EPISODE 6

MANAGING BROODING PHASE

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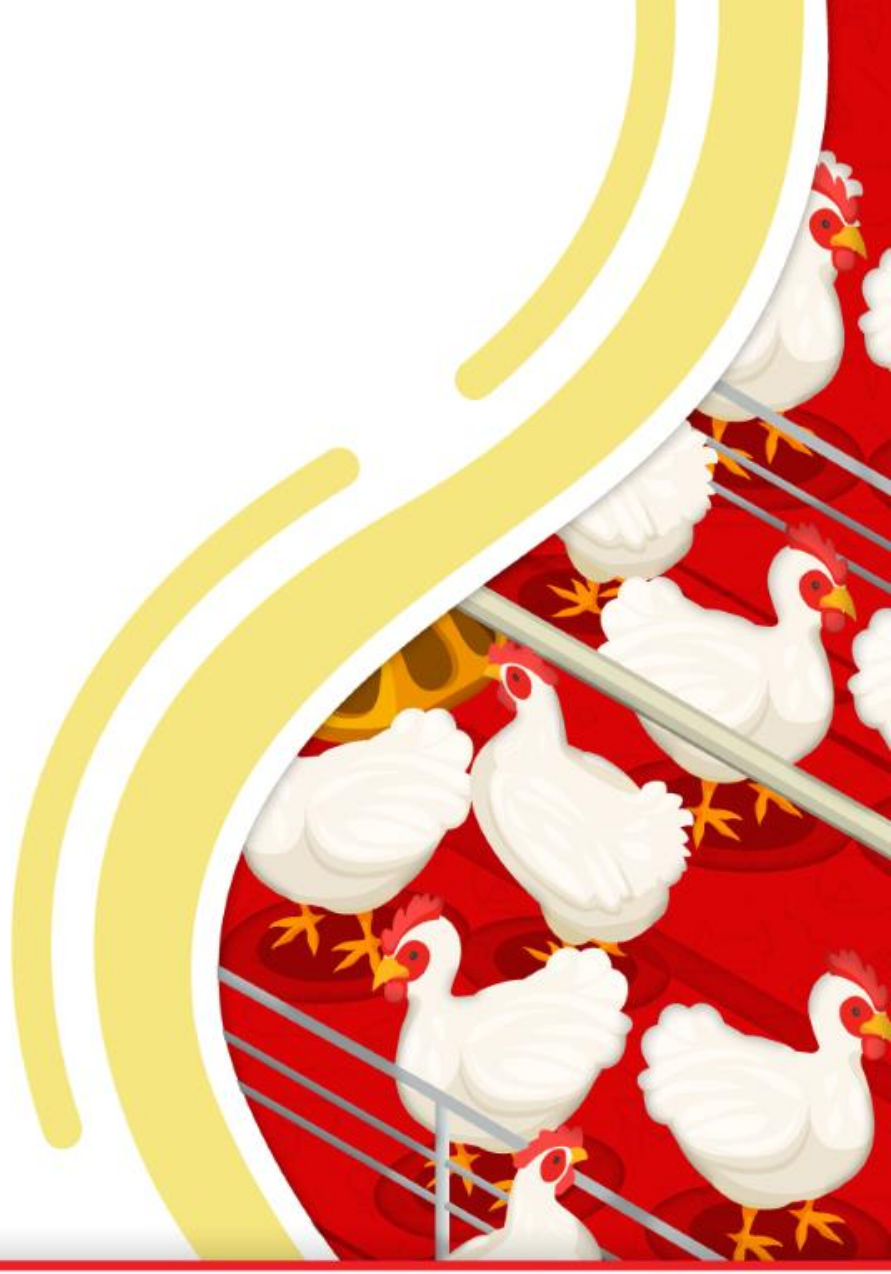
CHICKS DIG IT!

WHAT WE WILL BE COVERING TODAY:

- Pre-Placement house setup
- **Brooding Principles**
  - Temperature
  - Air quality
  - Feed intake
  - Water
  - Lighting



PARTIAL BROODING

- Reducing the space dedicated to brooding to maintain correct temperatures in a small area for the first week.

