenance of the skeletal structure
- Prevent leg weakness and decalcification of bones
- Co-factor for different hormones and B vitamins
- Calcium metabolism



Non optimal levels of Ca and P

Ca too high

- Ca and P excretion by faeces (no uptake)
- Impaired performance
- Reduced feed intake and efficiency
- Depressed growth and weight gain

P too high

- Not soon a problem with an optimal Ca/P ratio

Ca too low

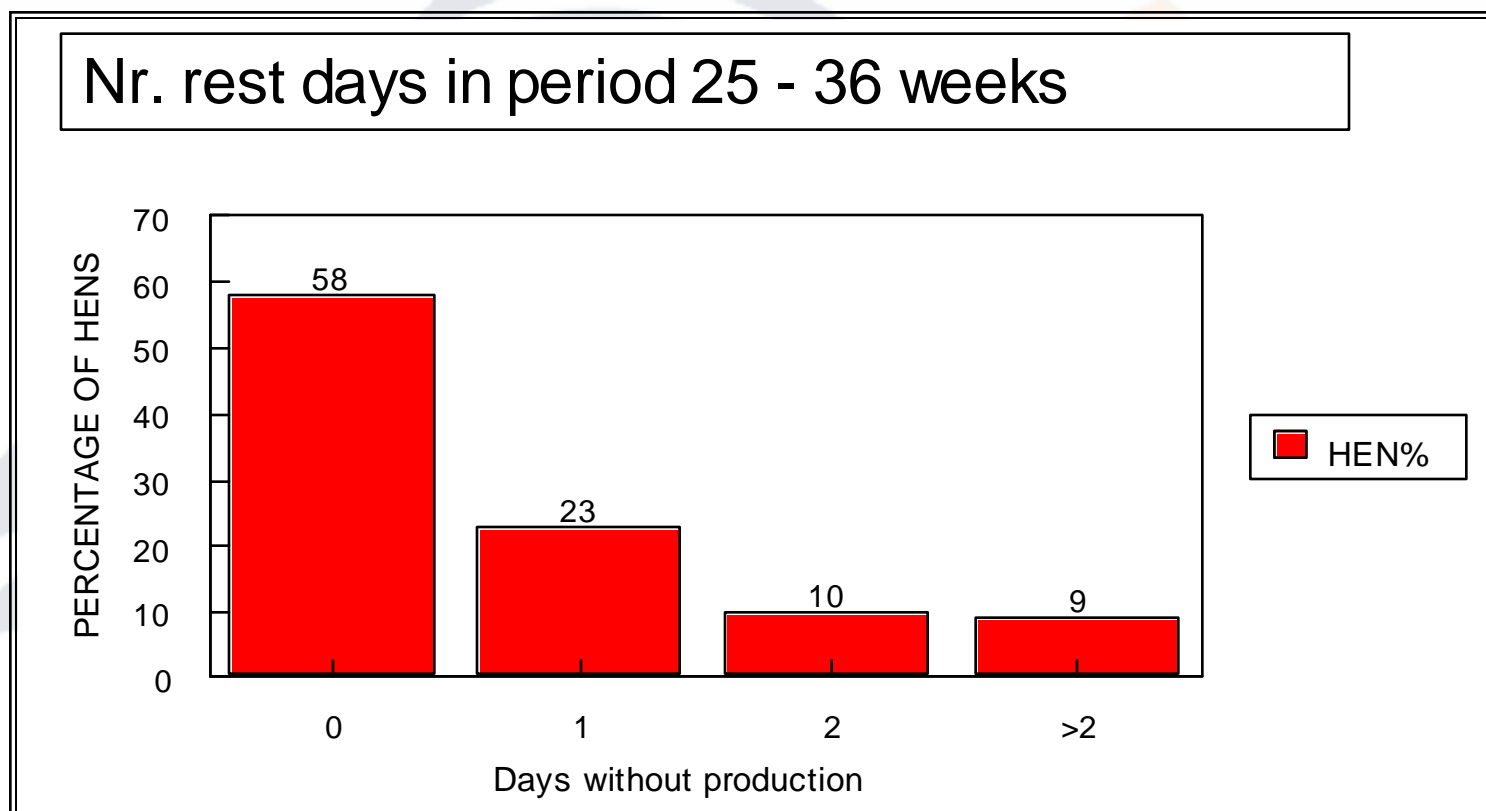
- Increased bone resorption, P excretion over the kidneys
- Weak bones

P too low

- Increased bone resorption, Ca excretion over the kidneys
- Weak bones



60% of the hens continues to produce at 100% !

