

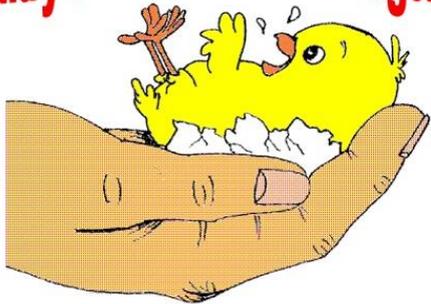
Importance and Preparation for Rearing: Day Old to 18 Weeks

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Poultry Health & Risk Management



Rearing: The Key to Optimal Production

- ◆ The groundwork for a good production cycle is laid down in the Rearing phase.
- ◆ There are direct correlations between Bodyweight and Uniformity at 05 weeks and the total Eggs per Hen Housed.
- ◆ Any hick-ups during rearing and the price is paid at the production side.
- ◆ Rearing is based on attention to detail. If you do not spend time inside the house, you will not rear successfully.

When does the Cycle Start?

- ◆ Can work on four theories:
 - ◆ Arrival of the chicks
 - ◆ Cleaning and Disinfection of your Rearing House = Less Pathogens
 - ◆ 04 Months before receiving chicks = Success of the previous cycle = Success of next cycle
 - ◆ Rearing of the parents  Good growth = Good Production and Egg Size = Good Chick Size

What is the aim of Rearing?

- ◆ A good quality Point of Lay
 - ◆ Bodyweight of 1,45kg - 1,55kg by 18 weeks
 - ◆ Uniformity of 85%
 - ◆ Good Frame length and width
 - ◆ Developed GIT with good capacity to support intakes in lay
 - ◆ Good fat pad = 5mm
 - ◆ Good titres and good health
 - ◆ Correct lighting program

What will you need?

- ◆ Temperatures
- ◆ Ventilation
- ◆ Water
- ◆ Feed
- ◆ Stocking density
- ◆ Good quality chicks

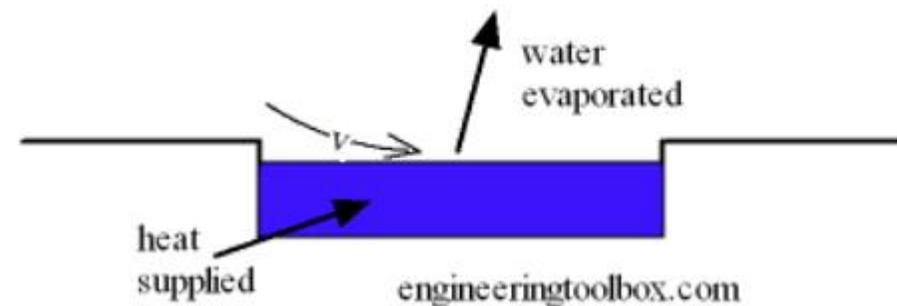
Equipment and Environment

Age (weeks)		Floor		Cages	
		0 – 2	2 – 5	0 – 3	3 – 5
Ventilation	Minimum per hour / kg	0,7 m ³	0,7 m ³	0,7 m ³	0,7 m ³
Stocking densities	Birds / m ²	30	20	80	45
	cm ² / Bird			125	220
Water supply	Chicks / Chick drinker	75		80 (1)	
	Birds / drinker	75	75		
	Birds / nipple	10	10	10 (2)	10 (2)
Feed supply	Birds / Starting pan	50		(3)	
	cm of trough feeders	4	4	2	4
	Birds / Round feeder	35	35		

