AHEAD IN
ANIMAL HEALTH

Teaming up for animal health

In the interest of animals, their owners and society at large

AHEAD IN
ANIMAL HEALTH

Poultry Health Seminar

Preventive measures & Gut health

Robert Jan Molenaar, DVM, FRCPath

	Aware	Unconscious
Skilled	You know you know	Risk you do too much on autopilot
Unable	You know what you don't know	You are unaware that you have things you don't know


Too HOT


Too COLD


Extra feed


Extra water

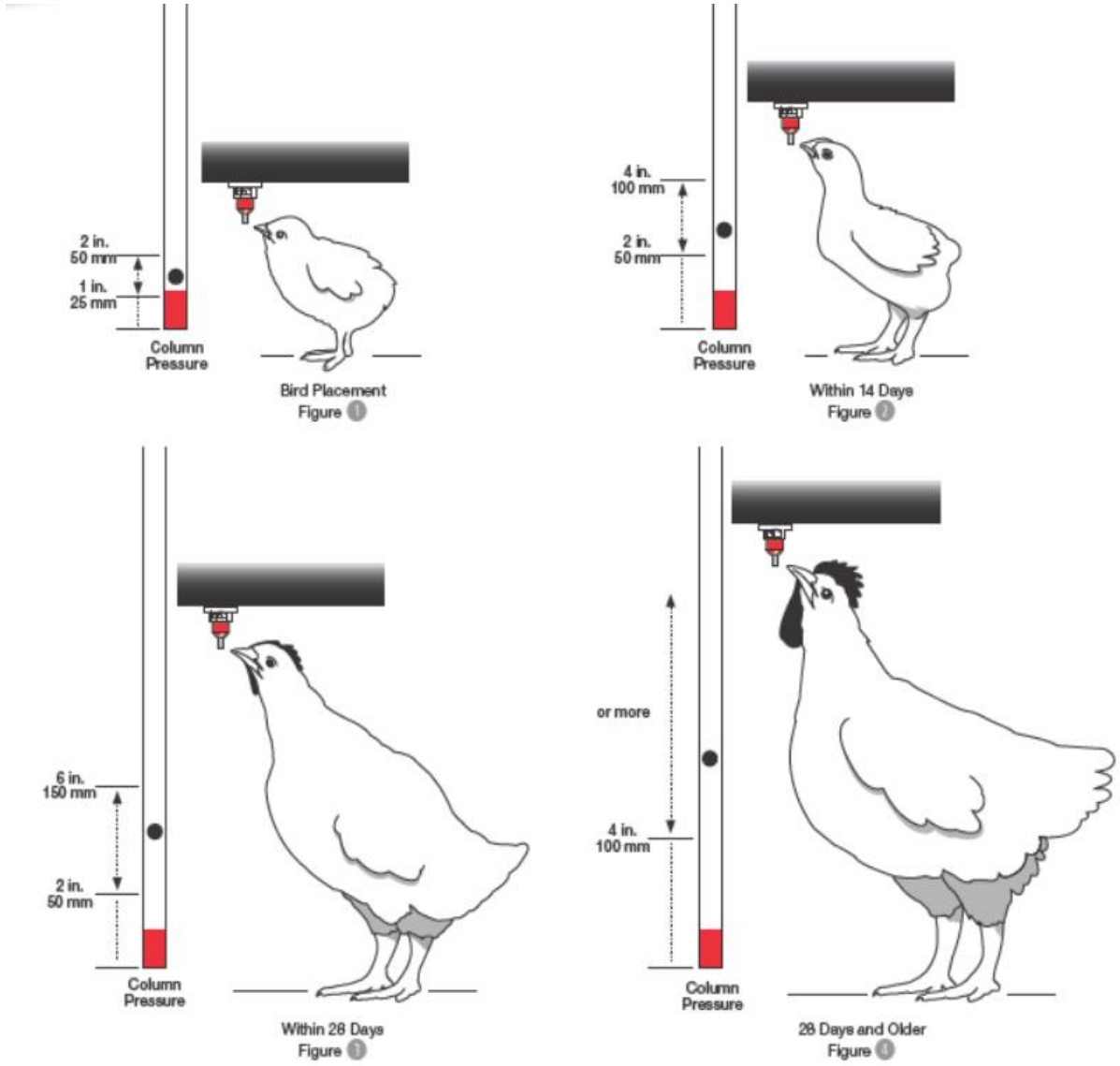
DOC – before arrival

Water temperature	Effect
< 5 °C	Reduced intake of water
18-21 °C	Perfect
> 30 °C	Reduced intake of water
> 44 °C	Won’t drink

Note: during the **application of live vaccine through the drinking water**, do **NOT** adhere to these temperatures

water

- Flow rate nipples
  - 0-7 days 20 ml/min
  - 7 -21 days 50 - 70 ml/min
  - > 21 days 70 – 100 ml/min
- Nipple height
  - Angle of chicken:
    - Chick: 35 to 45°
    - Growing: 75-85°
  - Straight head: reaching, not stretching
- Number of visits: 65-128



Navel scoring

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- Score 0 = closed, clean navel
- Score 1 = not completely closed, small button (<2mm) or lint
- Score 2 = open navel or large button (>2mm), wet, soiled, discoloured navel and/or soft, moist, mushy abdomen

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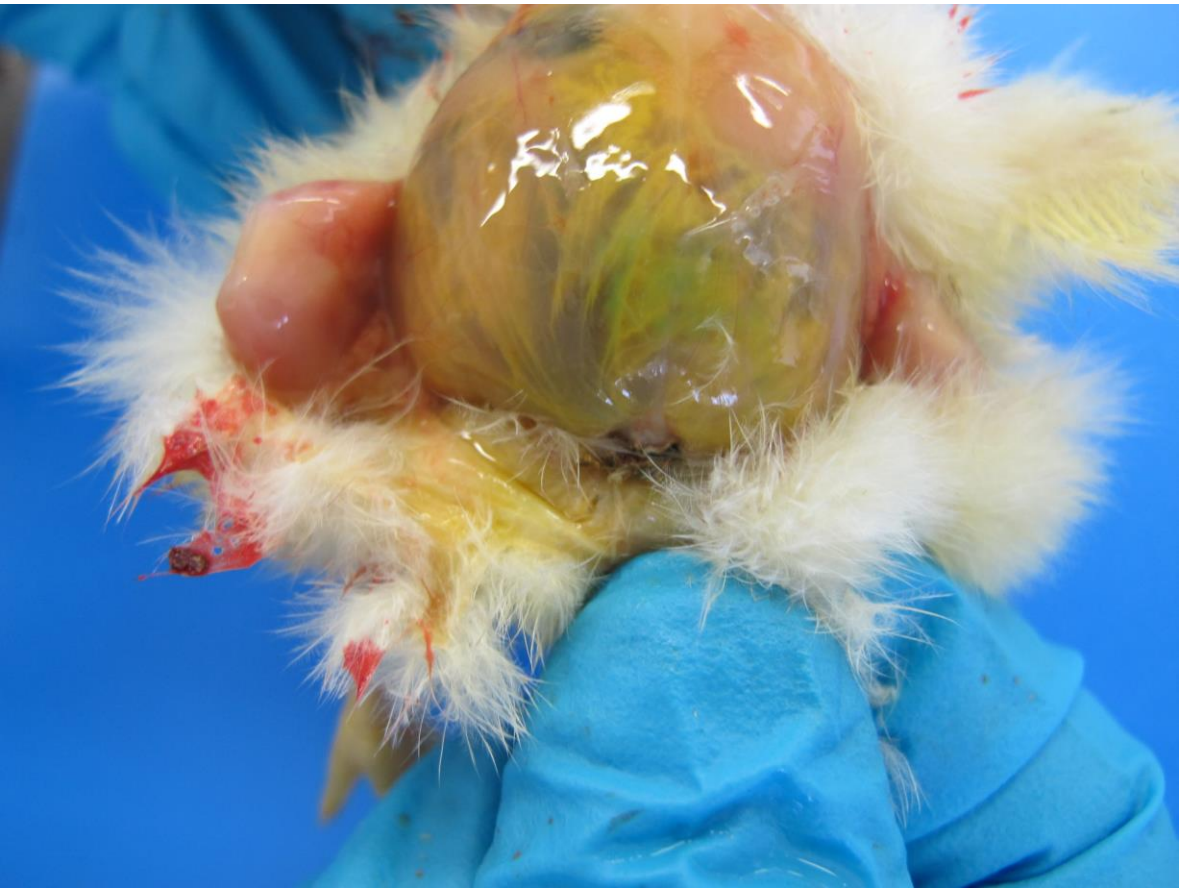

