Dutch approach for better performance of your poultry business:

What do eggs tell us about diseases?

Introduction Josje Hakker

- Qualified as Doctor of Veterinary Medicine in 2005
- Worked as a veterinary surgeon in the UK and Holland
- Currently working as Technical Manager at Kepro since January 2014

Eggshell colour

Link between eggshell colour and disease resistance

Dec 3, 2015 2800 1

Selection for a recently discovered immune characteristic is a potential strategy to improve general disease resistance in laying hens and thus to breed for a more robust chicken, conclude researchers of Wageningen University in PLOS ONE and Poultry Science.

There is an increased need for a robust laying hen. [Photo: Ruud Ploeg]

In addition, selection for this immune characteristic has minimal negative consequences on production, but surprisingly might have an effect on eggshell colour.

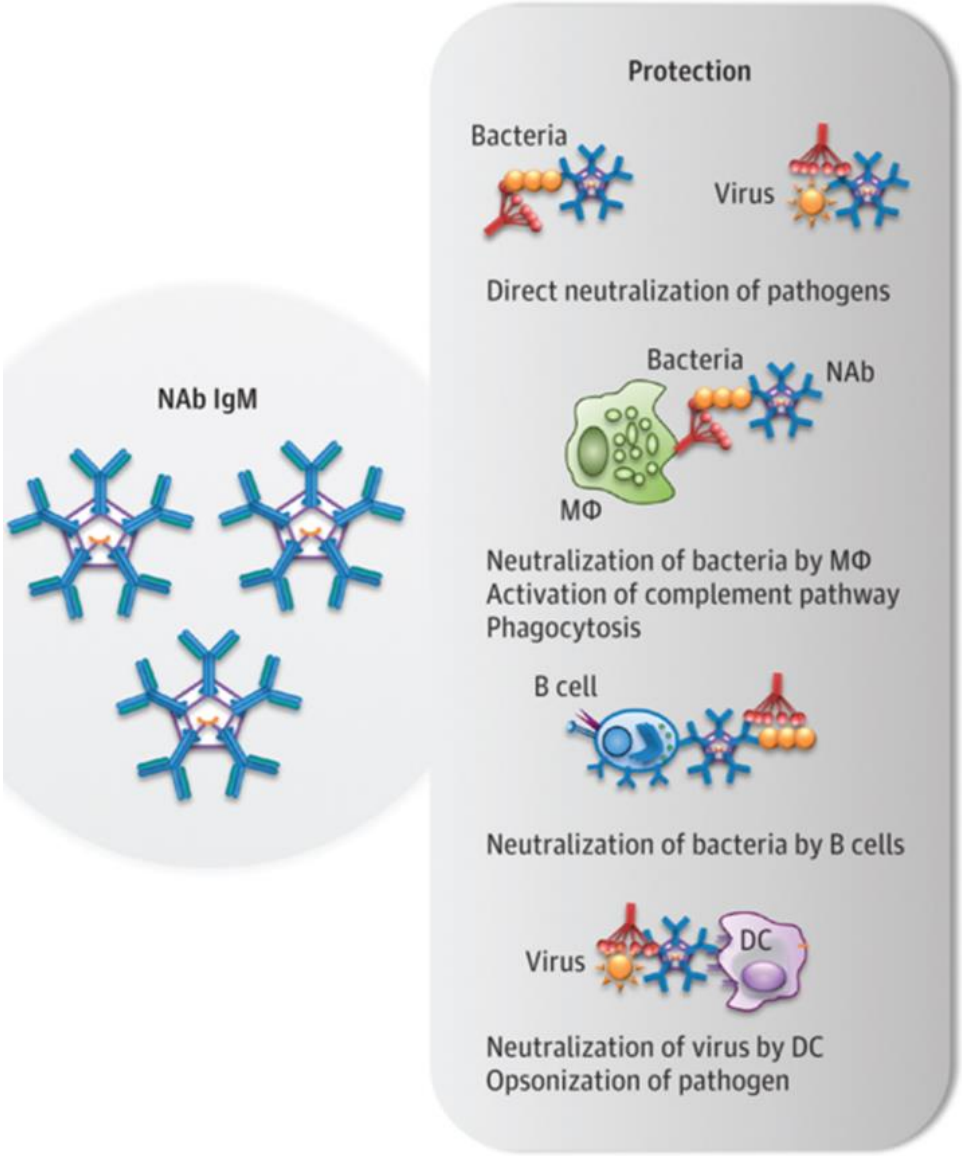
The current housings systems in the poultry industry increase the spread of diseases by housing large flocks of chickens on sand. These circumstances require a robust laying hen. In 2012, housing of chicken in individual cages was banned in the EU, because of welfare issues. Nowadays, chickens are group housed on sand with space to move around freely.

Source: www. worldpoultry.net

Natural antibodies

- Natural antibodies Nab: Antigen binding antibodies present in individuals in the absence of immunization, vaccination or previous infection with this antigen.
- First line of defence: likely to contribute to disease resistence.

Explanation NAb



Conclusion study

"If eggs have a whiter eggshell: NAb levels in the offspring are higher. If eggs have a stronger eggshell, then NAb levels in the offspring are lower."

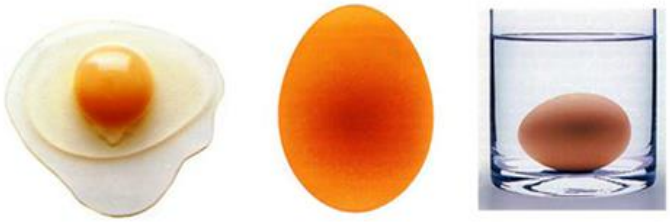
Decreased egg quality

- Diseases
  - Biosecurity
- Feed
- Stress/climate
- Storage and transport
- Genetics

Egg quality

- Egg shell
- Flavour
- Residues of antibiotics
- Albumen viscosity
- Colour of egg yolk