Standards for Temperature and Humidity

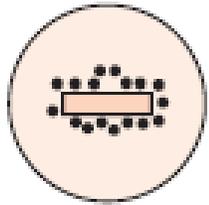
Age in days	Brooding temperature at the edge of the brooders	Brooding temperature at 2-3m from the brooders	Room temperature	Relative humidity optimum-maximum in%
0 - 3	35 °C	29 - 28 °C	33 - 31 °C	55 - 60
4 - 7	34 °C	28 - 27 °C	32 - 31 °C	55 - 60
8 - 14	32 °C	27 - 26 °C	30 - 28 °C	55 - 60
15 - 21	29 °C	26 - 25 °C	28 - 26 °C	55 - 60
22 - 24		25 - 23 °C	25 - 23 °C	55 - 65
25 - 28		23 - 21 °C	23 - 21 °C	55 - 65
29 - 35		21 - 19 °C	21 - 19 °C	60 - 70
After 35		19 - 17 °C	19 - 17 °C	60 - 70

- ◆ Heat loss from contact with litter and equipment that is not pre-heated = Need to pre-heat 2 days in Summer and 3 days in Winter
- ◆ Pre-heat program : Initially up to 28 °C and 24 hours before placement up to 34 °C
- ◆ How to keep humidity up: Evaporation is a function of surface area, not depth of water. Rather put less water, more often. Winter Vs Summer Vs Rain.

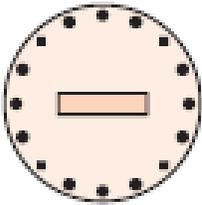


Monitor chick activity

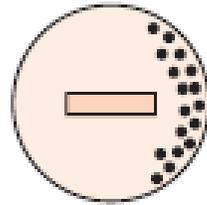
Distribution behaviour according to temperature



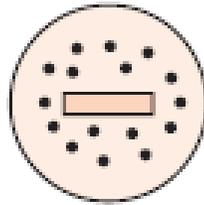
Too cold



Too warm



Draught



Ideal

- ◆ Cold chicks huddle
- ◆ Hot chicks are inactive and sleepy
- ◆ Happy chicks run around, eat and drink

Light Program

	Rearing in dark or semi dark house		Rearing in hot climate (open houses)	
	Light duration	Light intensity	Light duration	Light intensity
1 – 3 days	23 hours	20 – 40 lux	23 hours	40 lux
4 – 7 days	22 hours	15 – 30 lux	22 hours	40 lux
8 – 14 days	20 hours	10 – 20 lux	20 hours	40 lux
15 – 21 days	18 hours	5 – 10 lux	19 hours	40 lux
22 – 24 days	16 hours	5 – 10 lux	18 hours	40 lux
25 – 28 days	14 hours	5 – 10 lux	17 hours	40 lux