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Crop filling

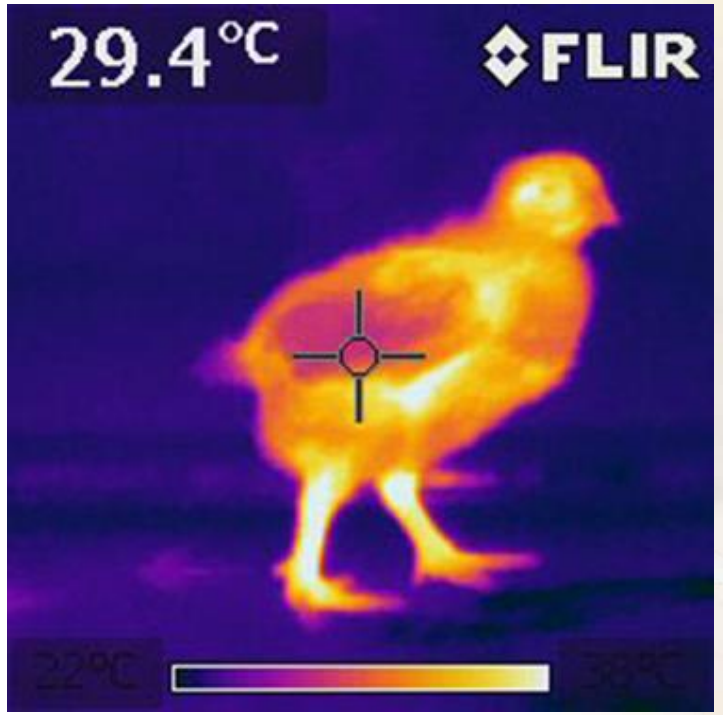
>80% after 4 hours, 85% after 8 hours, 95% after 24 hours

- Determine filling and consistency (→ feed and water intake)

Cloacal temperature

- Adults: regulate their body temperature
- Baby chick: has to rely completely on environment (first 3 days)

- Measure temperature:
  - Outside temperature; changes rapidly
  - Internal temperature; useful!



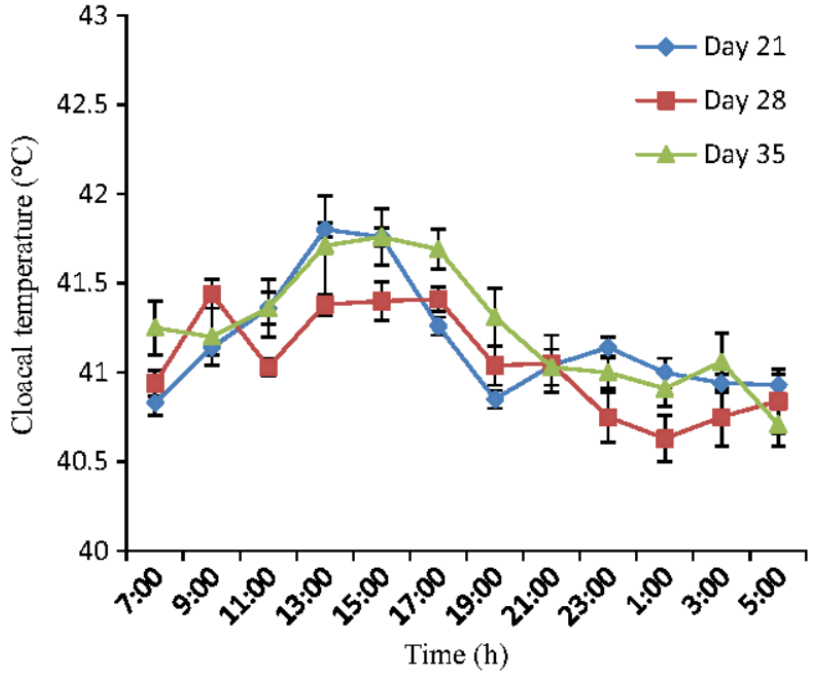
Cloacal temperature

- Measure temperature
  - Upon arrival = indication of transport conditions
  - At 4 hours after arrival
  - At 8 hours after arrival
  - Daily (upto 7 days)

measure

- Cloacal temperature and comfort zone

Age	Cloacal temperature
Day old chick- arrival	39,5 – 40,5
Day old chick – 4 hours	40,0 – 40,5
10 days	41,0 – 41,5