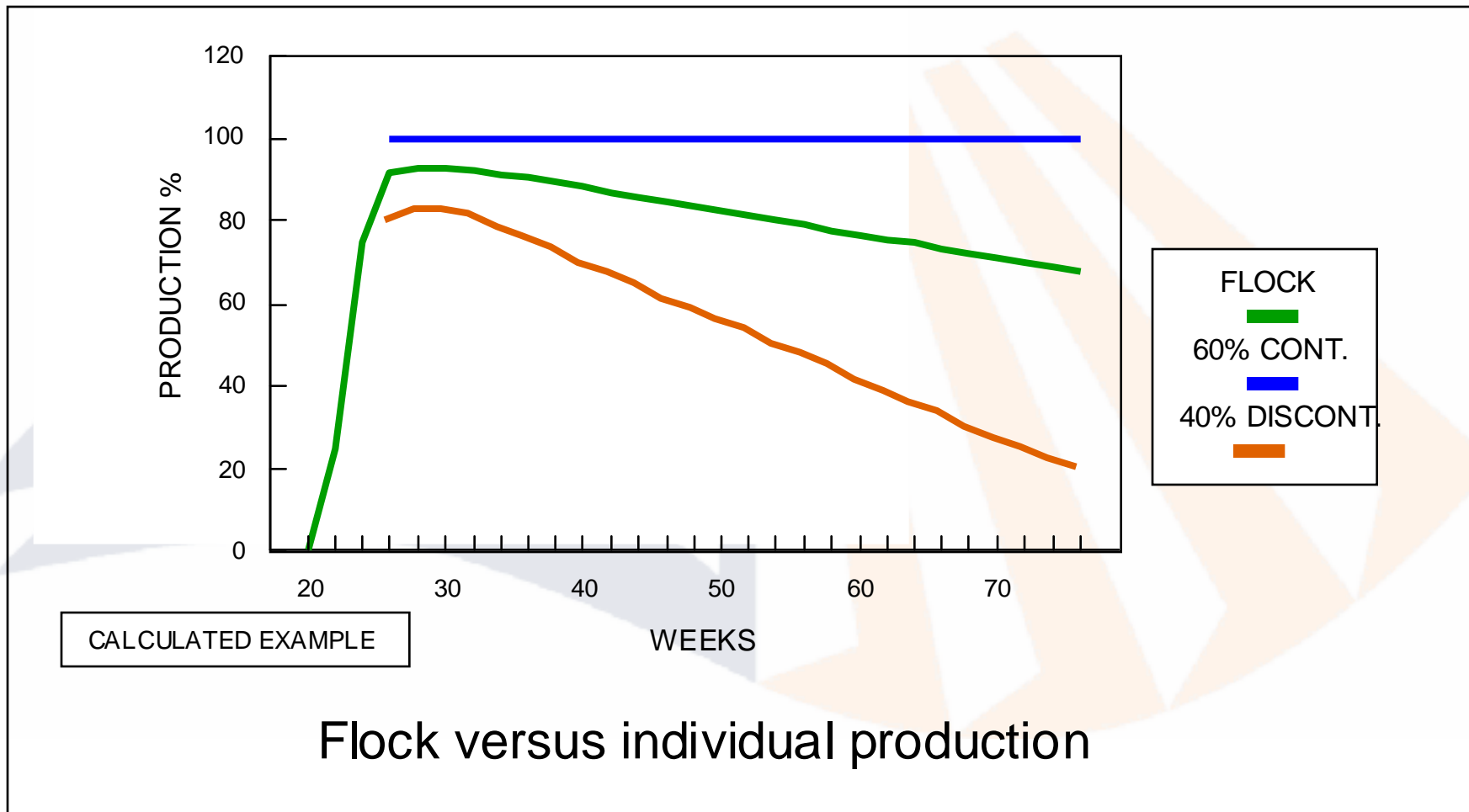