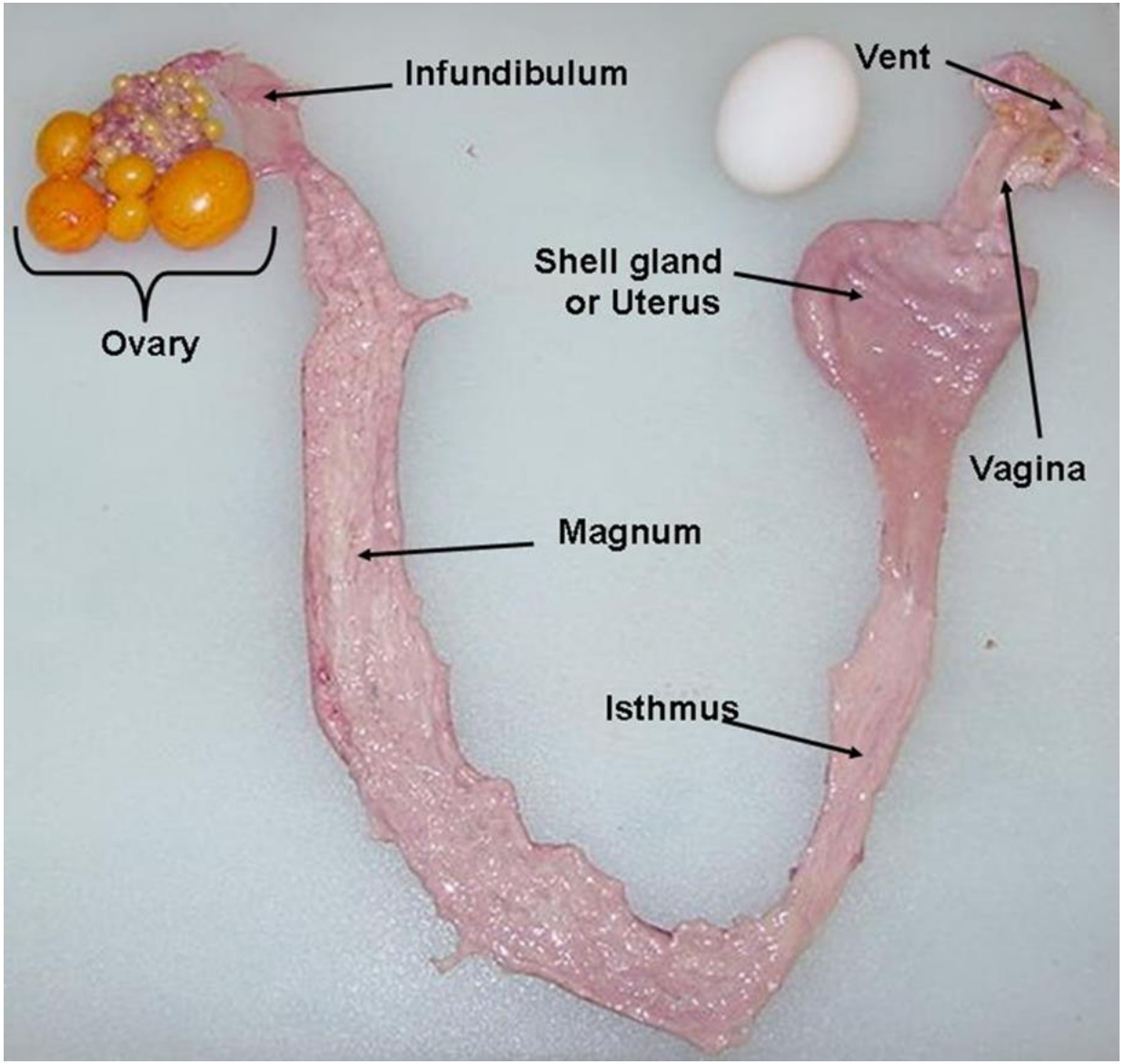
Fresh egg



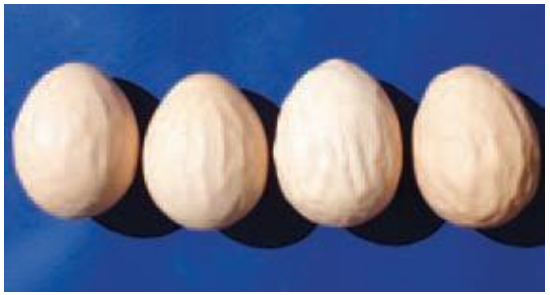
Egg 1-2 weeks

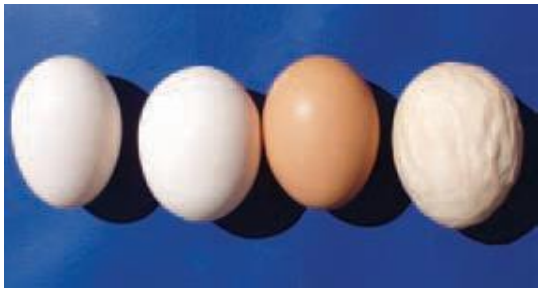
Egg over 3 weeks old

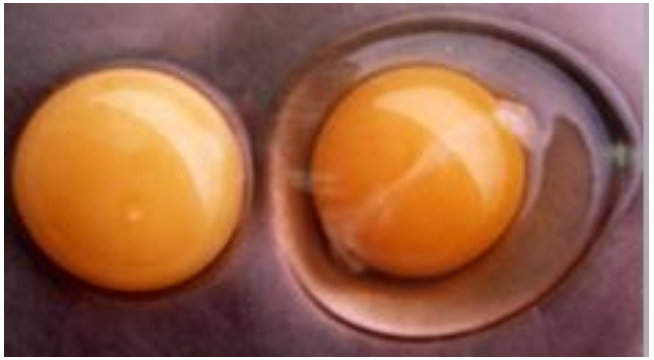
Anatomy

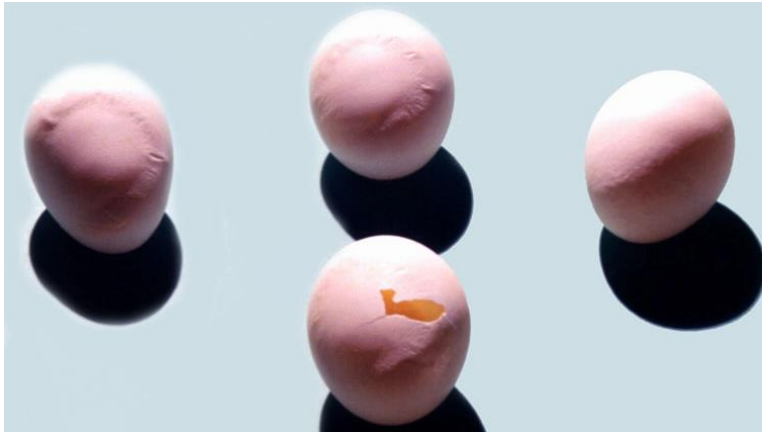

Infundibulum
Vent
Shell gland
or Uterus
Ovary
Vagina
Magnum
Isthmus

Which disease?