During all of this: be gentle

DOC arrival

Abnormal behaviour / sign of disease

- Example: Vit B2 deficiency

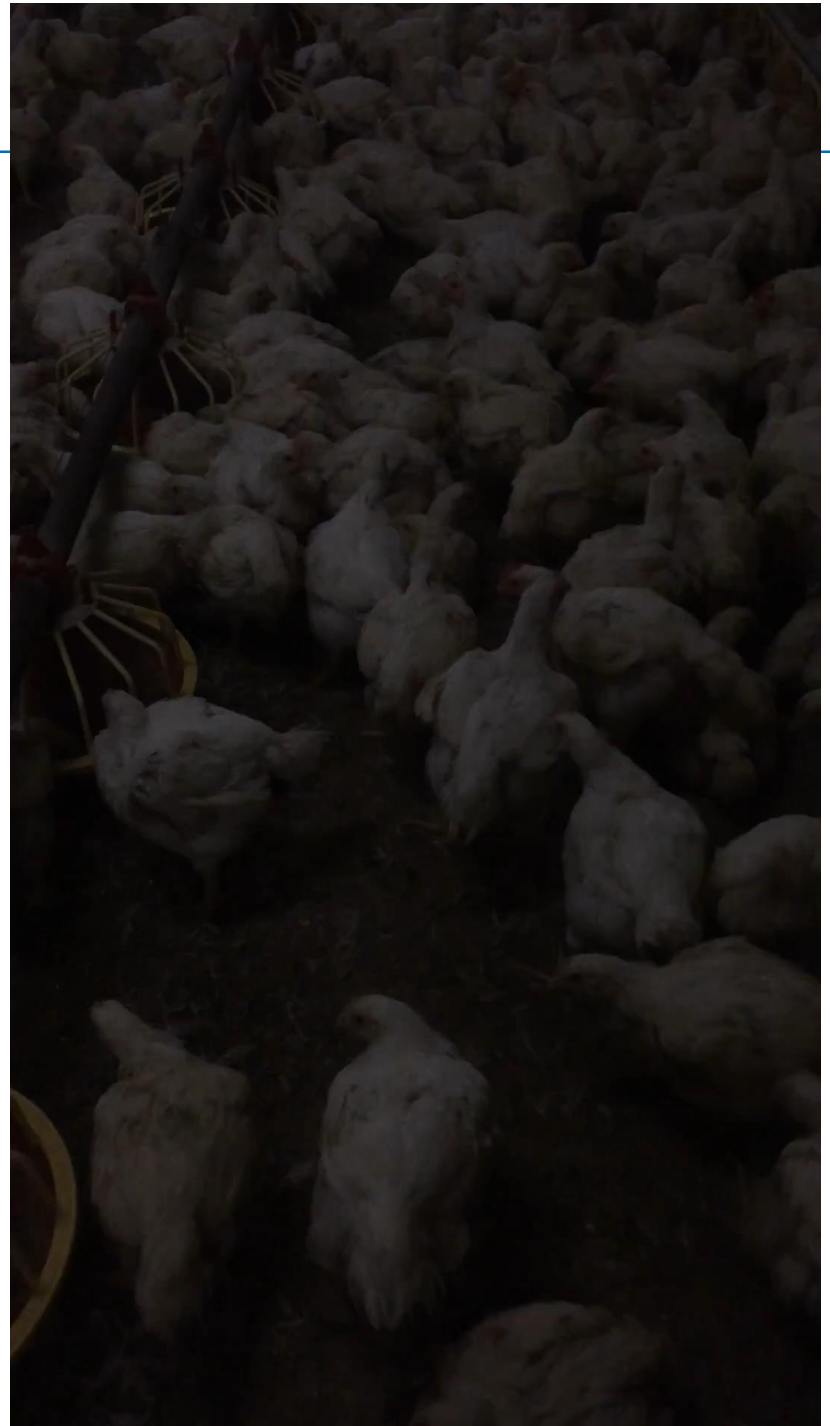
DOC arrival

- *Open beak with no additional noises*
  - High ambient temperature
  - Gasping for air found in chicks with an Aspergillus infection

- Natural chicken sounds
  - Clucking: lay, expectation of feed, frustration
  - Cackle: danger
  - Screech: fear, pain
  - Respiratory sounds
- Sound of the feeders
- Sound of the fans

Respiratory sounds

- Expectoration
  - irritation of the nasal passage and the beginning of the trachea, with excessive mucus development,
    - poor climatic conditions and a secondary *E. coli* complication. If occurring acutely, then it is most likely a viral infection, such as infectious bronchitis (IB), AMPV or NCD.



Coryza - sound

Avian influenza -sound

Look from large to small

Flock → Individual chickens → Parts of the chicken

What's going on here?

And here?

Walking around

- Take a different route as the care taker.
- Walk across the flock

- Scare them:
  - make a noise, see how they react:
    - Walk away, and observe when stop
      - Turning around?
      - Sitting down?
        - Birds should fill the empty space directly
- Look behind you
        - Birds should fill the empty space directly

Which one will take more feed

Bij het oppakken biedt een gezonde kip enige weerstand.

Een scherp uitstekend bot en te weinig bevlezing, wijst op een te lage voeropname.

Hoor je afwijkende geluiden, kijk dan naar eventuele natte neuzen en in de keelholte of je slijm of andere tekenen van een ontsteking ziet.

Zwellingen van of korstjes op de voetzolen zijn een teken van nat of scherp strooisel of scherpe uitsteeksels.

Stijve of warme gewrichten zijn vaak ontstoken.

Is de ruimte tussen de legbotjes smaller dan twee vingers, dan legt de kip niet.

Feathering

‘Helicopter disease’

Runting and Stunting <u>Syndrome</u>

or

Malabsorption <u>Syndrome</u>

-Symptoms:

- -Poor digestion feed
- -Poor growth
- -Abnormal feathering

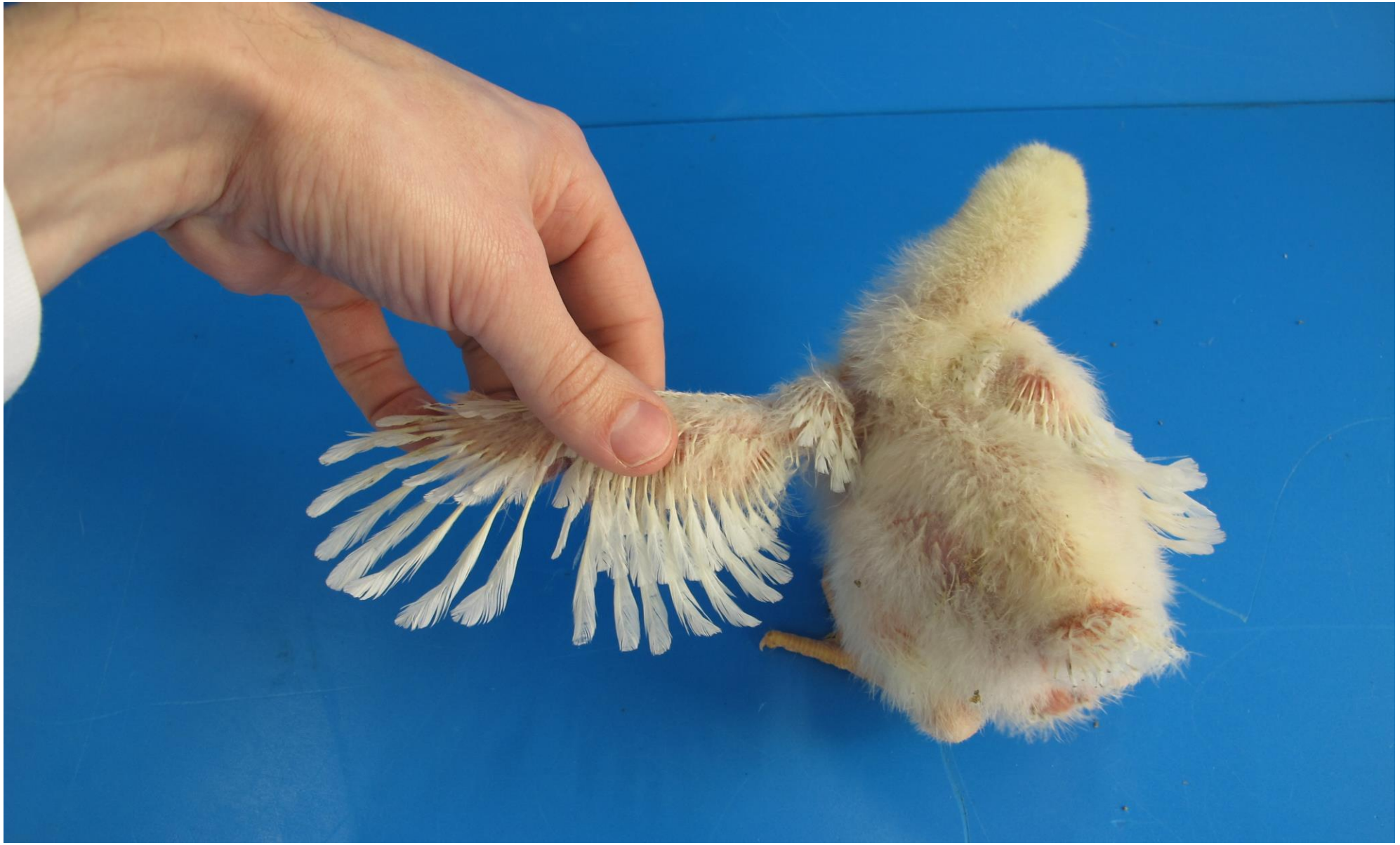
-Cause:

- -Multifactorial
- -Infections (Reo, Astro, Rota, ??).

-DDx

- -Mycotoxins
- -Deficiencies

Feathers



Gut health and development

From approx. week 3 onwards:

- Attention for the intestines; feed intake is rapidly increasing
- Passive and/or birds that are not alert, may have gut problems
- Should be well spread in the unit
    - If not, find the reason
- Daily gain accelerates to form skeleton, organs and muscle mass.
- At 7 days, a broiler may eat 20% of its bodyweight daily
- Too fast gain may lead to sudden death and susceptibility to diseases
    - Control by increasing dark hours and/or diluting feed.
- Vent pasting may occur due to change in feed
- Dark hours could be increased to 4 hours

Gut health and development

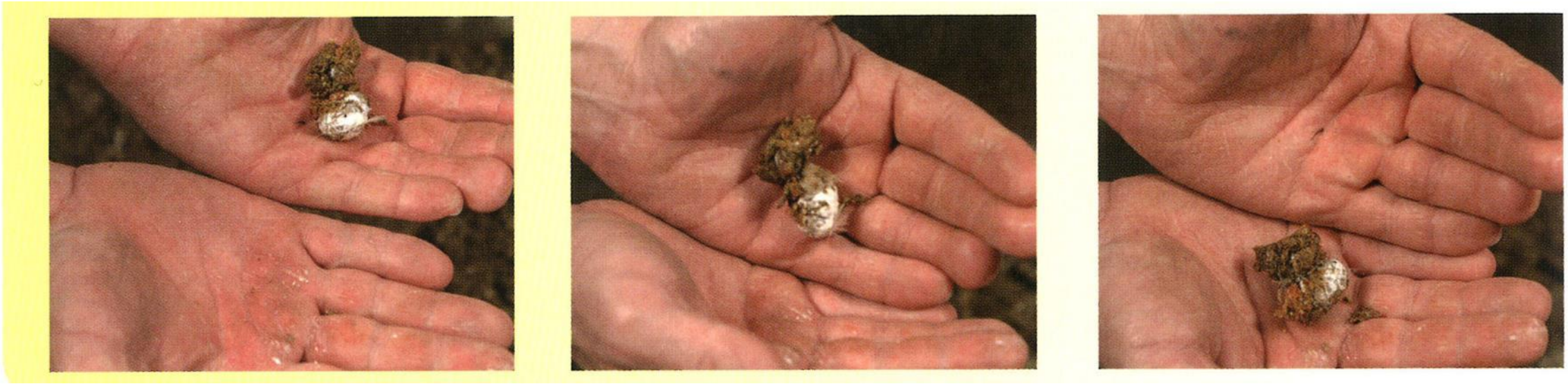
Signs from Droppings

- Undigested feed residues

Gut health and development

Signs from Droppings

- Manure consistency

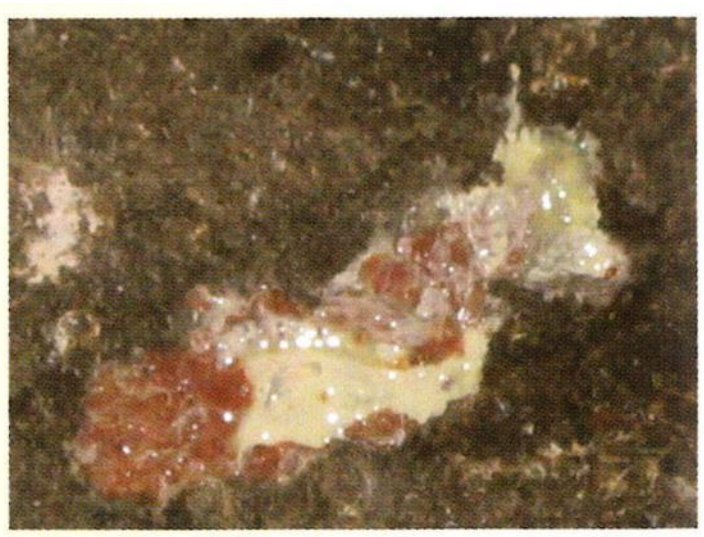


- Intestinal dropping
  - solid and has a grayish-brown color. It is in parts surrounded by a thin white layer of urates

Intestinal dropping

Right

Reasonable



Not right

Source: A. Slaats

Caecal dropping

- Ceacal dropping
  - brownish-black

Caecal dropping

Right

Reasonable

Not right

Diarrhoea

- Watery dropping
- No correct shape

- Highly accelerated passage

- Necrotic enteritis
- Coccidiosis

Bloody droppings

- Intestinal dropping
  - Blood around the dropping
  - Epithelium (orange)?
- *Coccidiosis*
  - *E. tenella*
  - *E. necatrix*
  - *E maxima*
- *Invagination*