Brood Chamber Stocking Density

Age (days)	Density (birds/m^2)
0 to 3	55 to 60
4 to 6	40 to 45
7 to 9	30 to 35
10 to 12	20 to 25
13 to 15	10 to 15

BEDDING & BROODING EQUIPMENT

- Bedding to be dry
- Litter Depth: At least 3cm
- Ensure **brooding equipment** is functional.
- Heating system with sufficient capacity.

PREHEATING & EARLY BROODING

- Pre-heating at least 24 to 48 hours before chick placement
- The floor and ambient temperatures to be stabilized 24 hours before placement

BROODING / DEVELOPMENT PHASE

- **Transition period:** important to keep the chicks in their **Thermo Neutral Zone**

- **Chicks are very sensitive to temperature extremes**
  - They have **poor insulation** as they only have down feathers (fluff)
  - So they **lose heat** very quickly

THE GOAL OF BROODING

- Stimulate early feed & water intake
- Accelerate growth-the first week of life
- Skeletal, cardiovascular, gut development
- Flock uniformity
- Without effective brooding, performance will be compromised!
- This is the birds most efficient period (FCR)
- Ensure temperature regulation development-1st 5 days
- **The key is to achieve all of the above with <u>minimal stress</u>**
- **More effort** during brooding = **Better Rewards** in final flock performance.

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PREHEATING & EARLY BROODING

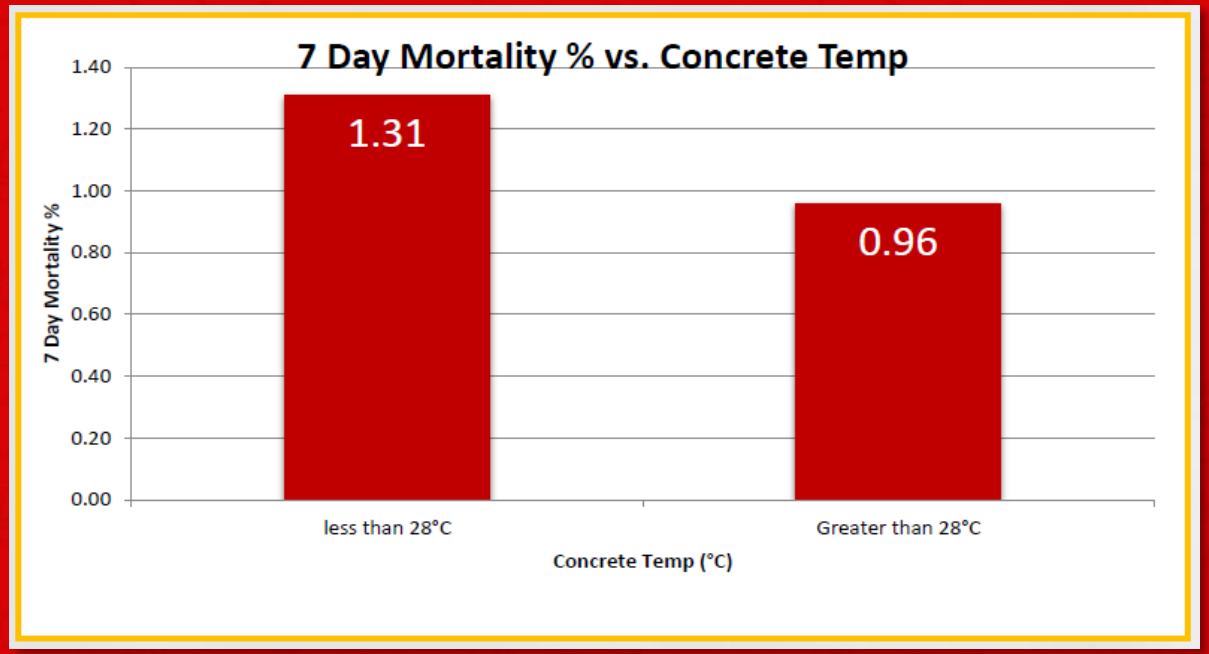
- Concrete 28°C - 30°C
- Bedding 30°C - 32°C
- Ambient 32°C - 34°C
- Depending on RH, PF, Cloaca temp
- **Calibrate Temperature probes**
- Place a min/max thermometer
- Cloaca temp. of 40-46.6°C in 1st 4 days
- 41-42° thereafter
- Co2 <3,000 parts per million
- RH <70%

