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Cleaning and Disinfecting Principles for Poultry

Tan Truck

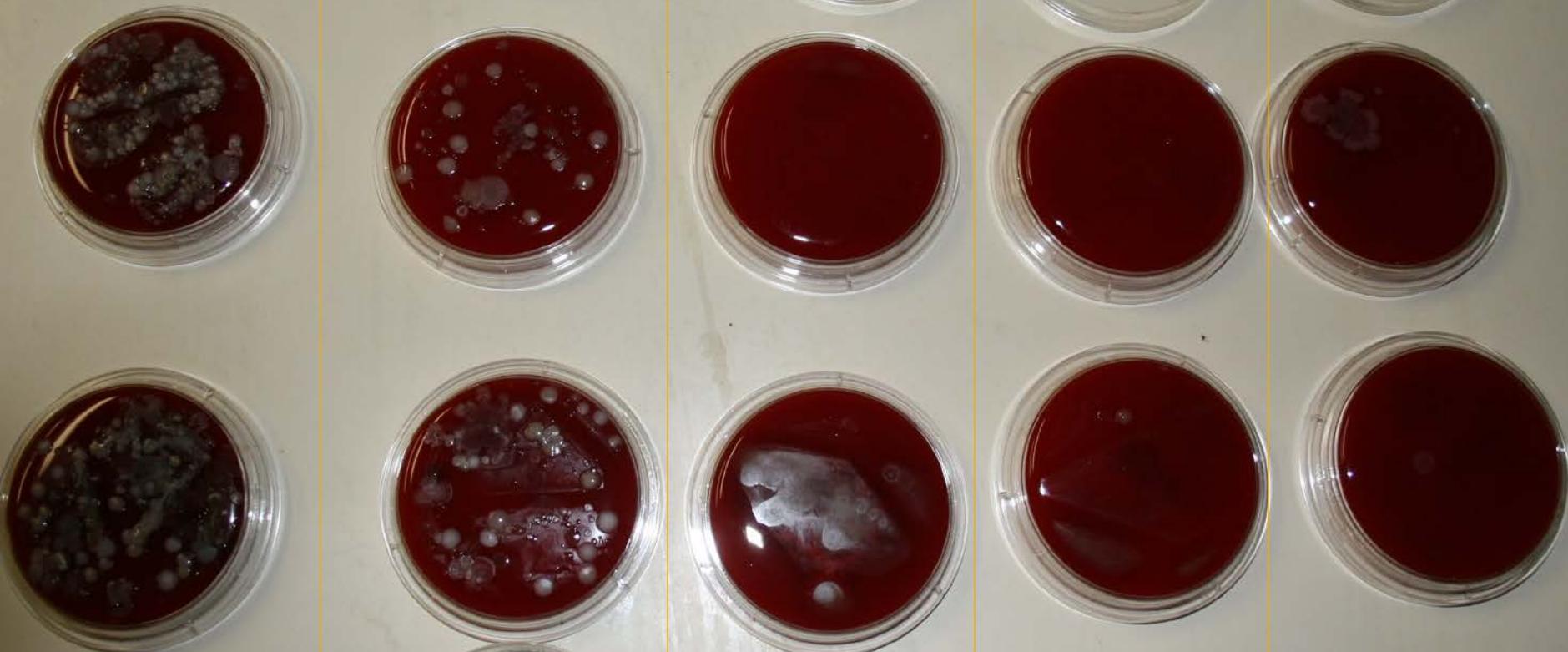
Dry and
"Dirty"