Foamy cecale dropping

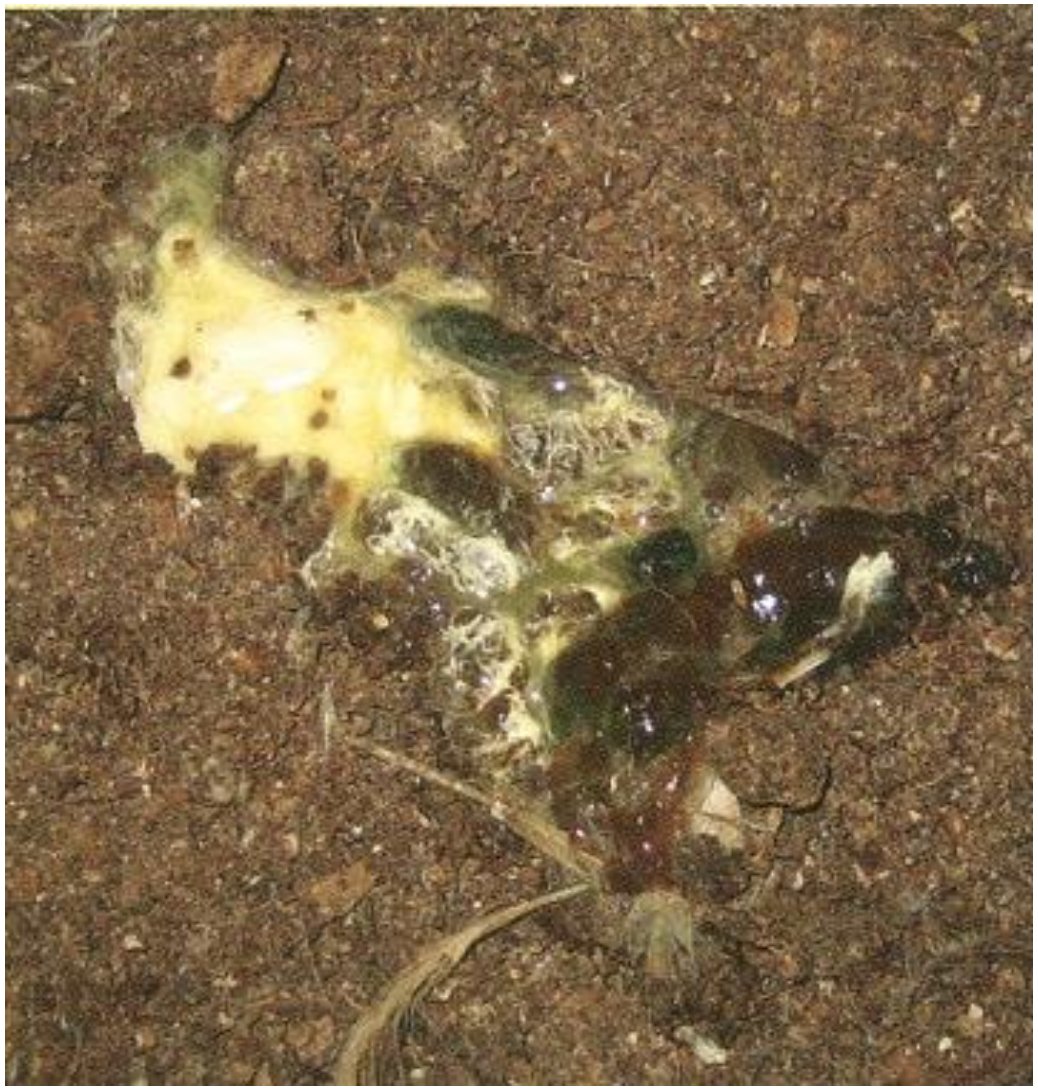
- Yellow like dropping
- Foamy

- Gas formation during fermentation in the ceaca

- Accelerated passage
  - Dysbacteriosis
  - Brachyspira

Source: Broiler Signals

Bile / urates



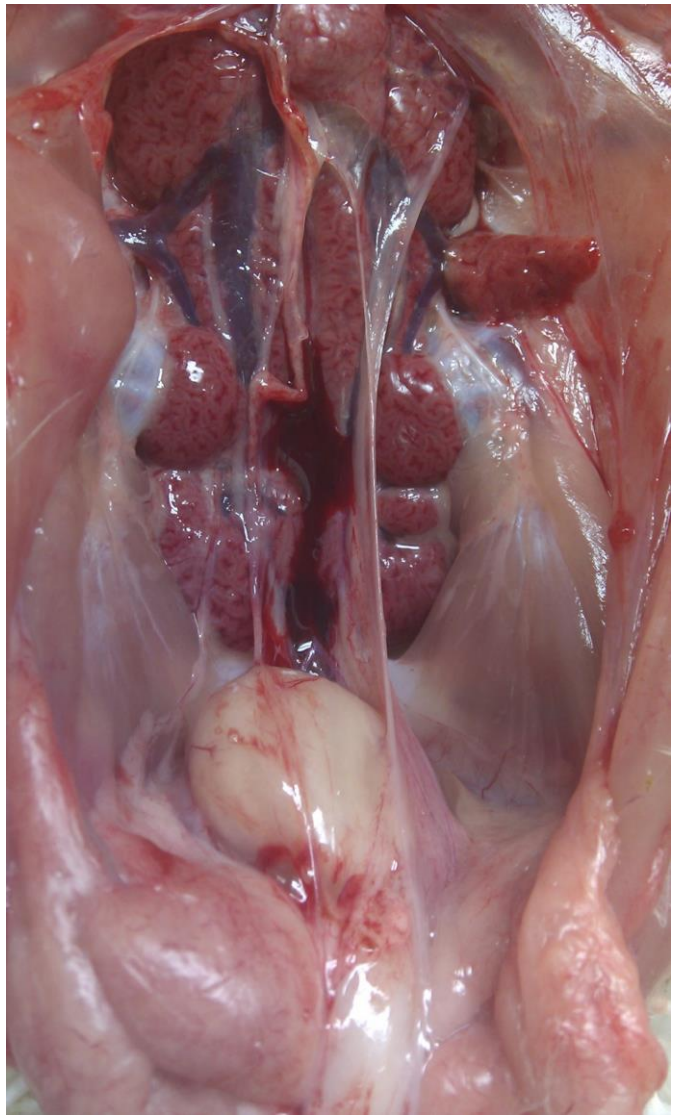
Source: Broiler Signals

- Green dropping
- thin

- Highly accelerated passage
- Reduced feed intake
  - Newcastle disease
  - Avian Influenza
  - Gumboro/IBD
  - Acute septicaemia

Kidney disease

Source: Broiler Signals



Dark

Dark droppings usually indicate bleeding in the first part of the intestinal tract. The blood is also digested and turns an almost black colour. But an excreted piece of the intestine can also look like this (a piece that has become trapped and dies off).