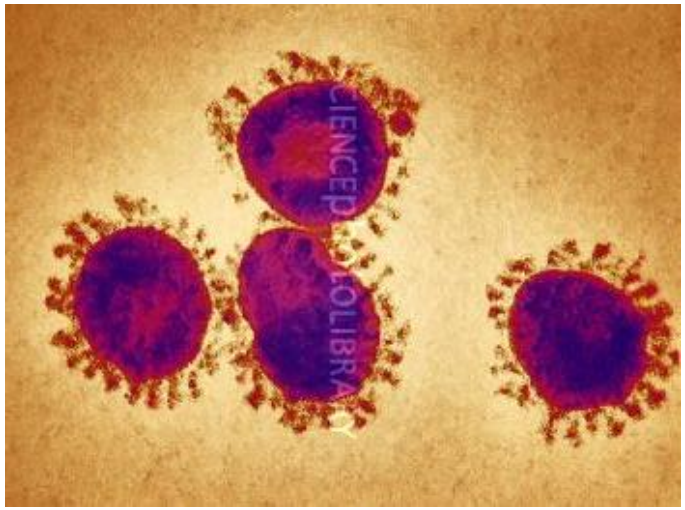




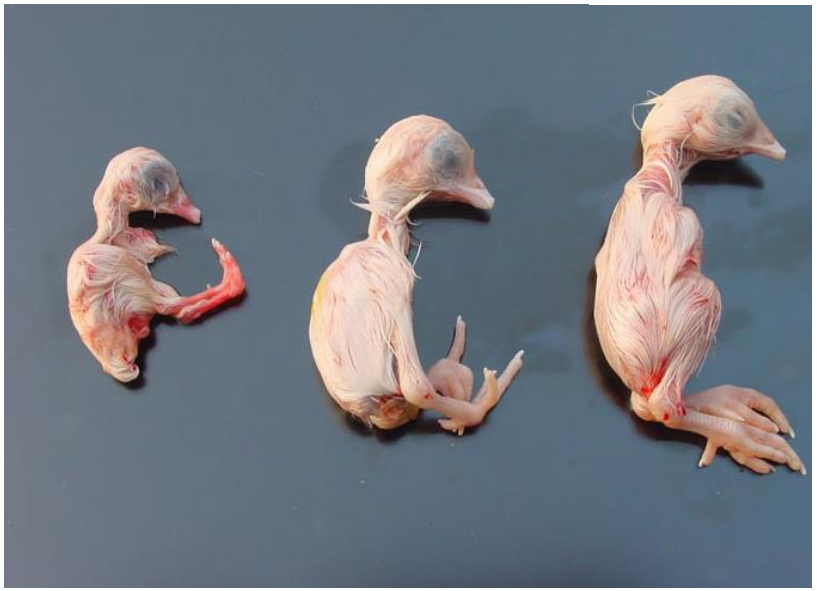


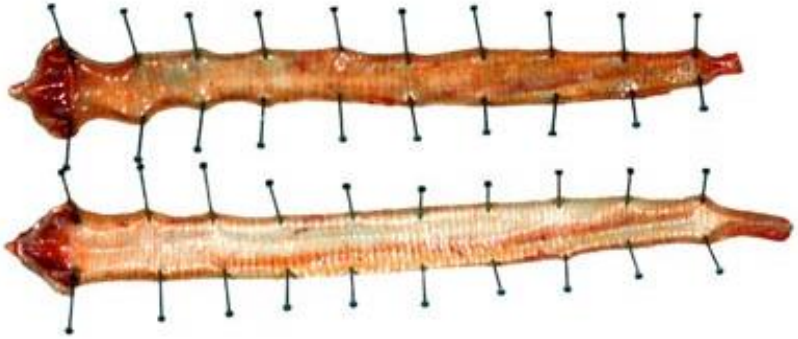


Infectious Bronchitis



Pathology Infectious Bronchitis





Infectious Bronchitis

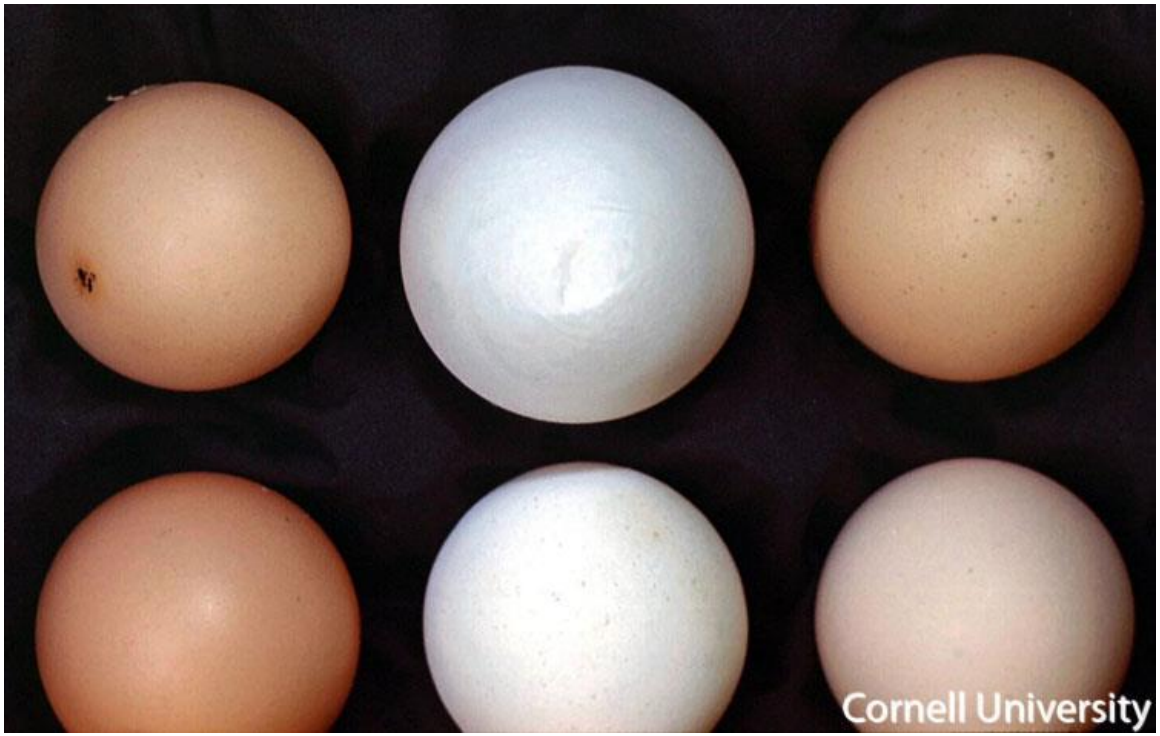
- Infectious Bronchitis Virus
- Transmission by inhalation/ingestion
- Incubation time 18-36 hours
- Symptoms
- Treatment

