

A Practical View on Farm Biosecurity

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Farm sterilization is impossible, but not necessary

What is needed is **biosecurity**
(washing, cleaning, disinfection)
and its consistent observance.

1. CLEANING

2. DISINFECTION



**WITHOUT A THOROUGH CLEANING OF THE SITE
THERE WILL BE NO EFFECTIVE DISINFECTION**

The fight for the **best possible result** in poultry breeding begins immediately after the removal of manure from the previous breeding; this is the last stage in production.

Now every step is important, because a lot really depends on a **comprehensive cleaning and disinfection plan**.

The purpose of cleaning is to **minimize or eliminate biological safety threats** to the health of future flocks.

This includes control:

pests, rodents, insects, bacteria, viruses and parasites.

An employee who works on the farm or performs these important procedures must know about it.

**WE MUST TRAIN EMPLOYEES.
IN THEIR HANDS IS OUR FUTURE.**

Factors that affect the effectiveness of washing

1. Chemistry for Washing and Disinfection

Washing agents must be selected according to the dirt (e.g., fat, protein, dust, feces).

Disinfectants must be active against key pathogens (e.g., E. coli, Salmonella, Clostridium, viruses).

The important factors:

Changes in active substances – the rotation of chemistry reduces the risk of pathogens.

pH adjustment – e.g., alkaline agents (pH > 9) break down proteins and fats, acidic (pH < 5) remove mineral deposits rust, stone sediment.

2. Accuracy and washing time

Too fast washing: failure of removing biofilm.

Too superficial washing does not remove bacteria from hard-to-reach places (e.g., ventilation)

Extending the time + appropriate mechanics – better microbiological effects and better production results (as shown in the photo).

3. Staff training and standardization

Employees need to know **how, what, and where to wash** – people's mistakes are the most common reason for ineffective biosecurity.

It is worth using **checklists, washing procedures** and **regular training. FBS standards**

4. Ambient temperature during washing and disinfection process

not too cold, not too hot, optimum 18 – 20 °C

So let's start!

STEP 1

Very effective removal of manure from the previous flush.

Sweeping the floor:

The less manure remains at this stage, the more effective the cleaning will be

STEP 2

Start cleaning and washing from the ceiling Put active foam on all surfaces

Apply **active foam** to all surfaces and then what?

The **time** you allow the foam to work is key to effective cleaning.

Rinsing the foam off immediately after application is pointless.

Remember: TIME TIME TIME minimum 30 min

MAX... a long time, even 6 hours



Contact time is essential!

- **Microorganisms** are inactivated or killed by disinfection products **gradually**, not instantaneously.
- Allowing adequate contact time **increases the efficacy** of any disinfectant. Contact times may vary depending on the product or method used and the ambient temperature, and should be specified.
- Areas being disinfected should **remain wet** with the disinfectant during the necessary contact time.
- **Reapplication** of the disinfectant solution may be necessary to achieve the indicated contact time found on the product label.
- Some disinfectants may **evaporate quickly** (e.g., alcohols), while others may have **residual activity** (e.g., phenols).



STEP 3

Washing feeders, watering lines, and henhouse equipment.

If you don't look from the top, bottom and inside,

YOU WON'T SEE WHAT YOU NEED TO WASH



Feed distributor from the bottom, **after washing?**





Water line problems

- Biofilm
- Algae, molds
- Water stone, rust
- Leftover feed



Mechanical cleaning of the watering line



What influences production profitability



STEP 4

CLEANING THE FLOOR



Done!



Disinfection – Wet big drop

You can do it like that ...