IDEAL CHICK ACTIVITY

- Some drinking
- Some eating
- Some resting
- Some playing
- Evenly spread throughout the house

BROODING – TEMPERATURE

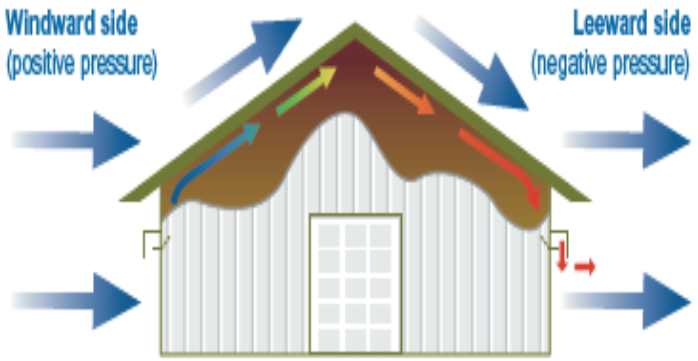
- 7 day Mort% vs Concrete Temperature @ placement
- 7 day mortality increases to 1.31% from 0.96% when concrete temperature at placement is <28°C

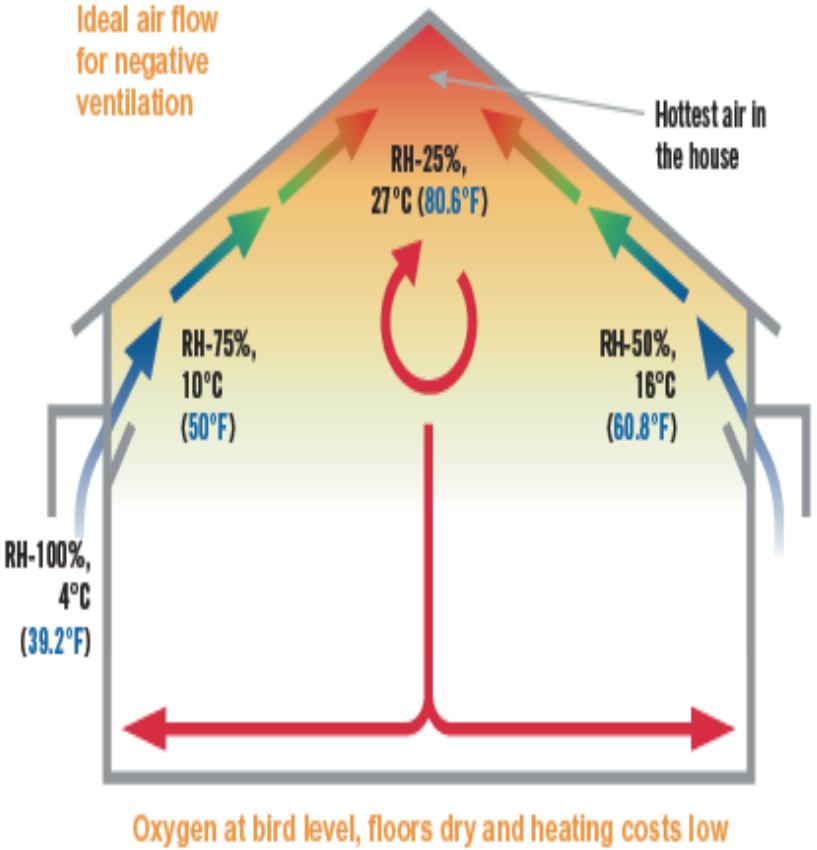


BROODING – VENTILATION

Air Quality guidelines

Oxygen%	> 19.6%
Carbon Dioxide (CO_2)	<0.3% / 3000ppm
Carbon Monoxide	< 10ppm
Ammonia	<10ppm
Inspirable Dust	<3.4mg/m^2
Relative Humidity	45– 65%