Treatment

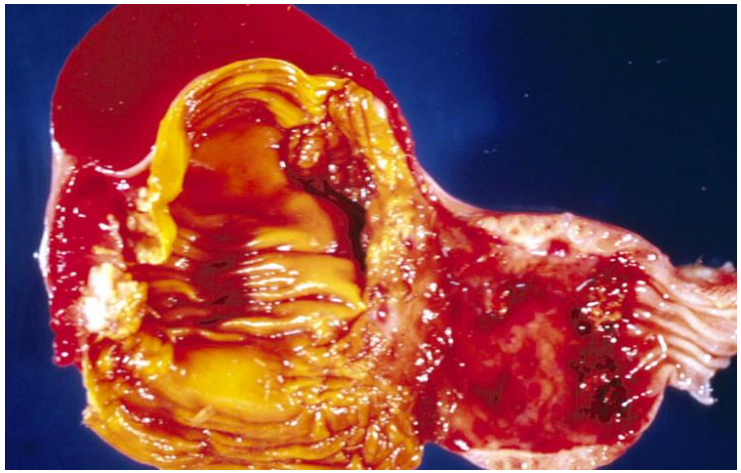
- NONE
  - In case of disease: decrease protein levels in ration to support kidneys
  - Give electrolytes, vitamins and minerals

- Prevention:
  - Vaccination
  - Biosecurity
  - Environmental temperature
  - Good air quality
  - No overcrowding
  - Nutrients

Which disease?



Newcastle disease



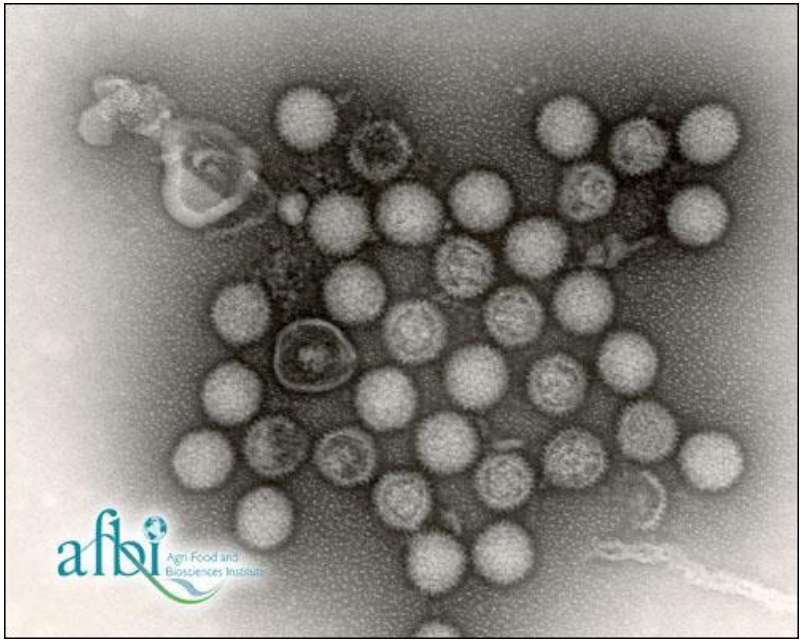
Newcastle disease

- Treatment: NONE
- International control policies
- Prevention:
  - Vaccination
  - Biosecurity

Which disease?

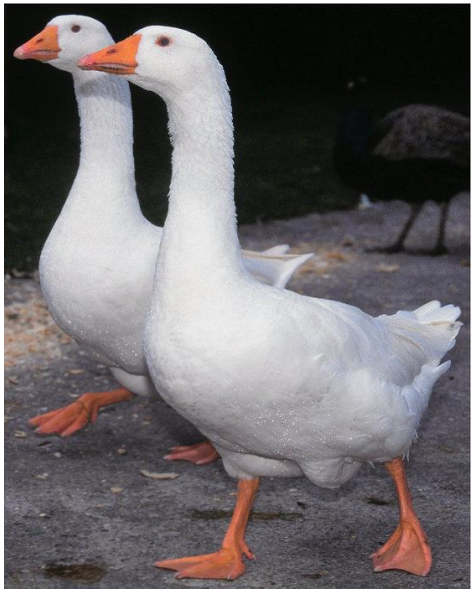
Egg drop syndrome

- Adenovirus
- Affects egg quality
- Signs:
  - Watery diarrhea
  - Deformed eggs
  - Eggs with weakened shell
  - Eggs with no shell
  - Pale eggs