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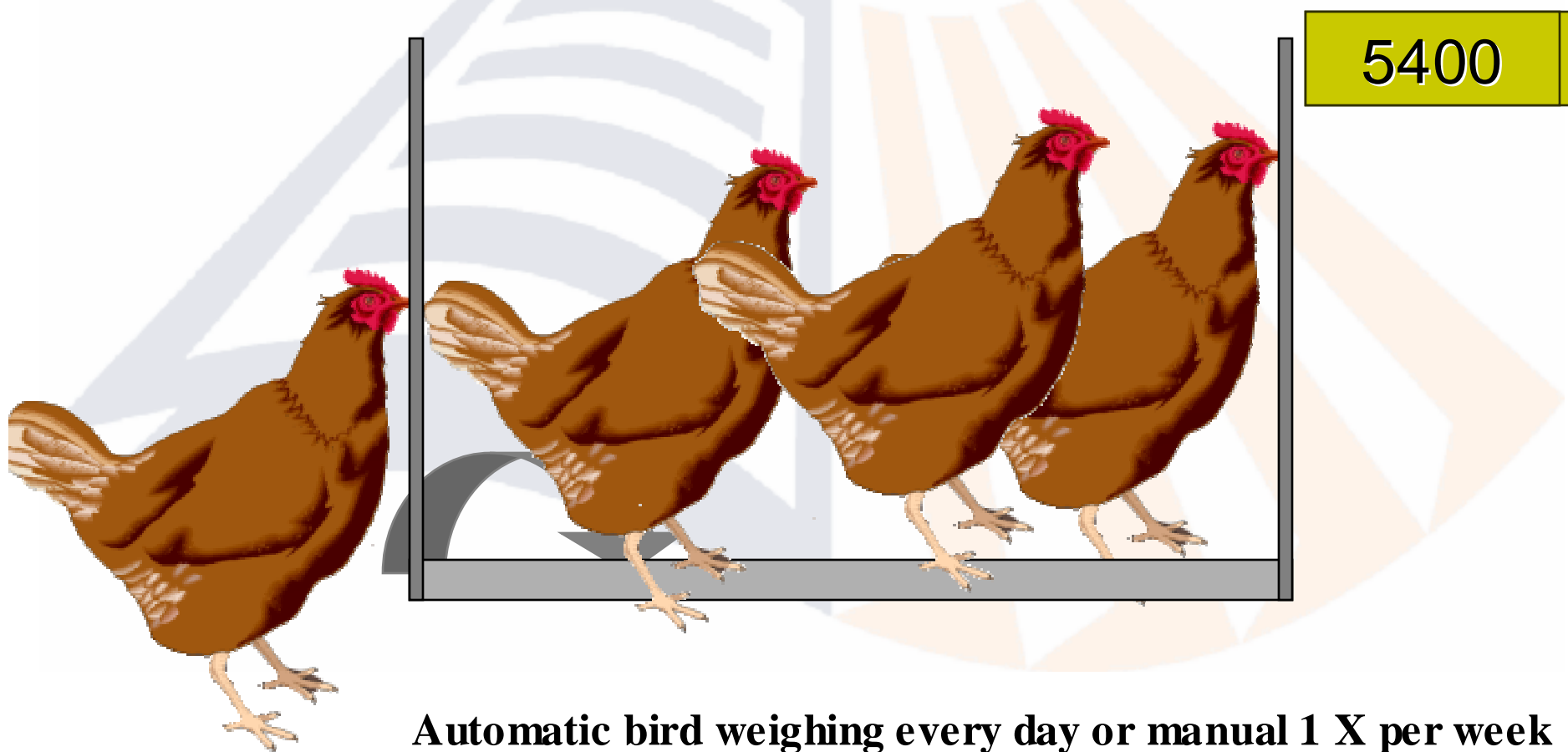