Undigested feed grains

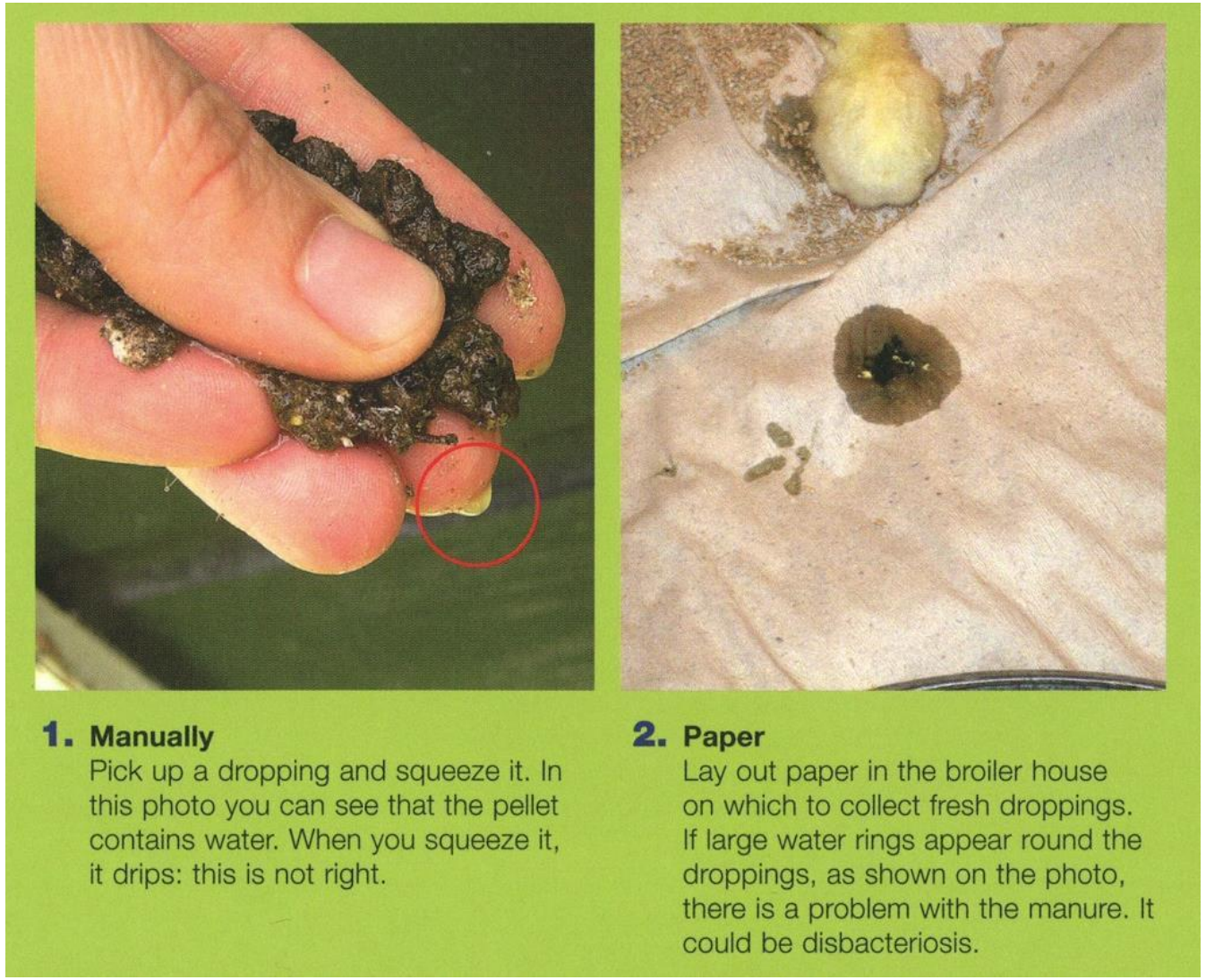
Lots of droppings and feed grains under a cage system. Digestion is very poor: feed and droppings are almost indistinguishable. The droppings are gel-like and greasy with clearly visible feed components.

You can even see maize in this very poorly digested dropping; normally this is the most easily digestible ingredient of chicken feed.

Week 3 Gut health and development

Signs from Droppings

- Assessing the moisture content



1. Manually
Pick up a dropping and squeeze it. In this photo you can see that the pellet contains water. When you squeeze it, it drips: this is not right.

2. Paper
Lay out paper in the broiler house on which to collect fresh droppings. If large water rings appear round the droppings, as shown on the photo, there is a problem with the manure. It could be disbacteriosis.

Gut health and development

Risk at feed transitions

- Problems may appear a few days after as gut has to re-adjust
- Optimum management reduces risks

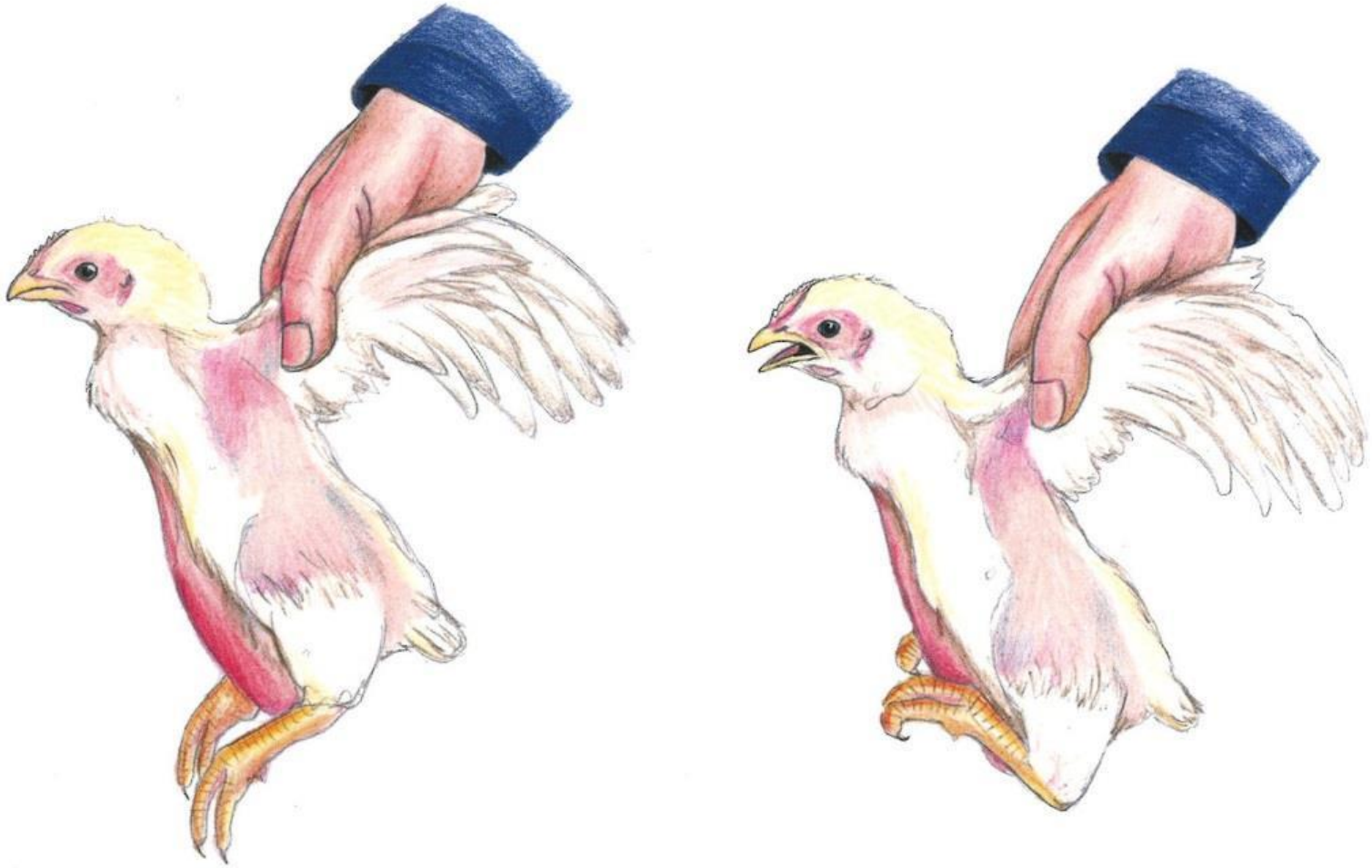
Chicken prefer larger particles

- In mash feeding, vitamins, trace minerals are especially in smaller particles

Week 3 Gut health and development

Detecting stomach pain

- When lifting a chicken, feet should point forward
- Broiler at right lifts feet; could be early sign of stomach pain



Feathers on the floor

Egg shell defects

Discussed based largely on poster that is free to download at Alltech website

Pale egg shell

Determined by the quality of deposited pigment in the cuticle

Causes:

IBV

Low Path AI

EDS

Old age

Stress

Treatment with: Sulfonamides or nicarbazin

Pink eggs

pink or lilac due to the association between the cuticle and an extra calcium layer

Stress

Excess calcium

Dirty egg

Wet droppings

Large amounts of indigestible compounds in the feed

Poor gut health

Electrolyte imbalance / saline water

Check everything that might induce wet faeces

Blood stained egg

Typical: early lay

Vent pecking / cannibalism

Causes:

Overweight pullets

Pullets coming into lay

Sudden, large increases in day length

Poor hygiene: Cage, trays, belt pick-up system

Shell-less Eggs

Laid without a shell layer, these eggs are protected only by the shell membrane.