Wet floor disinfection, a lot of possibilities

- Chemical solutions
- Ammonia
- Chlorine
- Hydrogen peroxide
- Peracetic acid
- Potassium hydroxide
- Lactic acid
- Sodium chloride
- Magnesium bisperoxymonosulfate





Wet disinfection – dosage

Example: Glutaral & qac mix preparation concentration 1.5%

Facility 1600 m²

Average quality floor

Dose 0.5 l/m²

Calculation: $1600 \times 0.5L = 640 \text{ l}$

Solution $640 \times 0.015 = 9.6 \text{ l}$ of concentrate

HERKULES autonomic sprayer



Concentrations below the recommended

- may lead to the development of resistance in both microorganisms and insects.

TOO SMALL QUANTITY OF SOLUTION

- will not allow the disinfectant to reach all surfaces and crevices.



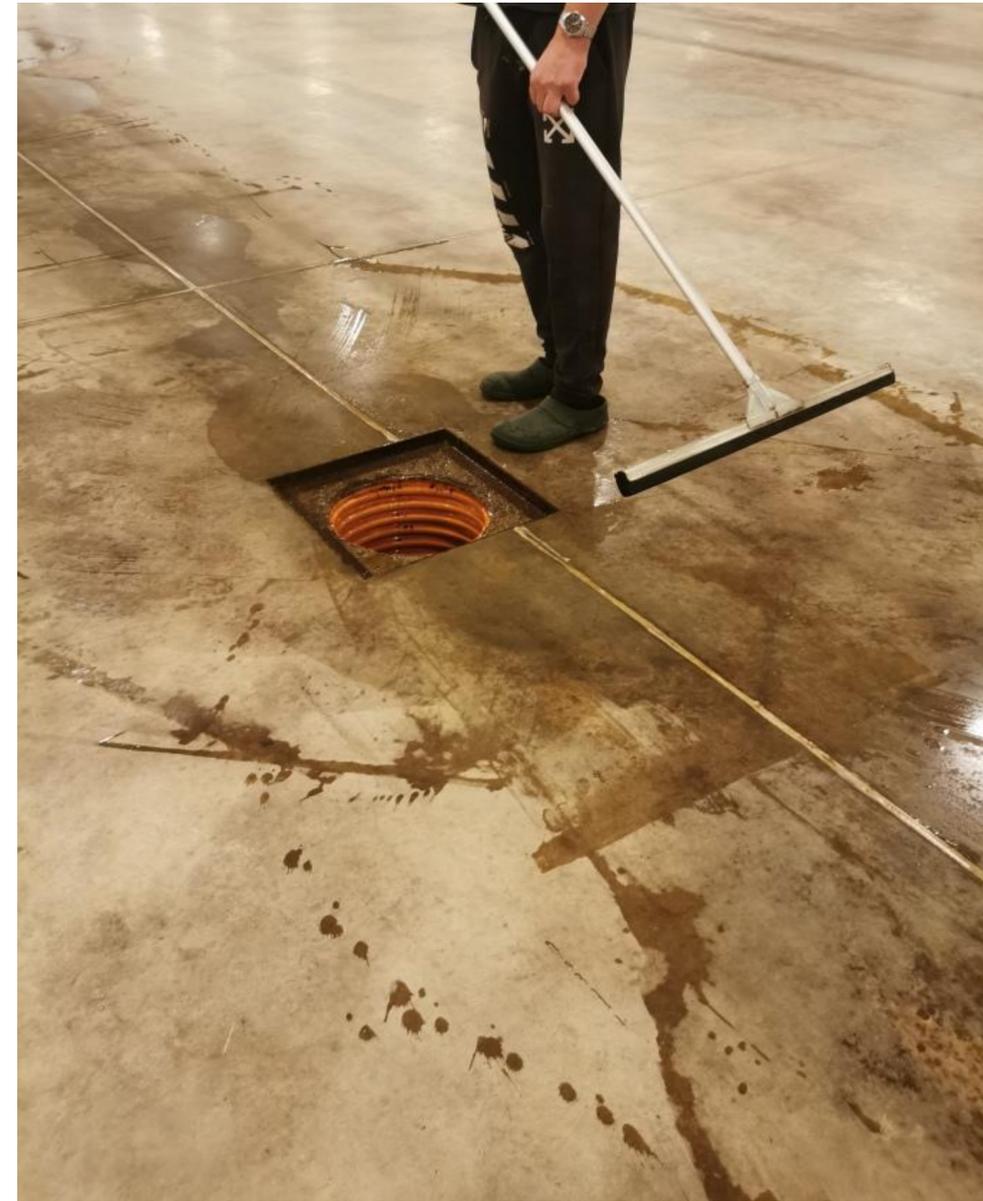
Remember to disinfect all areas around

Last stage: dry disinfection

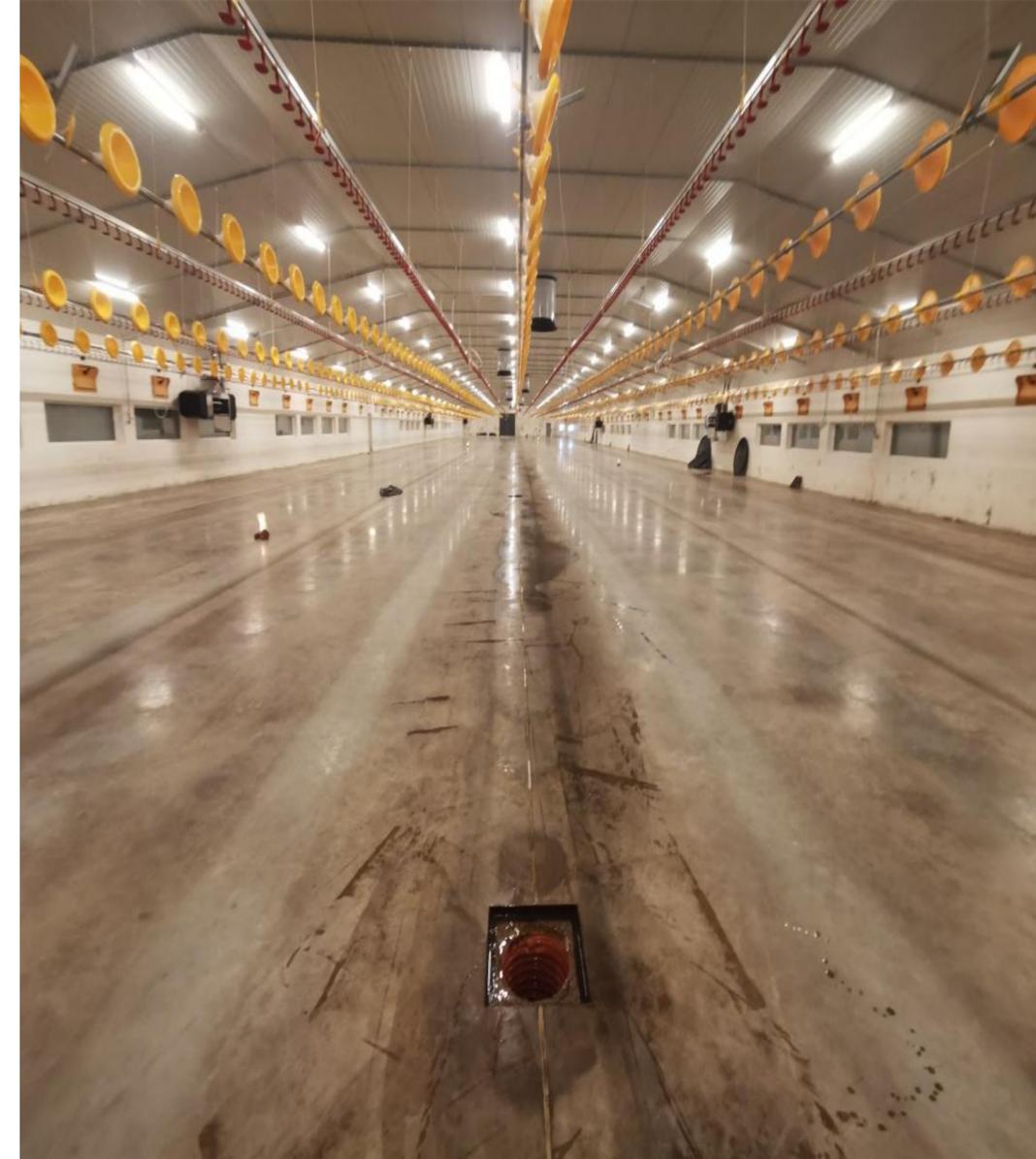
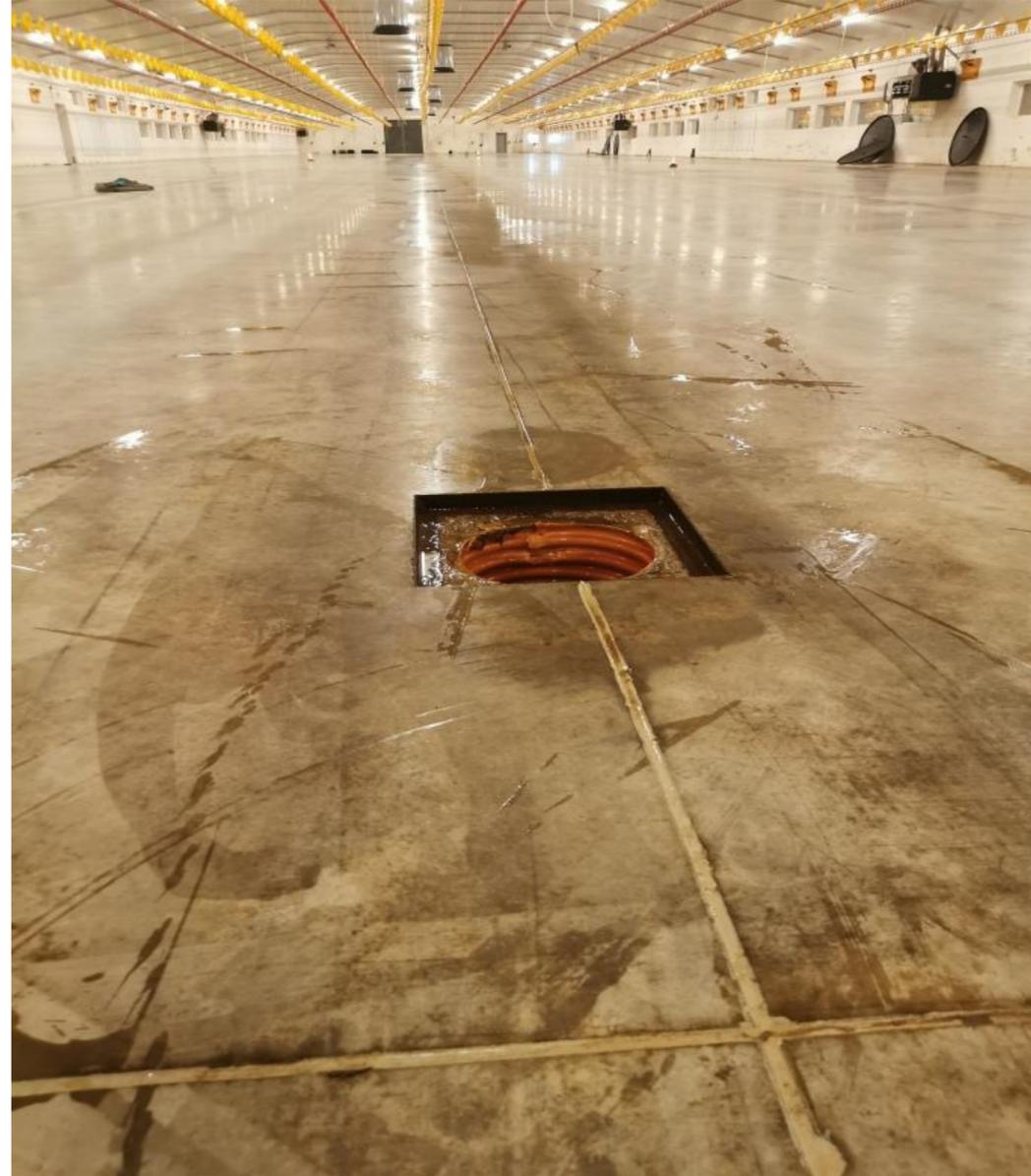
Thermal fogging , smoke generators, free smoke disinfection