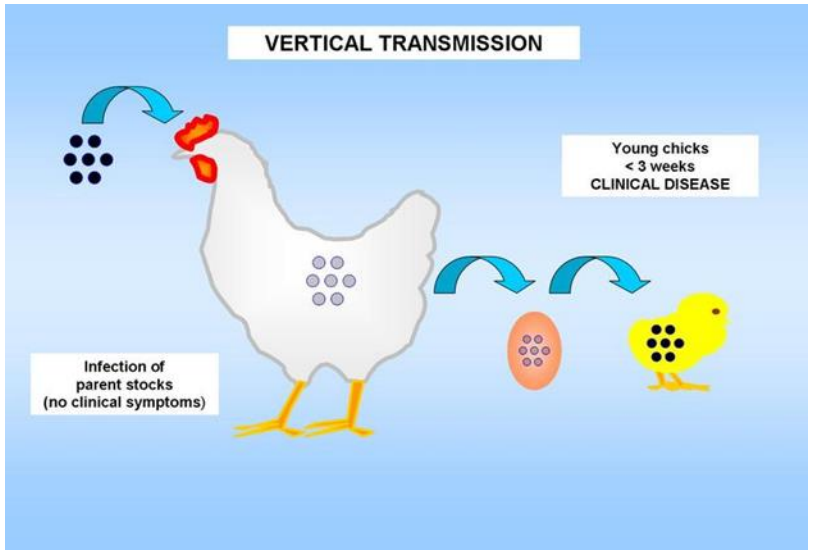


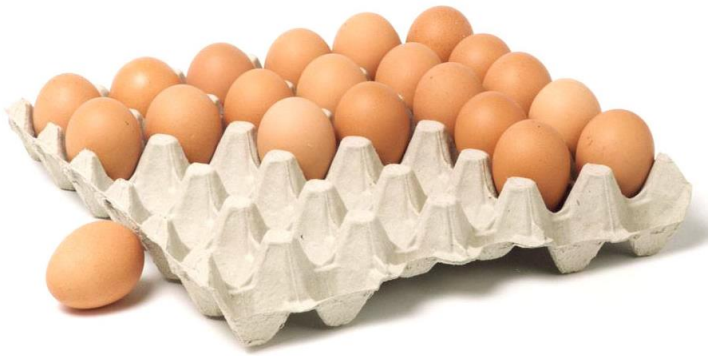
Egg drop syndrome

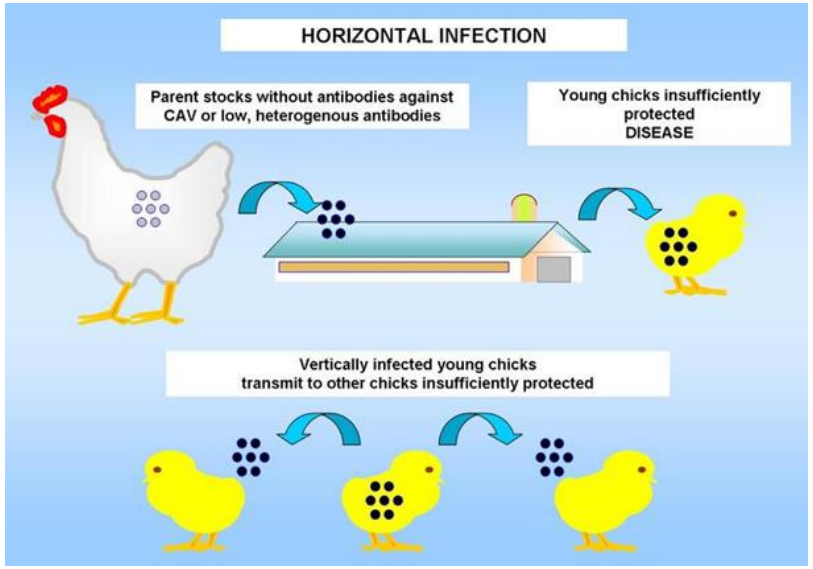
- Vertical transmission
- Horizontal infection of the flock during lay
- Direct contact with domestic ducks or geese or the use of a water supply contaminated with wildfowl droppings



Transmission







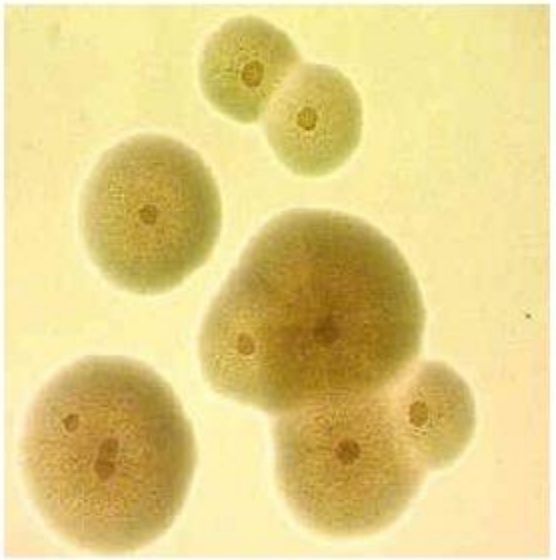
Prevention/treatment

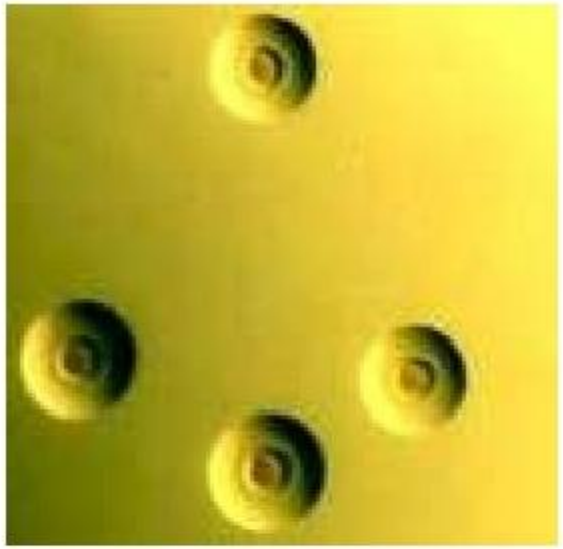
- Treatment: none
- Prevention:
  - Only use new egg trays (or egg trays that stay on farm) or disinfect plastic egg trays
  - Seperate chickens from waterfowl (duck, geese)
  - If drinking water is contaminated: disinfect drinking water
  - Vaccination

Which disease?

Mycoplasma (MG)

- Bacteria
- Horizontal and vertical transmission
- Carrier birds (Free ranging local chickens)





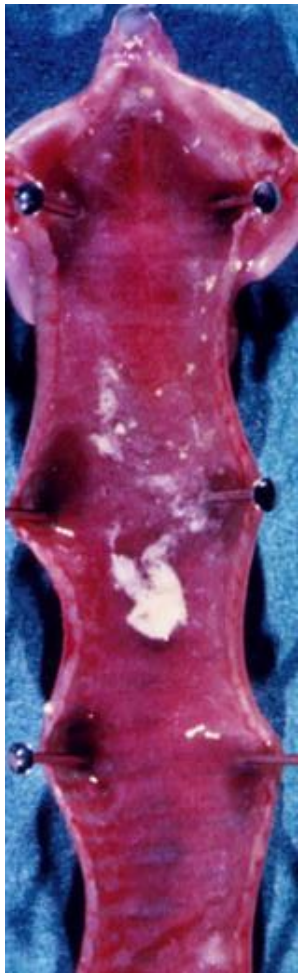
MYCOPLASMA GALLISEPTICUM

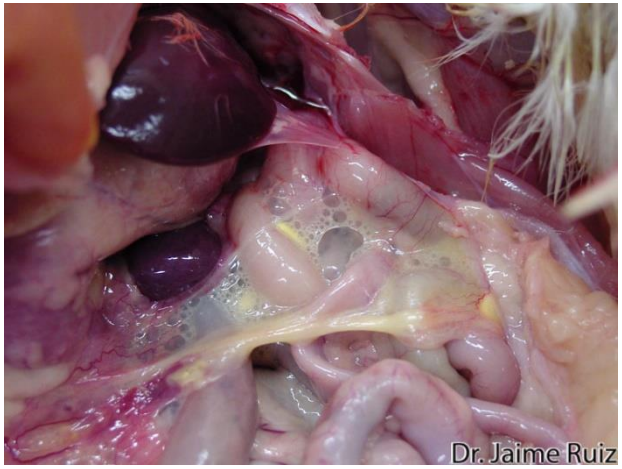
Clinical signs

- Airsacculitis
- CRD (Chronic Respiratory Disease)
- Tracheal rales
- Nasal discharge
- Coughing
- Feed consumption ↓
- Broilers: signs of disease after 4 weeks