Causes:

Immature shell gland (pullets coming into lay, also seen in old birds at the end of period)

AI, NDV, IBV, EDS

Inadequate nutrition:

Calcium, phosphorus, manganese, or vitamin D3

Soft-shelled eggs

Only a thin layer of calcium is deposited on the shell membrane.

Causes:

Excessive phosphorus intake

Heat stress

Old age

Saline water

Mycotoxins

Eggshell apex abnormalities (EAA)

Soft top, often with clear demarcation

Mycoplasma synoviae

- worse if co-infection with IBV

Cracks

Ranges from hairline cracks to large cracks

Causes:

Heat stress

Saline water

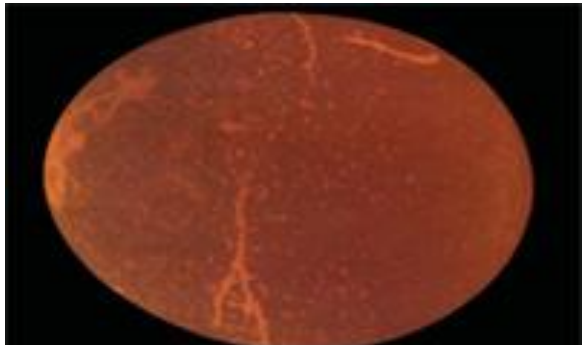
Old age

Inadequate nutrition: Calcium and vitamin D3

Mycotoxins

Infrequent egg collection

Damage after lay: cage floor to rigid / slope to steep / birds damage eggs



Plumping

Most of the albumen is made in the Magnum

Enters shell gland

Watery substance with some minerals is excreted into the egg → this is called '**Plumping**'

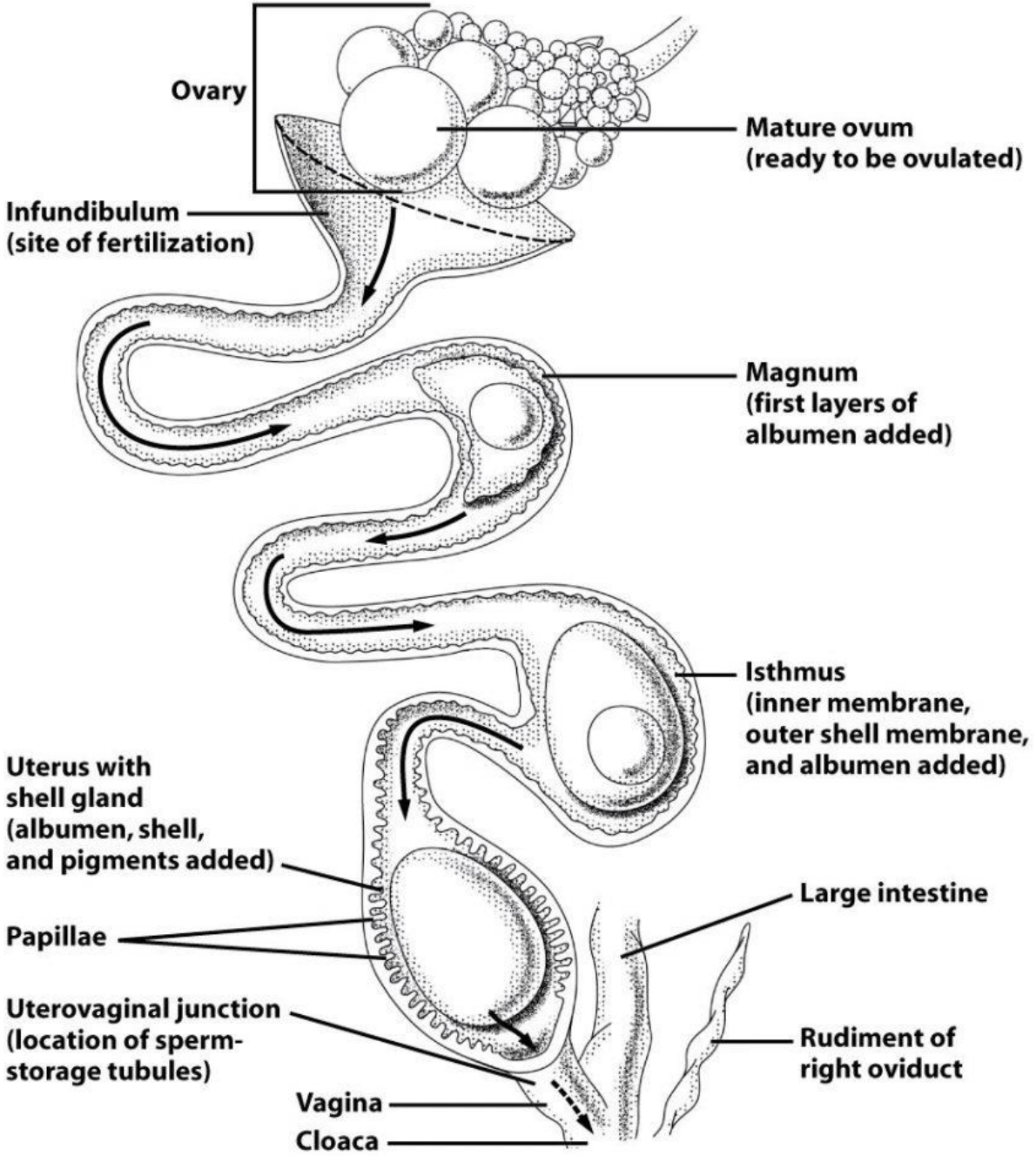


Figure 14-17
Ornithology, Third Edition

Corrugated Eggs

a very rough, corrugated surface, → produced when plumping is not controlled and terminated.

Causes:

Heat stress

Saline water

Bird age (older hen)

Poor nutrition, especially calcium and vitamin D3

Mycotoxins

Wrinkled Eggs / Body checks

Stress

Incorrect lighting programme

Defective shell gland

Overcrowding

Increased with age

Results of repairs that are caused by pressure during period in shell gland. Usually in last hours of light or first half of dark period

Pimpled Eggs or Sandpaper eggs

small lumps of calcified material on shell, severity of pimples depends on the foreign material present during calcification

Causes:

Bird age

Strain of bird

IBV

Inadequate nutrition

Circa 1% pimpled of total production is normal

Calcium Coated Eggs / Calcium deposits

extra layer of calcium all over the egg or on just one end. Can be irregular.