Key points for Day of Placement

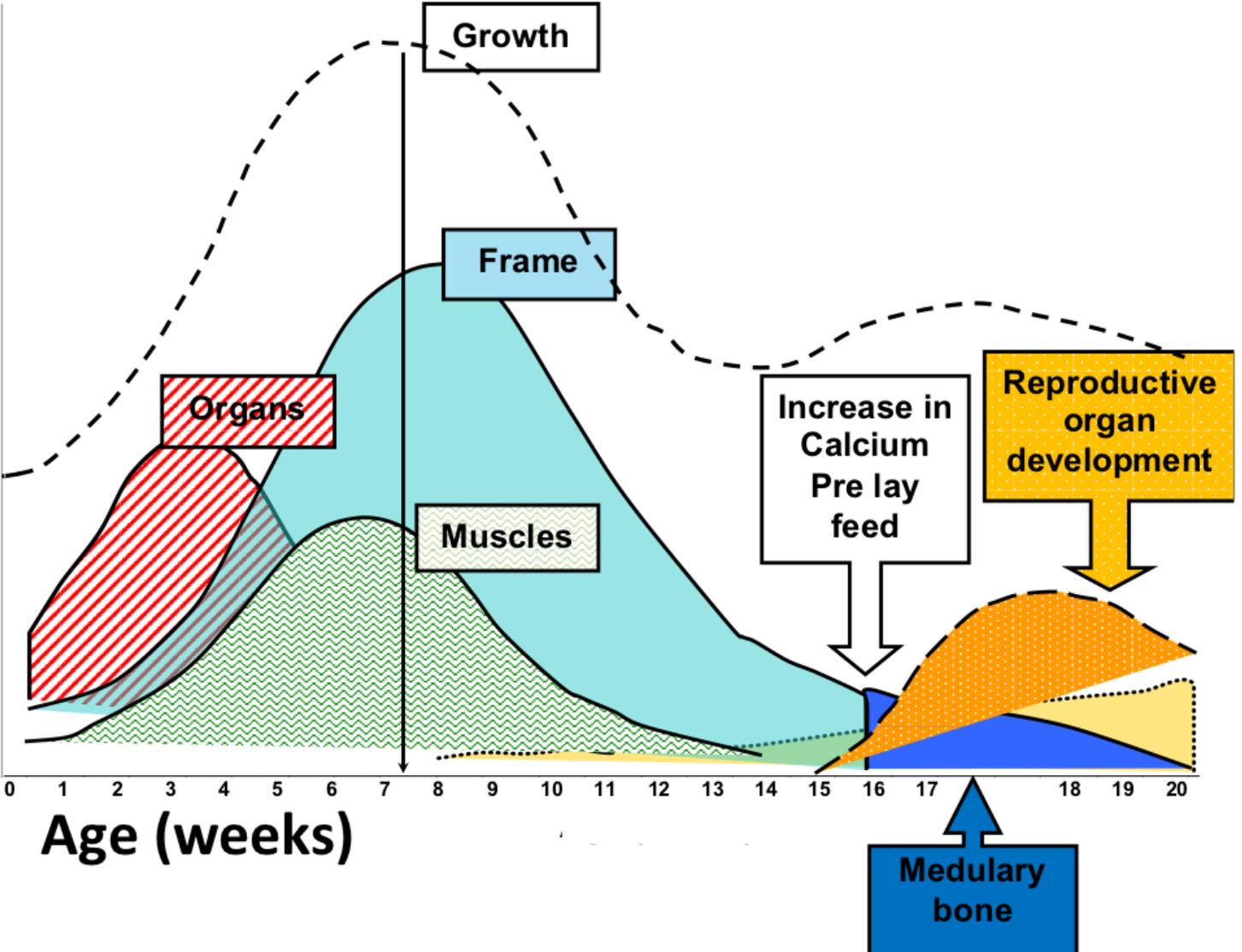
- ◆ Flush water lines before arrival - Give just water and nothing else for the first three days. Do not need bad tastes and residues in water.
- ◆ Adjust nipple heights after chicks are placed = Correct height means best intake
- ◆ Feed on paper = Can put under nipples, but need to distribute more towards the feed trough to teach chicks where to eat.
- ◆ Water pressure on nipples are critical. Need for a droplet to hang on each nipple
- ◆ It is hot inside the house = Flush water lines often to keep water cool and encourage intakes. Remember, water intake = feed intake

Chick Quality

- ◆ What you put in is what you get out
- ◆ Chicks weights: Depends on transport time. A chick below 30 grams at day old are less economically viable to rear.
- ◆ Chicks should be first grade