Clinical signs


Cornell University




Dr. Jaime Ruiz

Prevention

- Get chicks from hatcheries that are MG free
- Get chicks from vaccinated flocks only
- Biosecurity

Treatment

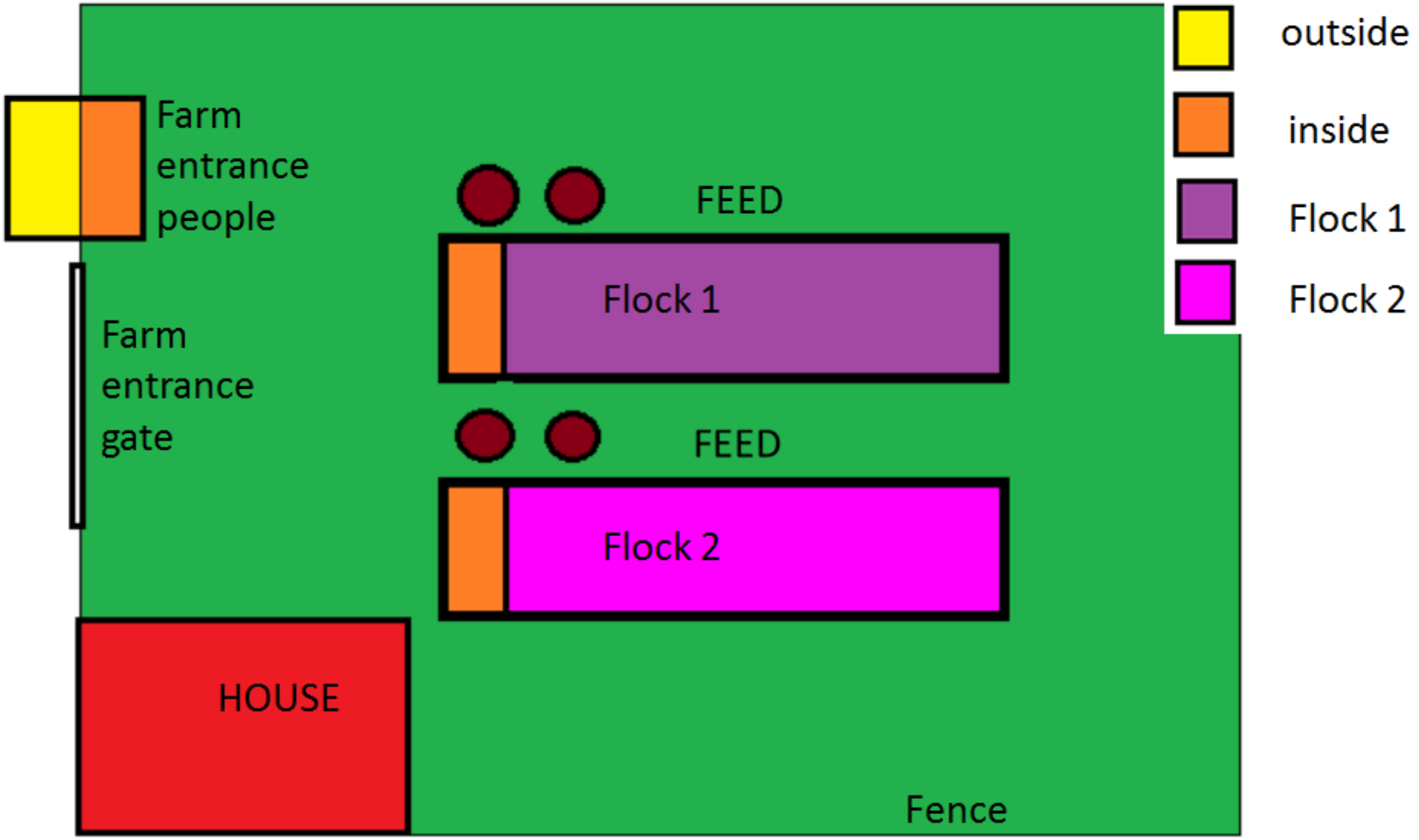
- Erythromycin
- Oxytetracycline
- Chlortetracycline
- Doxycycline
- Tylosin
- Flumequine
- Enrofloxacin
- Tilmicosin