Which hens do we want to feed





A good bodyweight and uniformity is essential for a good laying performance



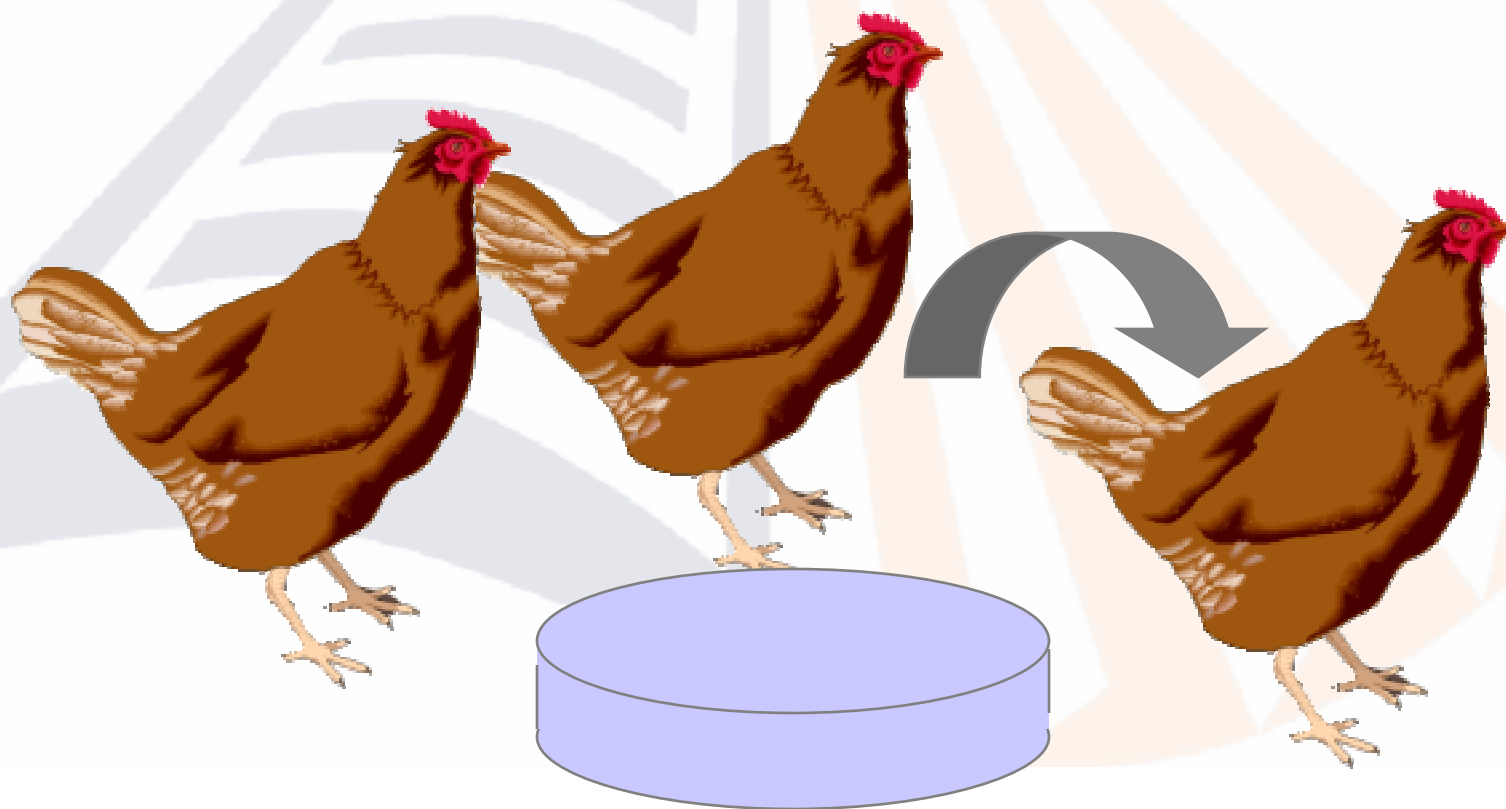
Automatic bird weighing every day or manual 1 X per week