Development



Key to development = The GUT

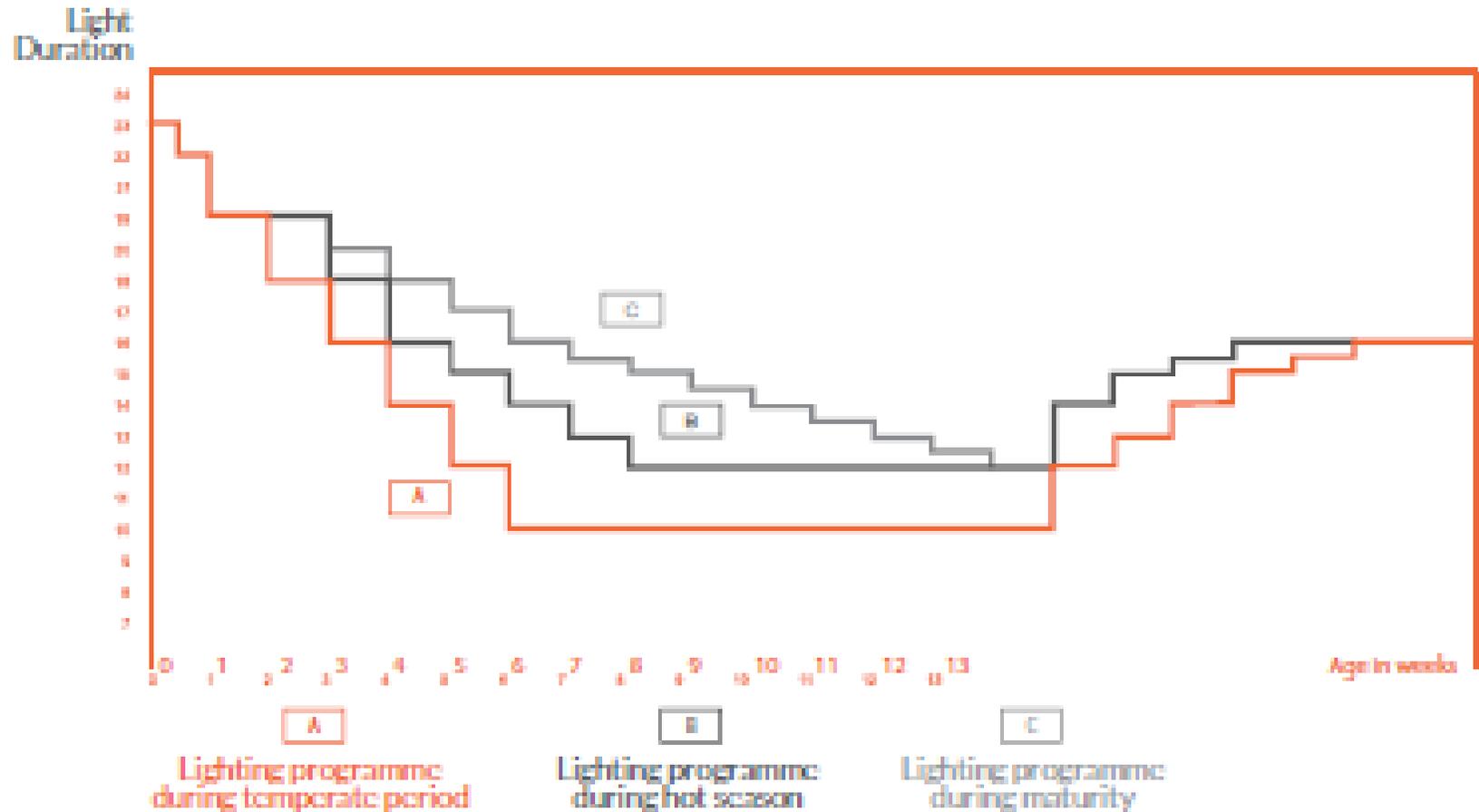
- ◆ The gut is critical for good development.
- ◆ If you look well after the gut development, the chick will grow optimally.
- ◆ Gut growth is stimulated by hormonal effect (GPF), which is stimulated by feed intake.
- ◆ The faster there is feed in the gut, the faster the chick will grow.
- ◆ At beginning of rearing, everything is exponential.

Housing and Equipment

Age (weeks)		Floor		Cages	
		5 – 10	10 – 17	5 – 10	10 – 17
Ventilation	Minimum per hour / kg	4 m ³	4 m ³	4 m ³	4 m ³
Stocking densities	Birds / m ²	15	10	15	10
	Birds / m ² (hot climate)	12	9	12	9
	cm ² / Bird			220	350
Water supply	Birds / drinker	100	100		
	Birds / drinker (hot climate)	75	75		
	Birds / nipple	9	8	10 (1)	10 (1)
Feed supply	cm of trough feeders	5	7	4	6
	Birds / Round feeder	25	23	25	23