Before dry disinfection remember about this trap



NO WATER ON THE FLOOR PLEASE!



Thermo fogging - dosing

It is always better to dose a larger amount of working liquid (we will fill the entire facility faster and more effectively)

Example:

Glutardehyde & QAC mix - 1 liter per 1000 m³

Facility 2200 m² x 4.5 m = 10,000 m³

Suggested dosage: 10 L mixture + 10 L water

+ 2 L Multifog

Thermal fogging!

Trap liquefied agent on the floor, nozzle too big

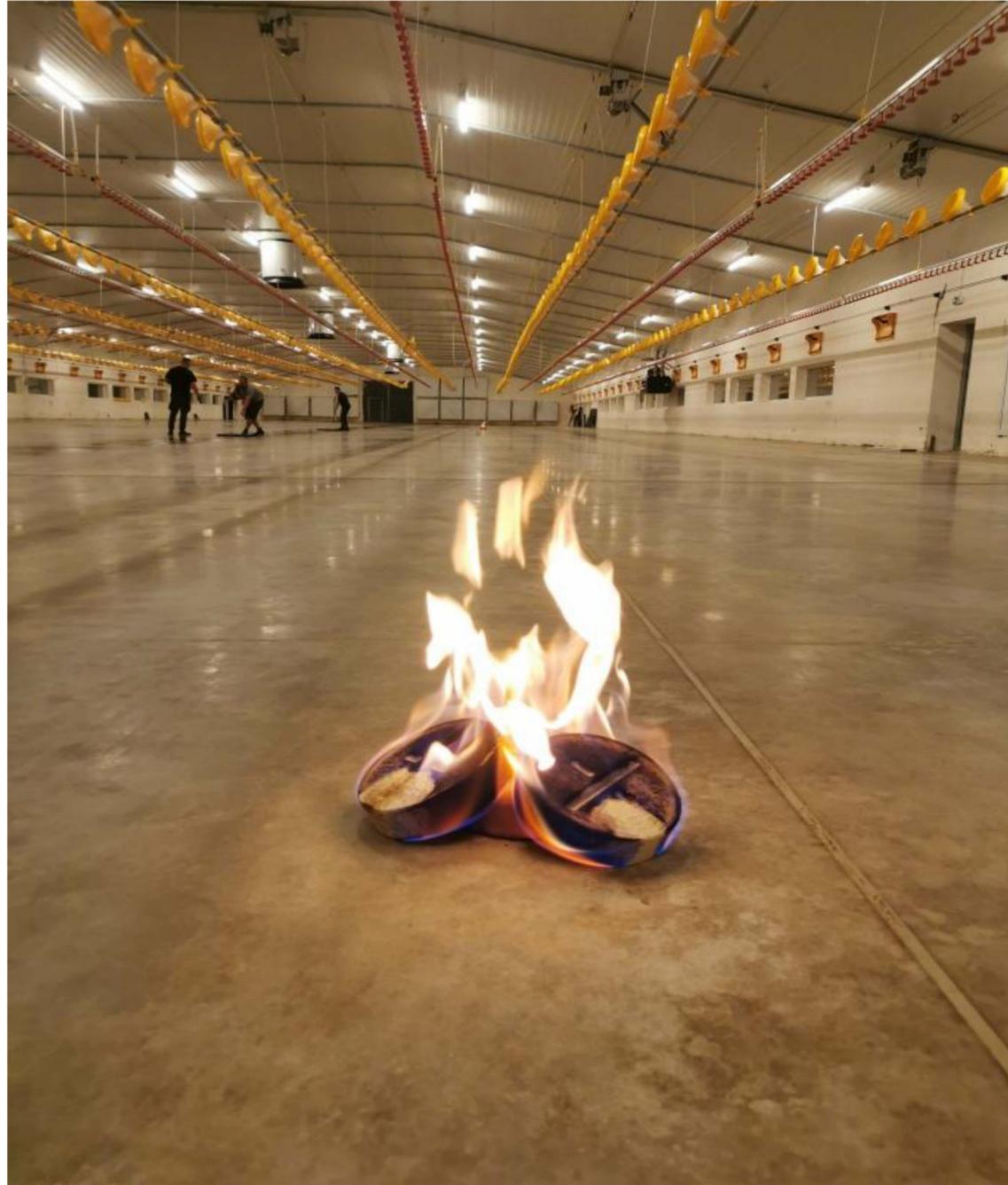


Disinfectant / smoke generator

- 2 active substances
- Full spectrum orthophenylphenol + glutaraldehyde
- Smoke particles
- Penetrate better than fog particles
- Ready to use
- No additional equipment
- Repeatable process
- Constant amount of substance







But remember!

- There is no disinfection without **solid washing**
- **Washing** is the basis of disinfection
- Use at least 20 kg of **concentrated detergent** per 1500 m² of facility
- Effective disinfection = **less treatment expenses**

Factors Affecting Cleaning and Disinfection Efficacy (1/2)

- Debris and organic material (e.g., soil, bedding, litter, feed, manure) can also inactivate many disinfectants (especially chlorine and iodine-containing compounds).
- Cleaning and disinfection procedures should be carried out in a systematic manner to ensure effective reduction, removal, inactivation, and destruction of the virus.
- Removal of all organic material prior to application of a disinfectant is essential.
- In some cases of lightly soiled equipment, dry cleaning with compressed air or blowers may be preferable.
- Some disinfectants may have some efficacy or residual activity in the presence of small amounts of organic material (e.g., phenols) and should be considered in circumstances where complete removal of organic debris is difficult, but the phenols still must penetrate any organic material present.
- However, application of these products to a heavy organic load (e.g., non-cleaned surfaces) will likely not be effective.

Factors affecting cleaning and disinfection efficacy (2/2)