Take the individual bodyweight to check the feed intake and requirement

Uniformity should be more than 80 %

0





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Health status of the layers

An up to date vaccination scheme for rearing pullets

Routine health observations at least twice a day

Regular flock health control and blood testing
(Check salmonella and Mg.)

Production performance

Feed intake and water intake

Check on feed /water ratio



Guideline Vaccination Program for Layers

1d.	Marek	HVT+Rispens/HVT+SB1	s.c./i.m.
1-7d.	Newcastle Bronchitis	Clone 30+ Ma5	ocular spray drinking water
25-32d.	Gumboro	D78	drinking water ocular spray
25-28d.	Newcastle	Clone 30	ocular spray drinking water
6w.	Gumboro	D78	drinking water ocular spray
6-12w.	AE+Pox		wing web
6-8w.	Coryza	A+B+C	s.c.
8w.	Newcastle Bronchitis	Clone 30+ Ma5	ocular spray drinking water
14-16w.	Newcastle Bronchitis	Inactivated	s.c./i.m.
	EDS Coryza	A+B+C	s.c.



Measures in the control and prevention of infectious layer diseases

- Hygiene → Bioscurity and no visitors
- Management → Health check and blood testing
- Eradication → vertically transmitted diseases
→ horizontally transmitted diseases
- Vaccination → live vaccines
→ inactivated vaccines
- Treatment → preventive
→ curative



Housing and climate

Inside climate depends on:

- **inside temperature Layers 20 – 30 degrees C**
- **inside R.H. optimum between 60-80%**
- **air speed at bird level 0.2 meter per second at air inlet 2 meter/second**
- **NH3 level 25 ppm max.**
- **CO2 level 0,25% max.**

- **outside temperature + R.H.**
- **wind direction**
- **wind speed**



Summary climatic factors

	Temperature	Relative humidity	Composition of air in the house	Air velocity Air movement	Light
Standard:	rearing and broilers: starting temperature 32-34°C every week decrease 4°C to 20°C BPS, Layers 18-24°C	60-80%	NH ₃ ≤ 25 ppm CO ₂ ≤ 0,25% N ₂ = approx 79% O ₂ = approx 20%	with low outside temperatures at bird level ≤ 0,2 m/sec with high outside temperatures high air velocity is positive - no draughts	Layers > 10 lux Broilers > 25 lux Broilers 25 → 5 lux layers/breeders max. 17 hrs/day broilers max. 24 hrs/ -day (in Holland max. 18 hrs/day)
Too high results in:	- high heating costs - low feedintake - bad egg shell quality -lower production	- wet litter - dirty eggs - poor quality - higher disease risk (coccidiosis, worms) - breastblisters - lower production	- respiratory pro-blems -- affected mucous membranes - risk for diseases - high NH ₃ → blind birds - high CO ₂ → ascites - lower production	- risk for draughts this gives diseases - lower production	- high electricity costs - kannibalism - higher feedintake - lowerproduction
Too low results in:	- extra feed intake - risk for diseases - lower production	- to much dust - respiratory pro-blems - lower production	to low O ₂ gives respiratory problems - lower production	- not enough air re-freshment - diseases - mortality in corners etc. -lower production	- difficult observations - difficult to work in the house - lower production
Measuring equipmen t	- thermometers - thermograph - electronic thermo- meters	- hair hygrometer - Assmann hygrometer - hygrograph - electronic hygrometer	- gasindicator+tubes	- airvelocity meter - anemometer - smoke generator - smoke powder	- lux meter (lightintensity)



Different housing systems require a different management approach



Cage system:

Health check, many birds per m²,

Relatively clean, difference in light and heat.