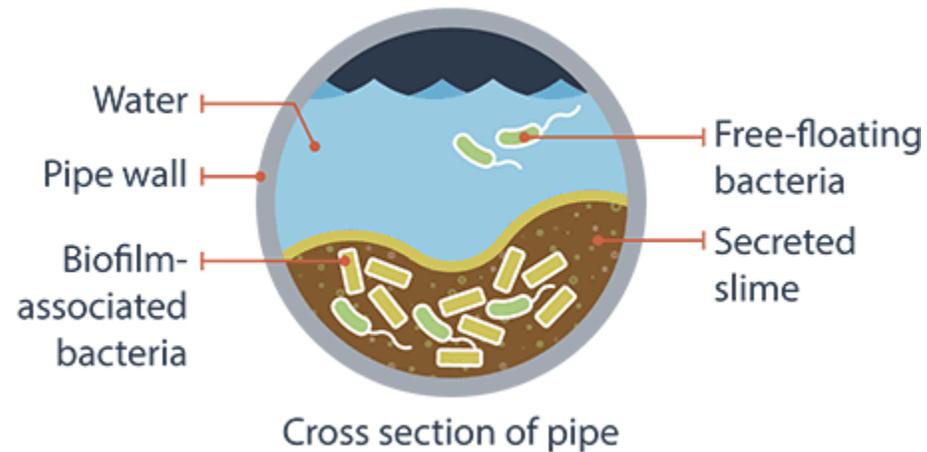
(1): Make sure that all the birds have access to at least 2 nipples

Lighting



Water

- ◆ Important to flush the water lines regularly.
- ◆ Houses are hot and need to keep water cool to maximise intakes.
- ◆ Important to flush water lines after any treatment or vaccination = residues can be growth medium for bacteria.
- ◆ Bacterial growth = Biofilm.



Feed

Between 18 & 24°C	Diet units	Starter 0-4 weeks 1-28 Days	Grower 4-10 weeks 28-70 days	Pullet 10 - 16 weeks 70 - 112 days	Pre- lay 112 days to 2 % lay
	Metabolisable energy	kcal/kg	2950-2975	2850-2875	2750
	Mj/kg	12.3-12.4	11.9-12.0	11.5	11.5
Crude protein	%	20.5	19	16	16.8
Methionine	%	0.52	0.45	0.33	0.40
Methionine + cystine	%	0.86	0.76	0.60	0.67
Lysine	%	1.16	0.98	0.74	0.80
Threonine	%	0.78	0.66	0.50	0.56
Tryptophan	%	0.217	0.194	0.168	0.181
Digestible amino acids					
Dig. Methionine	%	0.48	0.41	0.30	0.38
Dig. Meth. + Cystine	%	0.78	0.66	0.53	0.60
Dig. Lysine	%	1.00	0.85	0.64	0.71
Dig. Threonine.	%	0.67	0.57	0.43	0.48
Dig. Tryptophan	%	0.186	0.166	0.145	0.155
Major minerals					
Calcium	%	1.05-1.10	0.90 - 1.10	0.90-1.00 (1)	2-2.10 (1)
Available phosphorus	%	0.48	0.42	0.36	0.42
Chlorine minimum	%	0.15	0.15	0.14	0.14
Sodium minimum	%	0.16	0.16	0.15	0.15

Above 24°C	Diet units	Starter 0-4 weeks 1-28 Days	Grower 4-10 weeks 28-70 days	Pullet 10 - 16 weeks 70 - 112 days	Pre- lay 112 days to 2 % lay
	Metabolisable energy	kcal/kg	2950-2975	2850-2875	2750
	Mj/kg	12.3-12.4	11.9-12.0	11.5	11.5
Crude protein	%	20.5	20	16.8	17.5
Methionine	%	0.52	0.47	0.35	0.42
Methionine + cystine	%	0.86	0.80	0.63	0.70
Lysine	%	1.16	1.03	0.78	0.84
Threonine	%	0.78	0.69	0.53	0.59
Tryptophan	%	0.217	0.207	0.175	0.19
Digestible amino acids					
Dig. Methionine	%	0.48	0.43	0.32	0.40
Dig. Meth. + Cystine	%	0.78	0.69	0.56	0.63
Dig. Lysine	%	1.00	0.89	0.67	0.74
Dig. Threonine.	%	0.67	0.61	0.45	0.50
Dig. Tryptophan	%	0.195	0.175	0.152	0.163
Major minerals					
Calcium	%	1.05-1.10	0.95-1.10	0.95-1.05 (1)	2.1-2.2 (1)
Available phosphorus	%	0.48	0.44	0.38	0.44
Chlorine minimum	%	0.16	0.16	0.15	0.15
Sodium minimum	%	0.17	0.17	0.16	0.16