Causes:

- Defective shell gland
- Disturbances during calcification
- Excess calcium in the diet

White/Brown Speckled

With smaller speckles than calcium deposits, these eggs may be laid down before or after the cuticle is formed.

Causes:

Defective shell gland

Disturbances during calcification

Excess calcium in the diet

Mottled Shells

When placed in front of a light, the translucent areas appear mottled or glassy as a result of the shell's failure to dry out quickly.

Causes:

High humidity in the shed

Disease and mycotoxins

Manganese deficiency

Overcrowding

Broken and Mended

A diagonal break occurs during formation and is mended again before lay.

Causes:

Stress during calcification

Misshapen Eggs

Immature shell gland

AI, NDV, IBV,EDS

Stress

Overcrowding

White Banded Eggs…… to be continued

If two eggs come into contact with each other in the shell gland pouch, normal calcification is interrupted. The first egg: extra layer of calcium → white band marking.

Causes:

Stress

Changes in lighting

Double ovulation, mostly: pullets coming into lay

Continued….. Slab-sided Eggs

second egg → not as complete as the first → flattened where the eggs made contact.

Causes:

Stress

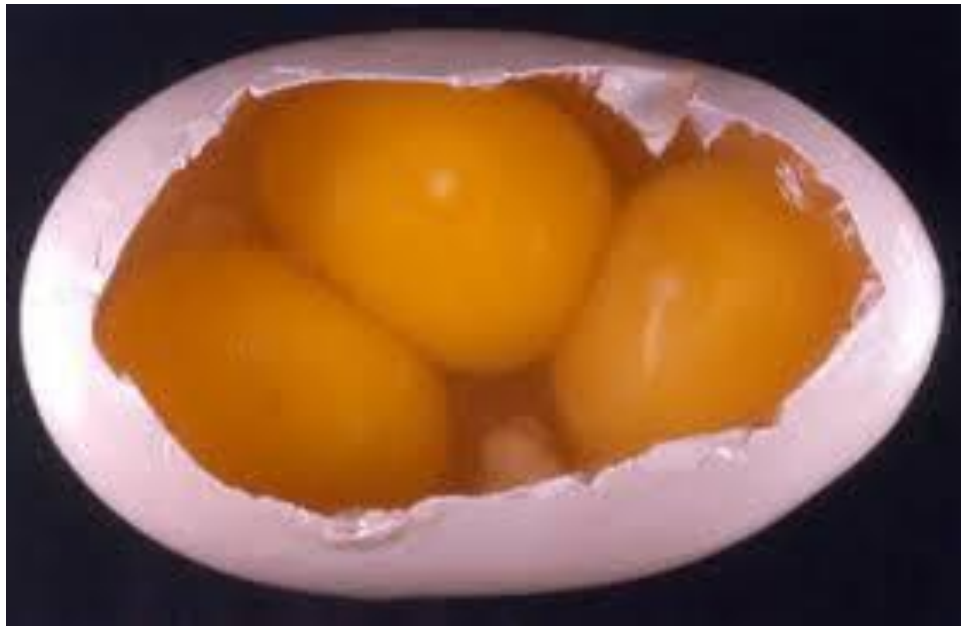
Changes in lighting

Disease

Double ovulation, mostly: pullets coming into lay

Double yoke

More or less valuable than regular eggs?



Double ovulation, mostly: pullets coming into lay

Fungal growth

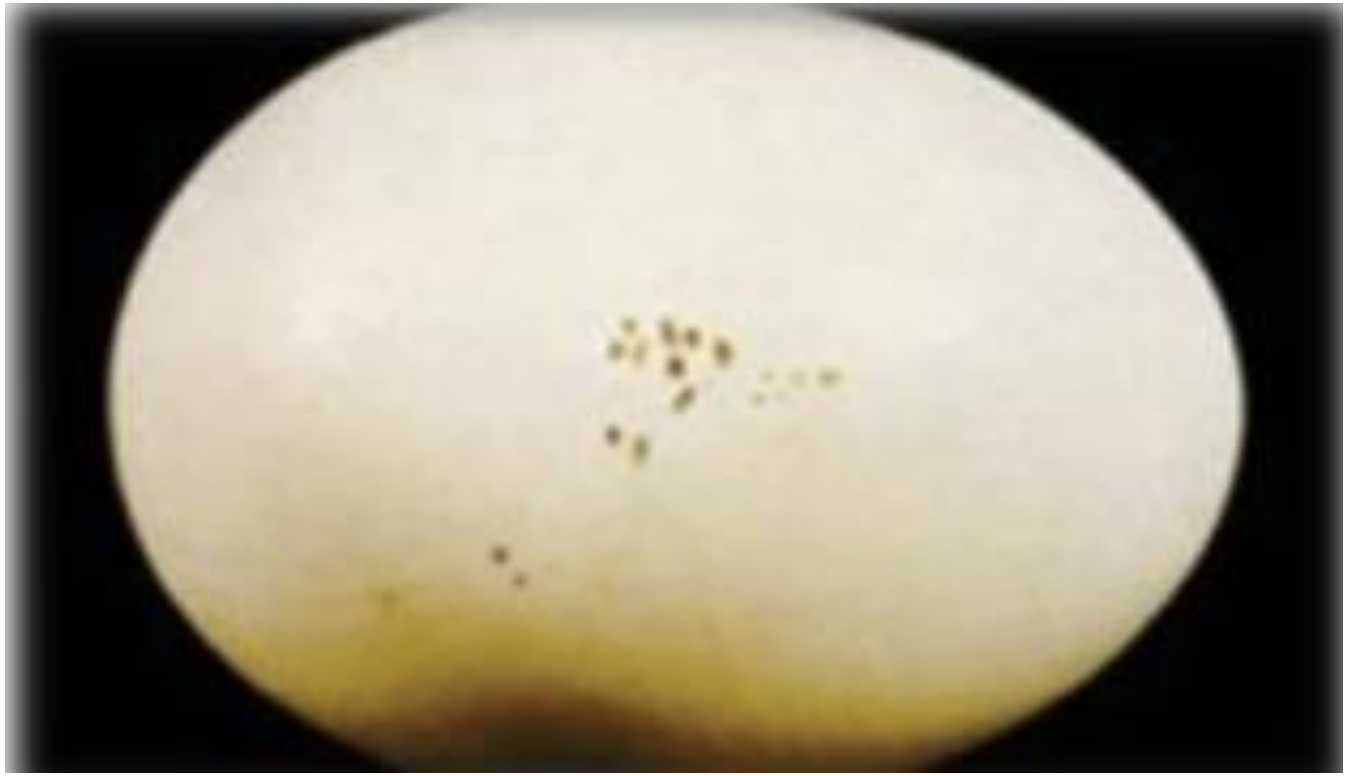
Poor hygiene (soiled egg-handling equipment, unclean storage room)

Warm storage (Temp must be <15 degrees, humidity <80%)

Old eggs

Any percentage is unacceptable

Fly marks shells



Contamination

- Fecal or blood smears

Thank you for your attention!

Time for a short break