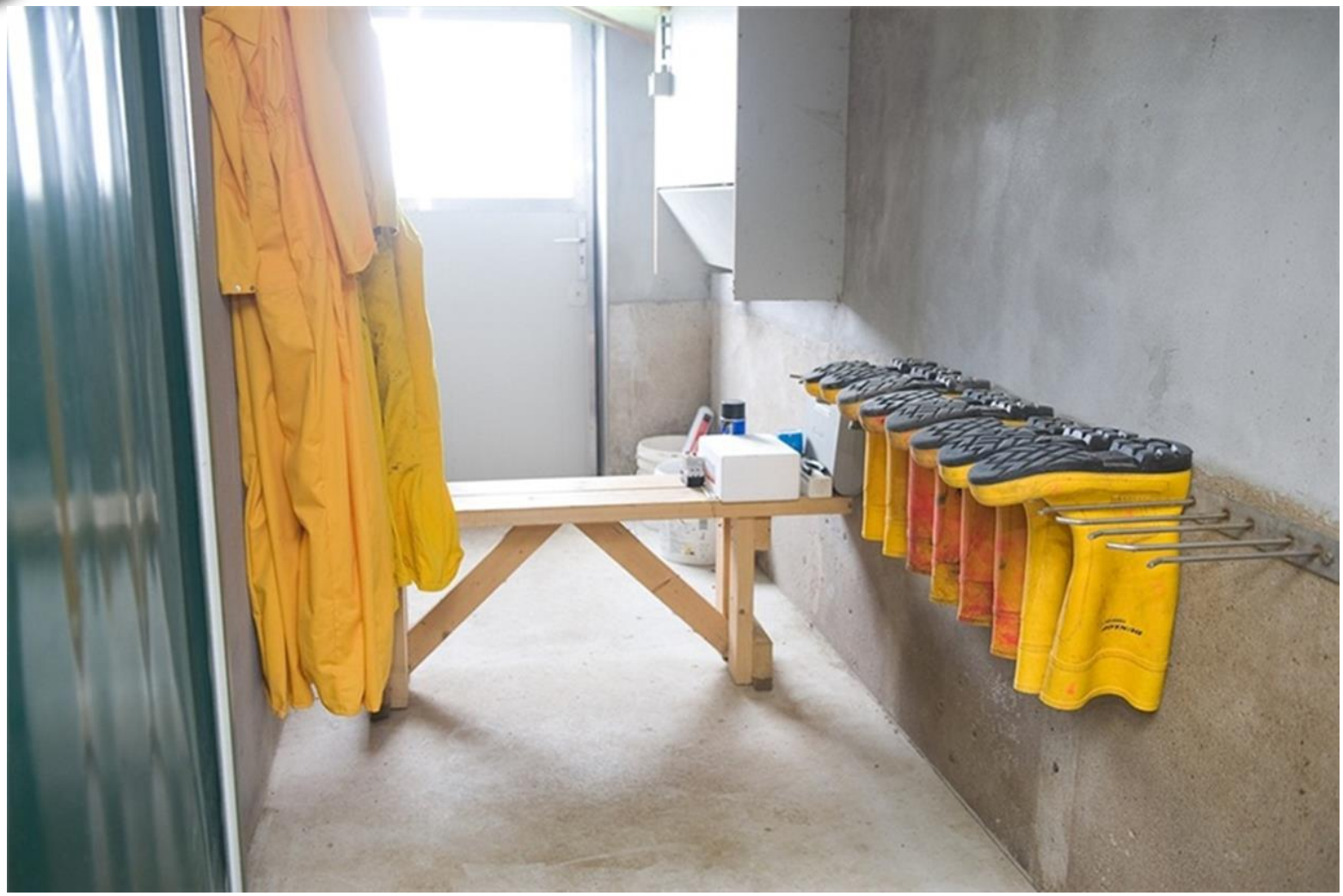
Watch out: carriers!!!

Conclusion

- Check management (vaccination, lighting, feed)
- Biosecurity (including egg trays)
- Recognise disease
- Ask veterinary advice

Farm with biosecurity



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Decreased egg quality

- Diseases
  - Biosecurity
- Feed
- Stress/climate
- Storage and transport
- Genetics

Examination of egg production problems

- Clinical examination chickens
- Blood test
- History
- Egg quality
- Information on the rearing period

Clinical examination chickens

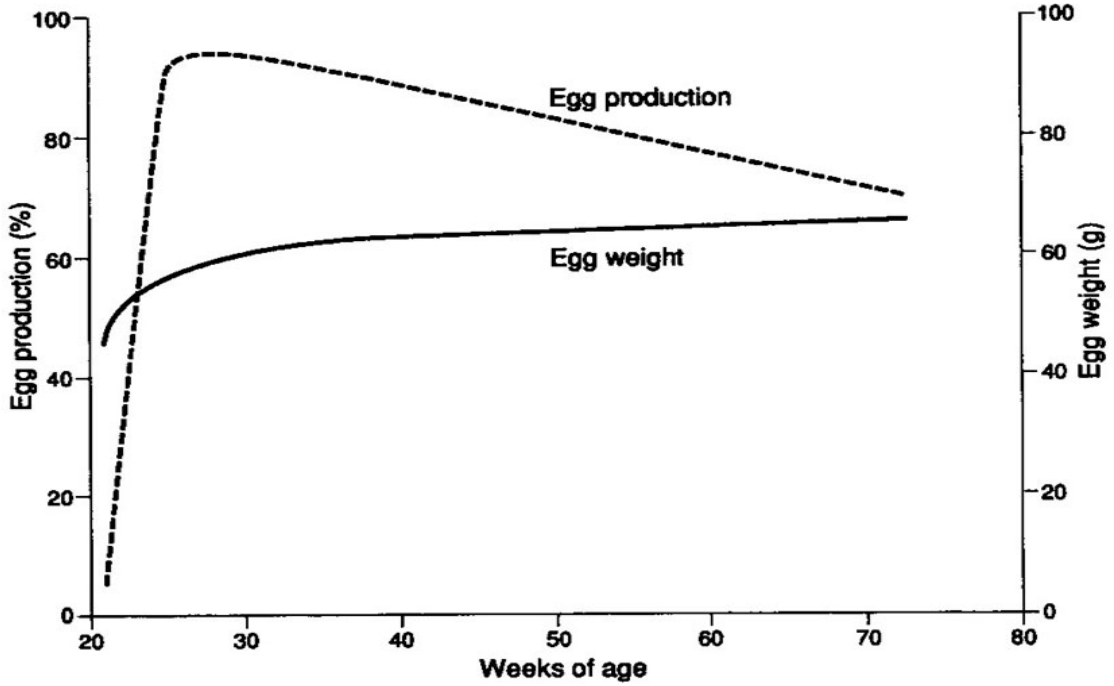
- Any disease symptoms?
- Weigh chickens weekly: notice changes

Blood test

- Take blood samples from 24 birds all over the house at the beginning of production losses
- Take blood samples again 3-4 weeks later
- In case of disease, antibodies will show up
- Test for antibodies against IB, EDS, TRT, Mg, Ms and Avian encephalomyelitis