Wet

Disinfected

Contact
Time

Rinsed



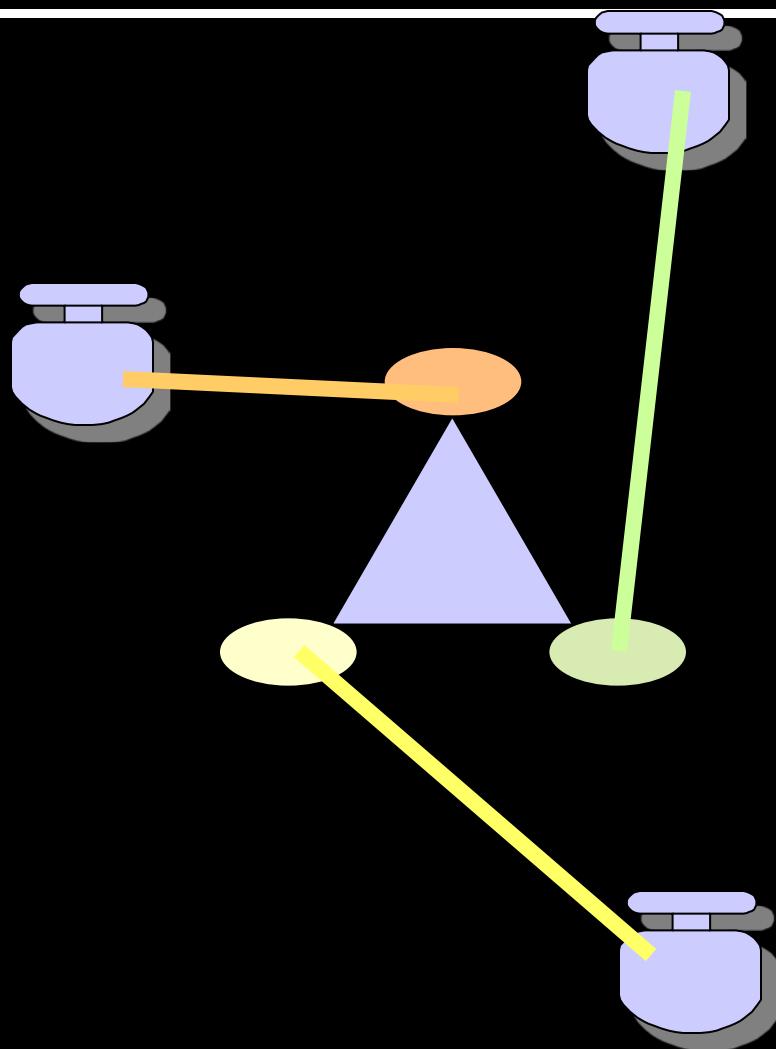
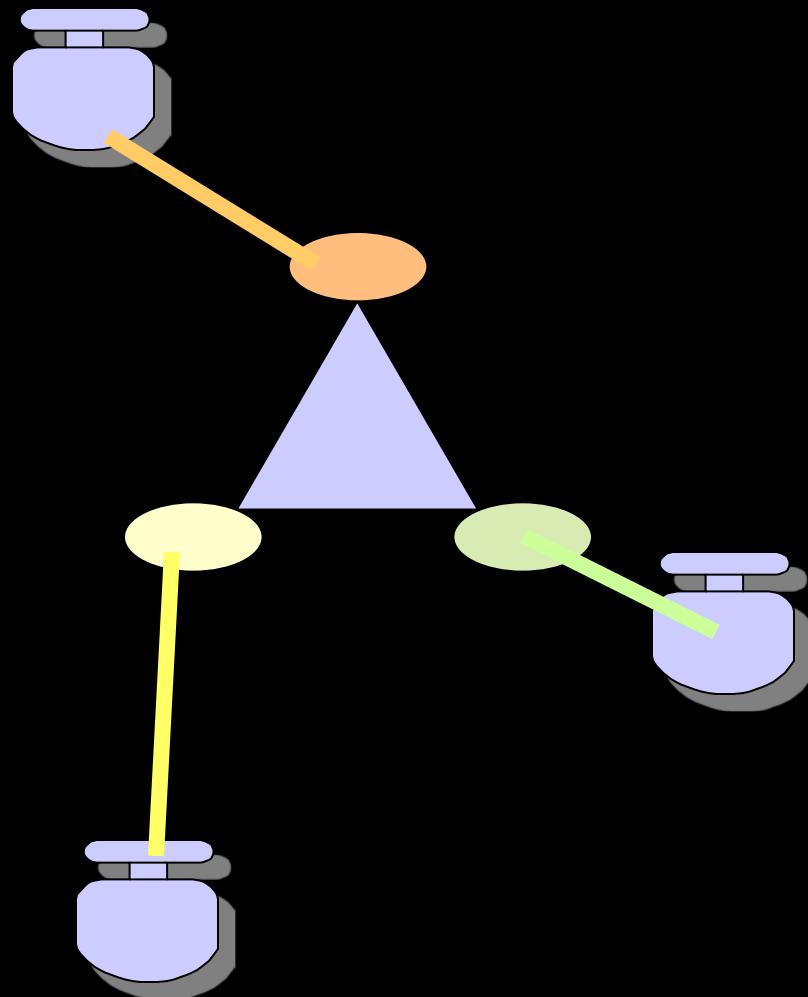
Red Truck