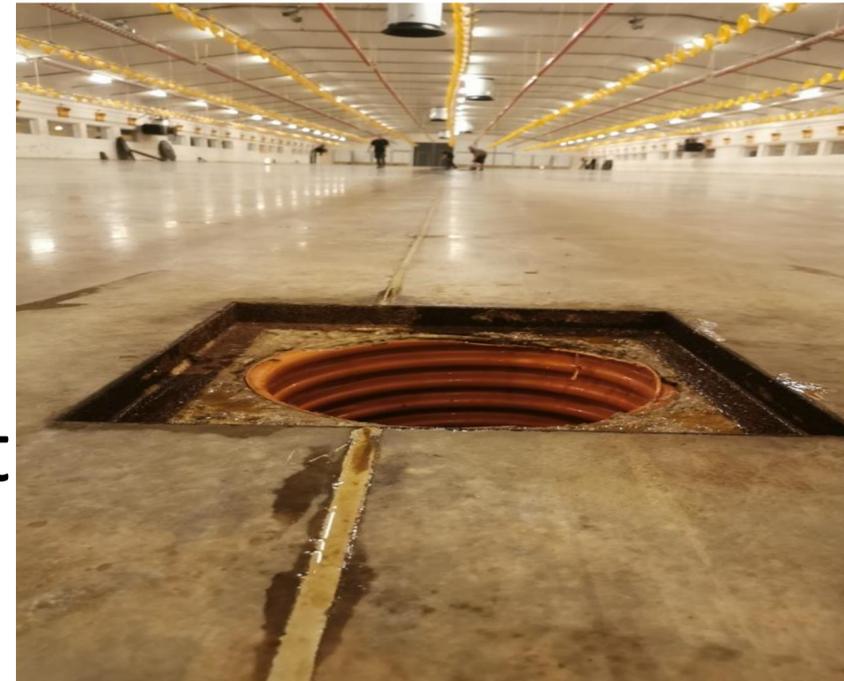
- **Surface type:** Porous, uneven, cracked, or pitted surfaces, especially wooden surfaces and earthen floors, are difficult to disinfect.
 - Some chemical disinfectants may also be incompatible with or corrosive to certain materials or surface types (e.g., metal, rubber).
- Due to the construction and presence of uneven surfaces on equipment, equipment cleaning and disinfection procedures can be difficult.
- **Heat** may be a more effective method for inactivating the virus on these surfaces.
- **pH:** The activity of some disinfectants is also affected by pH because it changes the degree of ionization of a chemical disinfectant, thereby impacting efficacy.

For example:

- the **efficacy** of phenols, acids, and hypochlorites is **decreased** as pH increases;
- In contrast, quaternary ammonium compounds have the greatest **efficacy** as pH **increases**

Septic tank and sewage system

- are a potential source of infections
- wash the cesspool at least once a year
- every time you wash the poultry house, make sure to thoroughly wash and disinfect the sewage drains



Silo septic PROBLEMS

- Higher temperature and humidity inside the silo
- Nutrient residues
- Lack of time/technical possibilities for cleaning
- Wash the inside of the silo at least once a year,
- Use disinfecting candles every time
- Bacterial, fungicidal, and virucidal fumigation

What affects the environment on the farm?

- Temperature and ventilation
- Water quality
- Bird density
- Type and quality of litter
- Number of viruses, bacteria

THE **ENVIRONMENT** HAS THE GREATEST IMPACT ON THE **HEALTH** OF THE FLOCK,
therefore

EFFECTIVE DISINFECTION = HEALTHY BIRDS

Are you changing the active ingredients or just the names of the products?

- most preparations on the market have similar compositions, differing slightly in the proportions of active substances
- GOOD STEP - changing active substances and changing the pH

Coccidiosis – what factors can we influence?

- Bird density in the henhouse
- Welfare (litter, temperature, humidity)
- Length of the break between cycles
- Washing (mechanical removal of oocysts)
- Disinfection (chemical destruction of oocysts)

Coccidiosis – what disinfection?

First:

strong degreasing agent to release oocyst

Then:

Disinfection:

- chlorocresol as an effective and least corrosive chemical substance to kill DNA
- 15% Peroxide, Peracetic acid, Acetic acid
- a strong oxidizer, contact action, strongly acidic pH
- Danish method and ammonia water

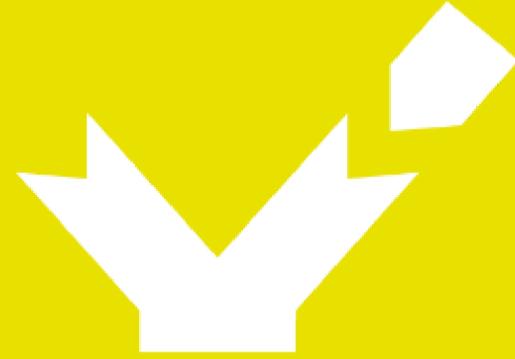
So let's quickly check how this cleaning and disinfection was done



Conclusion

- Time is needed
- Accuracy
- Qualified staff





THANK YOU