EFFECTS OF HIGH CO_2

- Reduce Activity
- Reduced consumption
- Increased dehydration
- Lower weight gain
- Higher Ascites issues

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BROODING – FEEDING

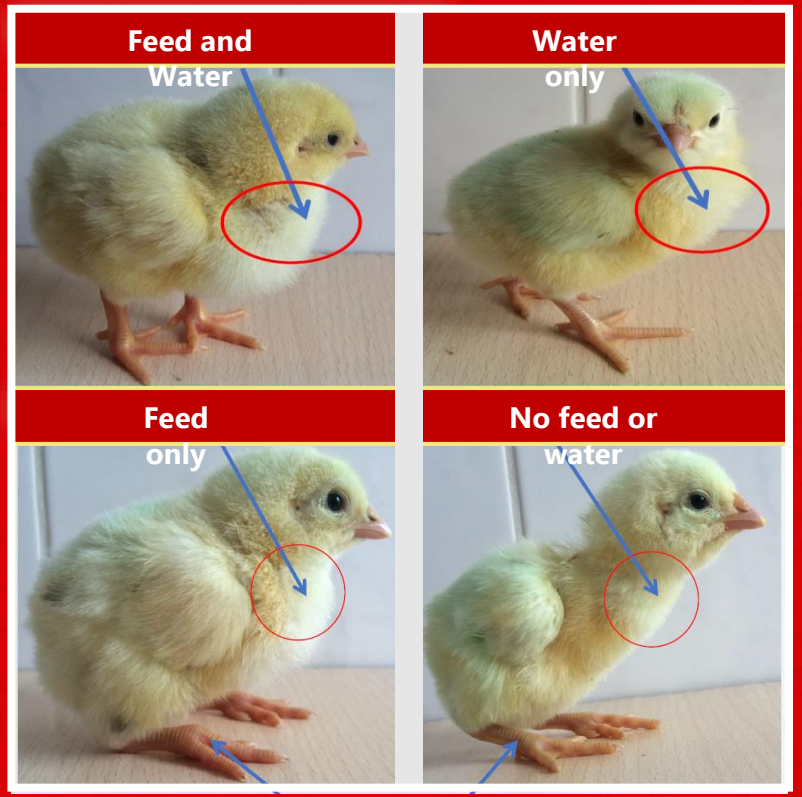
- Additional Feed
- Provide enough feed
- Chick Paper to cover 50% of the area
- Feed to be 75 grams per chick
- Feed and paper to last 4 days

- Evaluate crop fill and indicate results on form as below:

Crop fill	No. of chicks	Full - Pliable *Feed & Water*	Full - Hard *Only feed*	Full - Soft *Only water*	Empty
Evaluation					

- Sample 100 chicks per brood area.
- Check: temperature of feet against neck or cheek.
- If the feet are cold, re-evaluate pre-heating temperature and current ambient/floor temperatures within the brooding area.