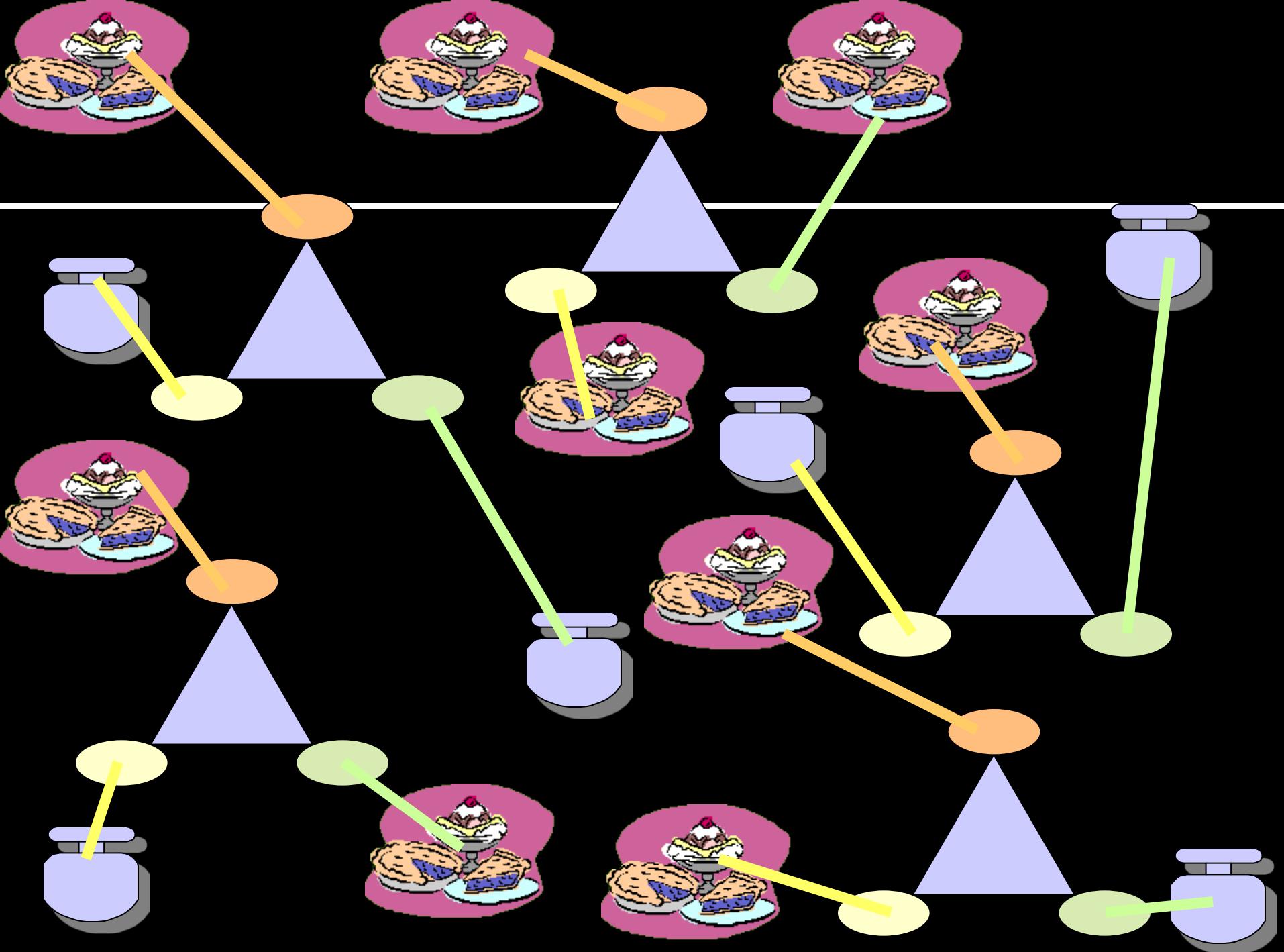
What are Disinfectants?

- A disinfectant is substance that can remove the infectivity of a disease causing organism.
- A sanitizer is a cleaning reagent that may or may not also act as a disinfectant.

How do disinfectants work?

A label test





The Real World

What disinfectant would be effective here?



Cleaning is too hard!
Disinfectants are worthless!!

**Up to 95% of disinfection
(pathogen reduction) is
cleaning!!!!!!**

What things do we worry about infecting our birds?