Aviary system,

floor eggs, dust, diseases,
health check, cannibalism

Free range/ Organic farming:
Disease problems, bioscurity,
Cannibalism, health check,
Salmonella.





Daylight and artificial light have a lot of influence on behaviour and production



Light colour, light intensity, light schedules and kind of bulb do have influence on birds performance



Light schemes are depending on the local “light” situation



Farm recording, analysis and economics

Why recording and keeping data?

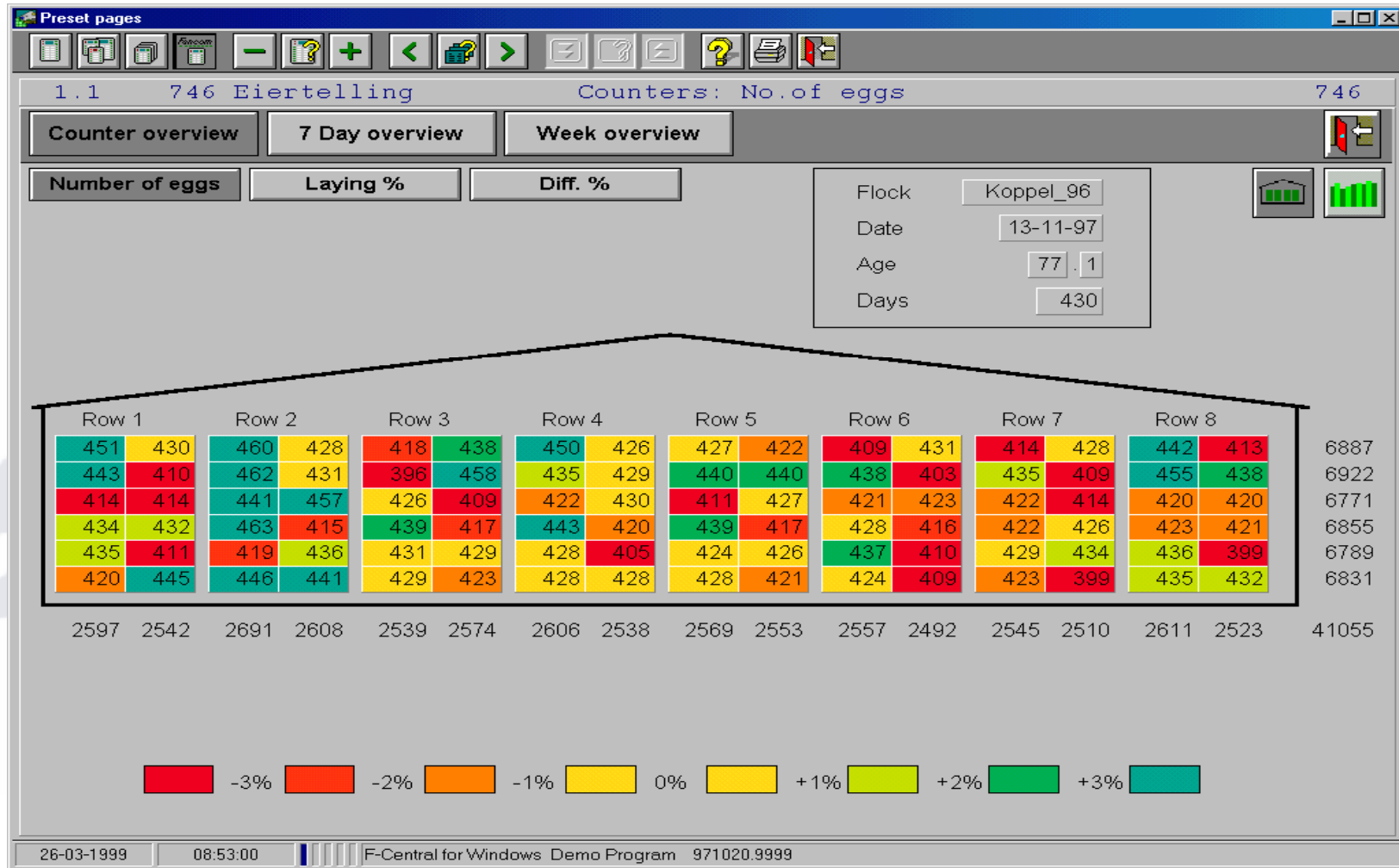
- Exact monitoring laying performance,
- Feed, water intake and mortality, etc.
- Comparing different flocks
- Comparing different houses
- Improvements by generated data