BROODING – FEEDING



BROODING – WATER

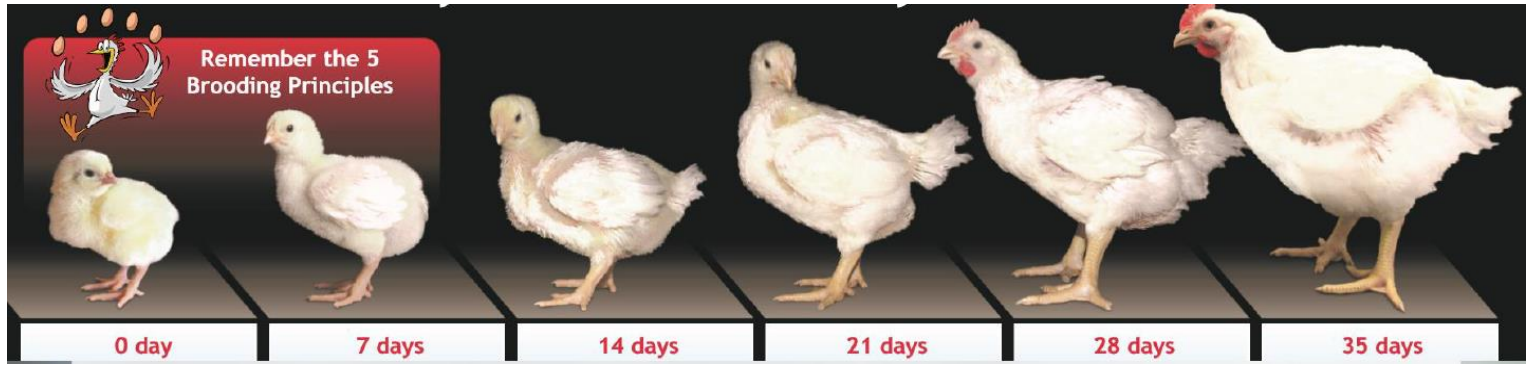
The importance of good water quality

- It is the birds' water consumption that drives their feed consumption
- They consume twice as much water as feed
- Water is involved in every aspect of metabolism:
- Regulating Body temp, digesting food, eliminating body wastes
- **Poor water quality and/or poor water management leads to poor uniformity & poor performance**

BROODING – LIGHTING

- Light should be evenly spread in brooding area
- **Lighting Program**
  - 24 hours on the day of placement.
  - Day 1-7 - 1 hour off
  - Day >7 - 4 to 6 hours off depending on the weight of the birds..

WHAT TO EXPECT



ALM	40g	193g	528g	1.018kg	1.615kg	2.273kg
ADG		28g	38g	48g	58g	65g
FCR		0.76	1.03	1.22	1.37	1.5
FEED		32g	74g	110g	156g	179g
TEMPS	32°C	30°C	28°C	26°C	23°C	19°C

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The 5 Brooding Principles

Brooding has to be <u>faultless</u> to unlock full genetic potential!

Optimum Whole House Brooding

F Feed Intake: Maximise

- Cover 50% of brooding area with good quality paper (lasting 5 days)
- Place a line of paper either side of each drinker line
- Place 75g of feed on paper pre-placement
- Feed on paper to last at least 4 days
- Achieve at least 95% crop fill the morning after placement (sample 100 chicks)
- Achieve consumption of 25% of chicks' bodyweight in first 24 hours

A Air Quality: Ventilation

- Activate Minimum Ventilation 48-hours pre-placement
- These fans should be fixed volume rather than variable speed
- 20% run time (ideally a 5 minute programme of 60 seconds on, 240 seconds off)
- Capacity of minimum ventilation fans should be able to provide a total air exchange every 8 minutes
- Number of fans required: house volume (width x length x average height) (m^3)/8/ available fan capacity (m^3/min)

Good quality air	
Oxygen	Minimum 19.6%
Carbon Dioxide	Maximum 3,000 ppm
Relative Humidity	Maximum 70%
Carbon Monoxide	Maximum 10 ppm
Ammonia	Maximum 10 ppm
Inspirable Dust	Maximum 3.4 mg/m^3 of air

W Water Quality: H_2O = Hygiene and <20°C

- Maximum temperature of 20°C if vaccinating orally
- Flush as often as needed to control water temperature and prevent biofilm build-up
- Achieve consumption of at least 1ml/hour/chick in first 24 hours
- 40ml/minute nipple flow rate in first week (always refer to manufacturers' recommendations)
- Provide comfortable nipple height, adjusting height regularly
- Chicks need to stretch to activate nipple, with feet flat on the floor

L Light Intensity: Promote Activity

- Provide a uniformly bright brooding area
- Minimum 25 lux at floor level, ideally 40 lux
- Maximum variation of 20% at floor level between brightest and darkest area
- Attraction light above each control pan to encourage activation of feed line

T Temperature Control: Thermal Neutral Zone

- Concrete: 28 - 30°C
- Litter: 30 - 32°C, depending on cloaca temperature
- Ambient: 32 - 34°C, depending on RH%, parent age, and cloaca temperature
- Chicks from young parents need + 0.5 - 1°C higher ambient temperature
- Cloaca: first 4 days 40 - 40.6°C, thereafter 41 - 42°C
- Heating capacity of at least 0.075Kw/m^3 of house air volume
- Temperature probes free hanging at chick height, not too close to heater or inlet
- All sensors should be calibrated prior to chick placement

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Thank you