Feed

- ◆ Keep feed levels up. BUT be careful of waste! Rearing feed is expensive.
- ◆ Always *Ad Lib* access
- ◆ Feed form: Crumbs or mash?
- ◆ Regular stimulation = increase feed intake.
- ◆ Can manipulate the light program to increase early feed intakes and get bodyweight gain.

Feed = When to change phases?

- ◆ Important to change phase only when needed.
- ◆ Do NOT use a model based on age alone.
- ◆ Bodyweight will be the determining factor for a phase change.
- ◆ If bodyweight is below standard, keep on current phase.
- ◆ Purpose of phases:
 - ◆ Keep nutrient specifications aligned with nutrient requirements
 - ◆ Promote increase in gut volume to maximise intakes in lay

Vaccination

- ◆ Creates a competent immune system.
- ◆ Needs to be applied correctly and efficiently.

Spray Vaccination

- ◆ Environmental temperatures (Do not spray if above 25° c)
- ◆ Transport
- ◆ Equipment checks (and storage)
- ◆ Clean, de-ionized water.
- ◆ Temperature of spray water = < 10° C
- ◆ Walking speed = keep constant
- ◆ Keep records
- ◆ Audits

Vaccinating through the water

- ◆ Important to have no Chlorine in water = kills vaccines.
- ◆ Use stabilisers in water to catch up any heavy metals and other minerals.
- ◆ Important to starve chicks of water before vaccinating.
- ◆ Using dye in water will help to visualise distribution of vaccine in water lines.
- ◆ Make sure to flush lines after.
- ◆ Keep records.
- ◆ Audits.

Injections

- ◆ Oil adjuvant based vaccines. Water based vaccine mixed with oil.
- ◆ Function of is to leave a residue in the body, cause low grade tissue irritation and stimulate immune system.
- ◆ If oil ends up in the incorrect place in the body, it causes significant tissue irritation and can lead to damage. (Twisted keel bone, breast muscle atrophy)
- ◆ Important to be injected inside the muscle. NOT under skin. Not close to bone.
- ◆ Can be done by hand or by machines.
- ◆ Records.
- ◆ Audits.

How do get uniformity up

- ◆ It needs to be measured.
- ◆ If you don't measure, you will not be able to improve.
- ◆ Only way to improve Uniformity, is constant sorting.
- ◆ Sorting, sorting, sorting!!
- ◆ Find small and medium birds, sort them to one side and give them space and opportunity to grow.

Critical times to do critical things

- ◆ Important to get bodyweight at target by 5 weeks. If not, focus on early nutrition and extra supplementation.
- ◆ Sorting from 10 days onwards is essential.
- ◆ Frame (skeletal) development closes at 12 weeks, so need to focus on development steaming up to 12 weeks.
- ◆ From 12 weeks on, need to focus on LEAN gain. Creating too fat birds, will cause problems in early lay.
- ◆ Vaccinations are critical!! Birds can be damaged, which could have long term effects.

Summary

- ◆ A good rearing cycle lays the foundation for a good production cycle.
- ◆ Essential to measure how the birds are performing.
- ◆ Have a solid vaccination program in place and make sure vaccines are applied correctly.
- ◆ Sorting, sorting, sorting!
- ◆ Focus on details. Important to have feet inside the house.

Thank you!

Questions?

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