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Egg counting system



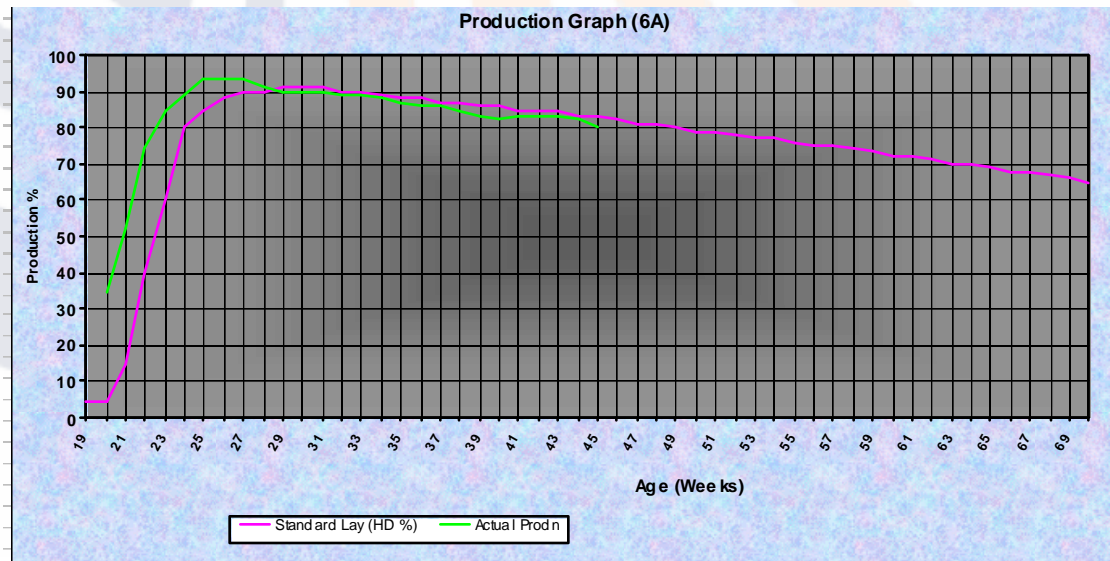


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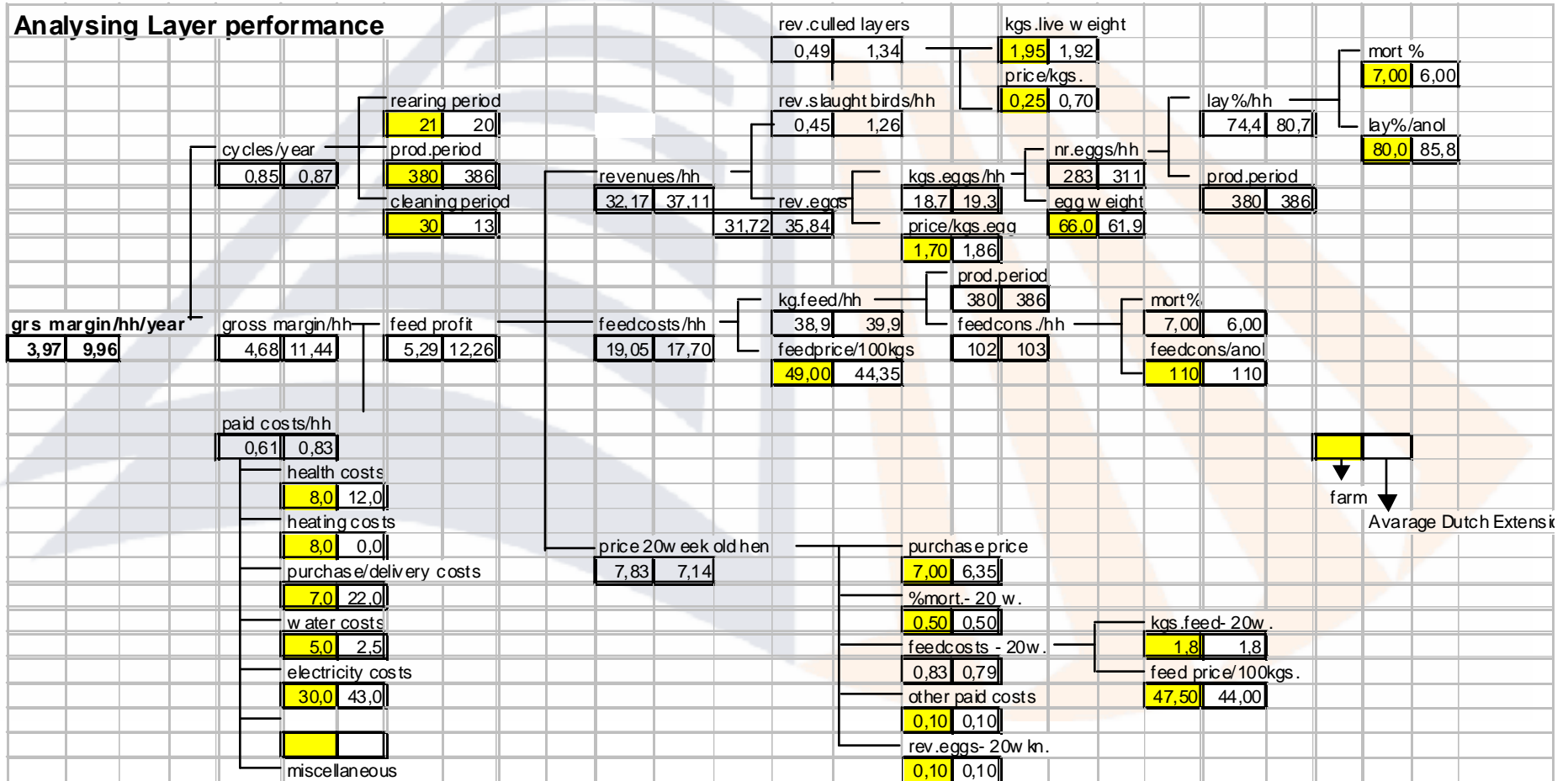
Keeping records and analyse the production performance

HISEX PRODUCTION GRAPH Standard & Actual		
Age Wks	Standard Lay (HD %)	Actual Prodn
18	4	
19	4	35
20	15	52
21	40	74
22	60	85
23	80	89
24	85	93
25	88	93
26	90	93
27	90	91
28	91	90
29	91	90
30	91	90
31	90	89
32	90	89
33	89	88
34	88	87
35	88	86
36	87	86
37	87	85
38	86	83
39	86	82
40	85	83
41	85	83
42	84	83
43	83	82
44	83	80
45	82	
46	81	
47	81	
48	80	
49	79	
50	79	
51	78	
52	77	
53	77	
54	76	
55	75	
56	75	
57	74	
58	73	
59	72	
60	72	
61	71	
62	70	
63	70	
64	69	
65	68	
66	68	
67	67	
68	66	
69	65	





Excel sheets to monitor flock performances





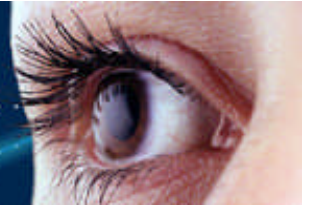
Genetics

Special birds are bred for all kinds of housing systems, more docile behaviour and less aggressiveness, resulting in less divergent behaviour





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