- Viruses (MDV, NDV, IBV, IBDV, AI...)
- Bacteria (MG, MS, E Coli, Salmonella, Campylobacter...)
- Fungi (Aspergillus, Yeasts...)
- Protozoa? (Cocci, Histomonads...)
- Worms? (Roundworms? Tapeworms?...)
- Insects? (Mites, Lice)

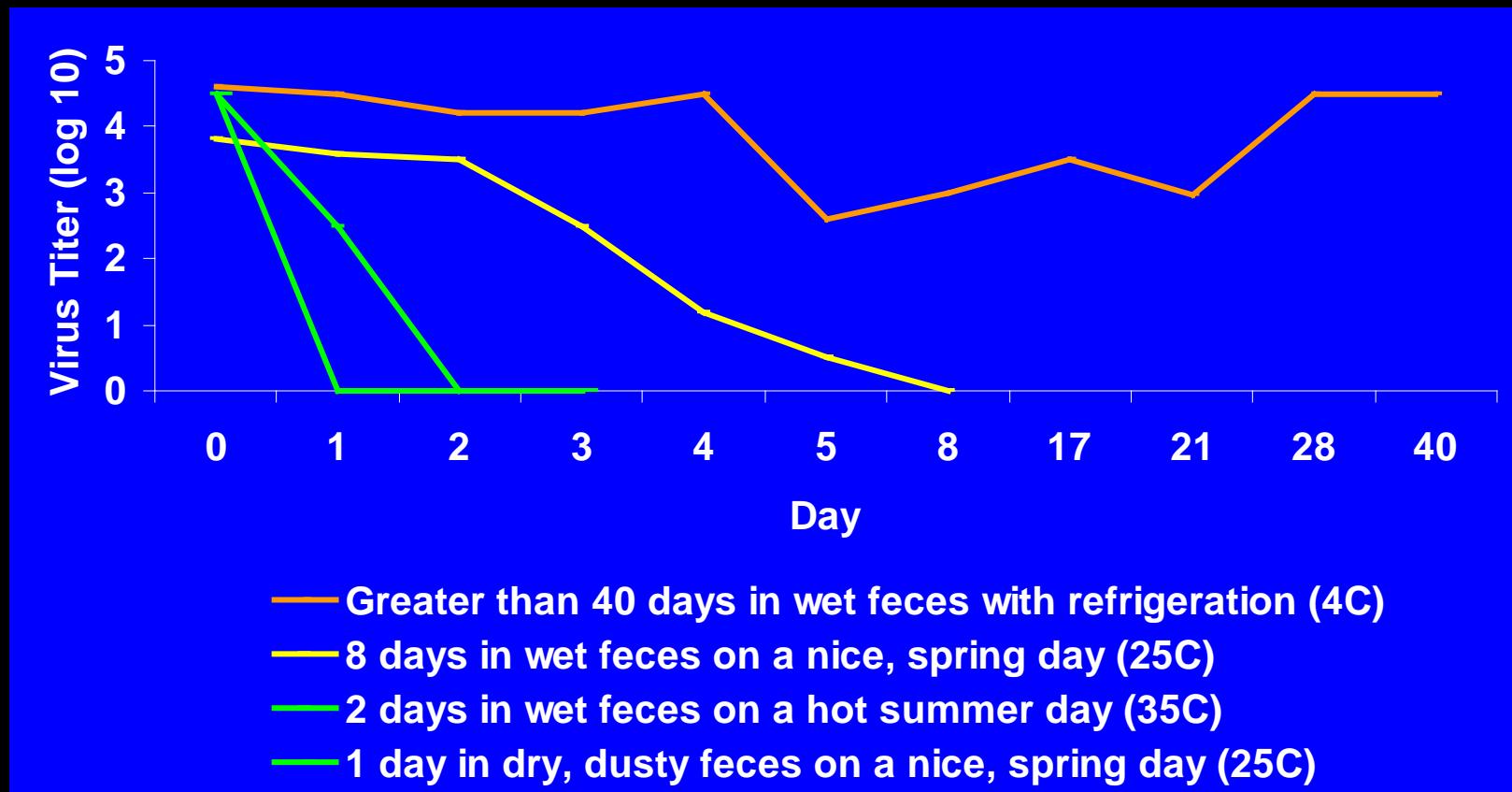
How do we remove infectivity?

- “Kill” organisms
 - Inactivation
- Reduce Dose
- Prevent the progression to the infective stage.