History

- Production curve
- Mortality percentage
- Age of birds at 50% production



Egg quality

- Egg weight and uniformity
- Shell quality
- Internal egg quality

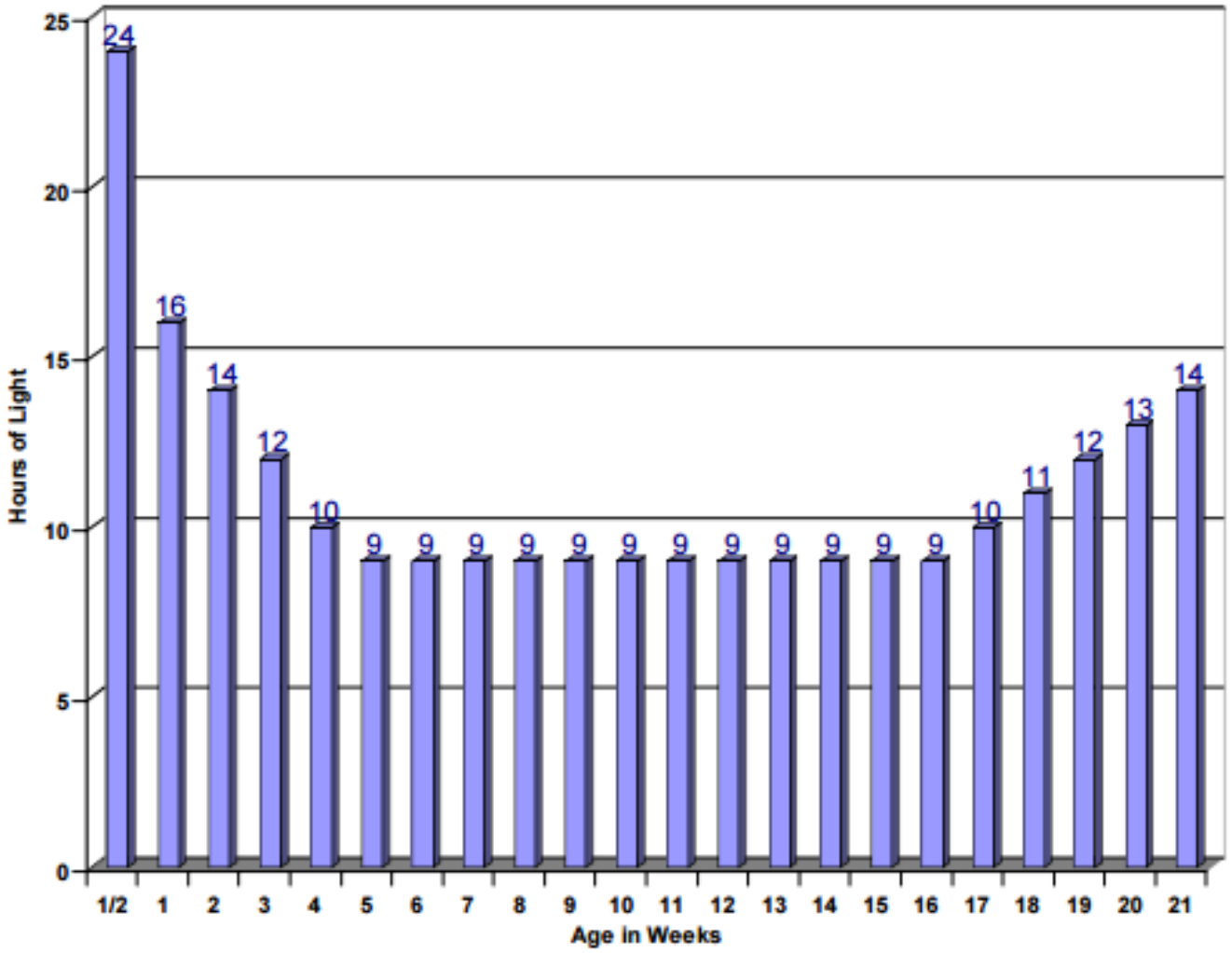
Rearing period

- Body weight and uniformity
- Transition from rearing to production period
- Vaccination schedule
- Autopsy reports
- Lighting programme

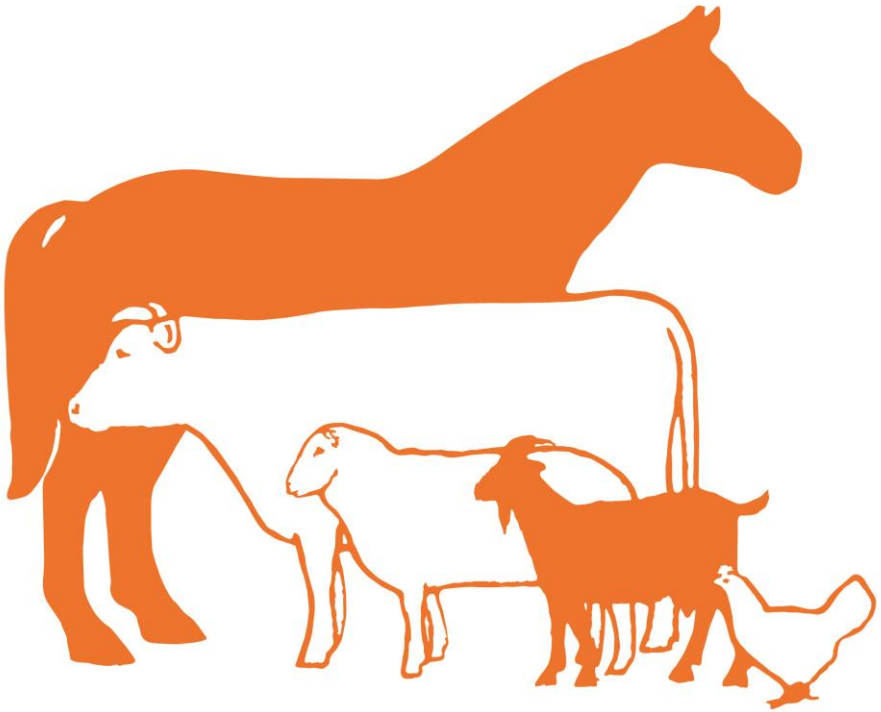
Vaccination schedule

Age	Disease	Vaccination route
1 day	Marek's Disease (HVT/SB1 or HVT/Rispens)	Injection
18 days	Infectious Bursal Disease	Drinking water
24 days	Infectious Bursal Disease Newcastle Bronchitis	Drinking water Drinking water Drinking water
30 days	Infectious Bursal Disease	Drinking water
6 weeks	Newcastle Bronchitis	Spray Spray
10 weeks	Avian Encephalomyelitis[2] Newcastle Bronchitis	Spray Spray Spray
13 weeks	Avian Encephalomyelitis[2] Pox Newcastle Bronchitis Salmonella	Wing-web Wing-web Injection Injection Injection
15 weeks	Newcastle Bronchitis	Spray Spray

Lighting programme



Questions?



Thanks for your attention!