Viruses

- Inactivated
- Reproduce inside the host
 - Only can stay the same or reduce in the environment
- Most susceptible to drying
 - Scabs
 - Dander
 - Dirt

AI can survive in feces on the farm, on shoes, and on truck tires. (Hong Kong H5N1)



(Shortridge et al., 1998)

**Without proper cleaning and disinfection, AI can travel between farms on egg racks and flats.
(California H6N2)**

| | Now | 4 days |
|---|-----|--------|
| Dirty egg flat on a hot summer day (90F/32C) | + | + |
| Dirty egg flat in a very hot washer (120F/48.8C) | + | + |
| Dirty egg flat on a hot summer day plus bleach (90F/32C) | . | . |
| Clean egg flat on a hot summer day (90F/32C) | + | + |
| Clean egg flat in a very hot washer (120F/48.8C) | + | + |
| Clean egg flat on a hot summer day plus bleach (90F/32C) | . | . |

Fungi

- Living
- Most can reproduce outside of the host
- Most susceptible to drying
 - Alternating moisture can be bad

Protozoa

- Living
- Reproduce inside the host
- May have more than one host
- May develop in the environment
 - Developmental and reproductive stages may be very environmentally stable
- Variable response to temperature and drying.

Worms

- Living
- Reproduce inside the host
- May have more than one host
 - Reproduction maybe host dependant
- May develop in the environment
 - Developmental and reproductive stages may be very environmentally stable
- Variable response to temperature and drying.

Insects

- Living
- Reproduce and live outside the host
- May develop in the environment
- Variable response to temperature and drying.

So what works?

- Cleaning
- Mechanical Removal
- Drying
- Choose the right disinfectant
 - Not everything is susceptible to all disinfectants
- Avoid recontamination
 - Intermediate hosts
 - Vectors
 - Fomites



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The right disinfectant...

- Will it be in contact w/ organic material?
- Does it need to have residual activity?
- Will it be used on metal or engines?
- Will it be used in wet or dry conditions?
- Will it be in contact with birds?
- How will it be applied?
- Is expense important?

| | Chlorines | Iodines | Phenols | Quats | Chlorhexidine | Peroxygens |
|-------------------|-------------------|-----------------|--------------------------|--------------------------|----------------|--------------------------|
| Toxicity | Fumes are toxic | No | No | No | No | No |
| Corrosive | Yes | No | No | No | No | very |
| Spectrum | Bacteria, viruses | Bacteria, fungi | Bacteria, fungi, viruses | Bacteria, fungi, viruses | Fungi, viruses | Bacteria, fungi, viruses |
| Organic material | No | No | Yes | Some | -- | Yes |
| Residual activity | No | No | Yes | Yes | -- | Yes |

Using disinfectants safely...

- Minimize use
 - Use proper dilutions
 - Use only on clean (preferably dry) surfaces
 - Use with biosecurity
 - Use alternatives to disinfectants
- Avoid run off
- Properly dispose of concentrates and containers

Adjuncts to disinfectants

Sunlight

Downtime

Contact Time

Alternative Applications

Fogging

Dry Disinfectants

Choosing Materials?

Day “2” - Birds were raised together on a commercial starter ration



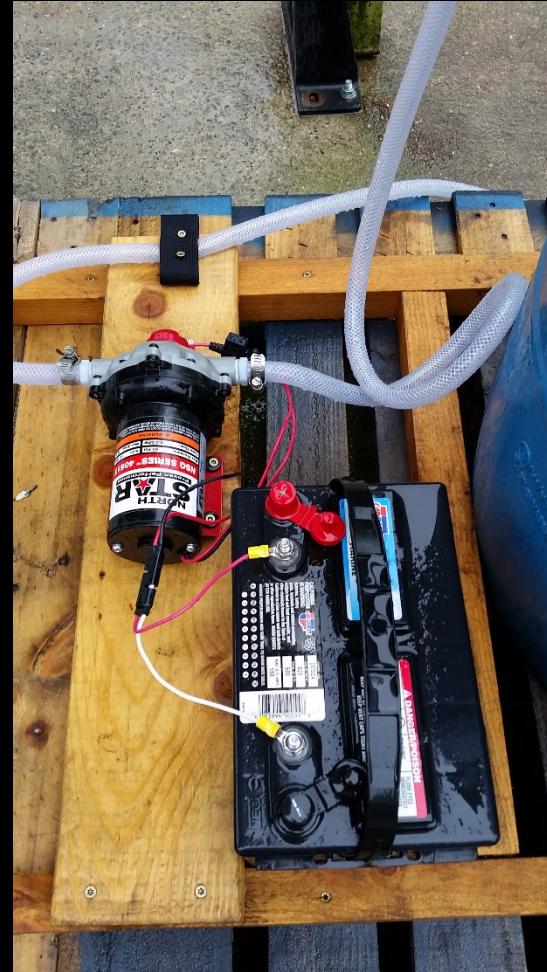
Week 4 – Flock was split into two pens by size



Week 6 – Young birds outside with 24 week old dual purpose hens in lay



Address your problem. Think outside the box



What areas do you need to work on?

