

CLEANING & DISINFECTION OF POULTRY HOUSES





Manufactured by : **PT SANBE FARMA**
Bandung - Indonesia



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OBJECTIVES

By the end of this session, participants will be able to:

- Define farm decontamination - cleaning and disinfection and explain what each accomplishes.
- Describe different groups of disinfectants
- Describe the safe use of disinfectants and explain the importance of PPE during cleaning and disinfection
- Review the information on a disinfectant by reading and interpretation of a products' label

CLEANING AND DISINFECTION = DECONTAMINATION

- Cleaning and disinfection are key components of routine biosecurity in poultry farming
- Decontamination kills any disease organisms like:
 - Virus**
 - Bacteria**
 - Parasite**
 - Mold**that might be present on a farm at the end of a production cycle or after disease outbreak
- Decontamination allows for safe re-population of a farm

EXERCISE

The questions!

1. What is a poultry farm cleaning and how its done ?
 2. What is a poultry farm disinfection and how its done?
 3. How do you choose a disinfectant?
 4. What are risks involved in using disinfectants and how to avoid them?
- In your group discuss what do you know about the question
 - Record your key points on the flipchart
 - Be prepared to present your answer to the group
 - about 10 minutes to complete this task

SURVIVAL OF DISEASE CAUSING AGENTS IN THE ENVIRONMENT

DISEASE AGENT

- Avian influenza
- IBD (Gumboro)
- Coccidiosis
- Fowl Cholera
- Coryza
- Marek's Disease
- Newcastle Disease
- Mycoplasma
- Salmonellosis (Pullorum)

SURVIVAL TIME

- Days to months
- Months
- Months
- Weeks
- Hours to days
- Months to years
- Days to months
- Hours to days
- Weeks



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WHAT CAN KILL DISEASE AGENTS?

- Detergents / soap
- Disinfectants
- Sunlight
- Heat (direct flame or steam)

CLEANING

The physical removal of foreign materials like:

- Dust
- Soil
- Organic material such as: droppings, blood, secretions

which protect disease agents

Remember!

A good cleaning job will remove **60%** of disease agents

CLEANING

IT IS A TWO-STEP PROCESS

Step 1. Dry cleaning

- Using a broom, brush, shovel, rag or compressed air to remove dust, soil and dry organic material.



Remember!

Dry cleaning should not be used for cleaning poultry houses infected with air-borne diseases such as: Avian Influenza or Newcastle it may cause **AEROSOLIZATION** of the virus and increase the risk of spreading the disease.

Step 2. Wet cleaning



- Using detergent/soap and water.
soak the area and scrub to remove remaining organic material as well as dirt and grease
- For washing you can use common detergent powder used for cloth laundering – is cheap and effective.

Wet cleaning reduces the risk of **AEROSOLIZATION** of virus



CLEANING IS IMPROVED WITH:

- Detergents / Soaps
- Warm water
- Scrubbing
- Brushing
- Power washers
- Steamers



REMEMBER!

- Disinfectants lose effectiveness during contact with disease agents.
- Organic materials such as manure, blood, dust or dirt absorb disinfectants and makes them less effective.
- Organic materials protect disease agents.

You must **CLEAN** properly before you disinfect!

DISINFECTION

- Disinfection might kill the remaining disease agents left after cleaning.

BUT MOST IMPORTANT

- Disinfection is the least reliable step of biosecurity, depends on many factors such as:
 - The quality of cleaning
 - The hardness of water
 - Quality and suitability of disinfectant
 - Correct dilution and application

WHAT ARE DISINFECTANTS?

Disinfectants are chemicals that

- Slow down disease agents activity, multiplication and their growth
- or
- Kill disease agents



COMMON TYPES OF DISINFECTANTS

- Disinfectants are divided into several groups based on their chemical structure

Like:

- Halogens (Iodophors and Chlorines, Halamid®, Dettol®)
- Alcohols
- Oxidizing Agents (Hydrogen-Peroxide, Hyperox®, Virkon®)
- Phenols (Fenix®, Prophyl 75®)
- Aldehydes (Glutheraldehyde – TH4®, Formalin)
- Quaternary ammonium compound (Timsen® Beloran®, Bromosept®)

CHOOSING THE RIGHT DISINFECTANT

The choice of disinfectant will depend on the following:

- Cost
- Type of disease agent/s to be destroyed
- Amount of contamination by organic matters such as:
Droppings, blood and manure left in the poultry house
- Active ingredient

The chemical compound and concentration that its contained

Characteristics of Selected Disinfectants

Disinfectant Category	Alcohols	Aldehydes	Biguanides	Halogens: Hypochlorites	Halogens: Iodine Compounds	Oxidizing Agents	Phenols	Quaternary Ammonium Compounds (QAC)
Sample Trade Names	Ethyl alcohol Isopropyl alcohol	Formaldehyde Glutaraldehyde	Chlorhexidine Nolvasan® Virosan®	Bleach	Betadyne® Providone®	Hydrogen peroxide Peracetic acid Virkon S® Oxy-Sept 333®	One-Stroke Environ® Pheno-Tek II® Tek-Trol®	Roccal® DiQuat® D-256®
Mechanism of Action	<ul style="list-style-type: none"> •Precipitates proteins •Denatures lipids 	<ul style="list-style-type: none"> •Denatures proteins •Alkylates nucleic acids 	<ul style="list-style-type: none"> •Alters membrane permeability 	<ul style="list-style-type: none"> •Denatures proteins 	<ul style="list-style-type: none"> •Denatures proteins 	<ul style="list-style-type: none"> •Denature proteins and lipids 	<ul style="list-style-type: none"> • Denatures proteins • Alters cell wall permeability 	<ul style="list-style-type: none"> • Denatures proteins • Binds phospholipids of cell membrane
Advantages	<ul style="list-style-type: none"> •Fast acting •Leaves no residue 	<ul style="list-style-type: none"> •Broad spectrum 	<ul style="list-style-type: none"> •Broad spectrum 	<ul style="list-style-type: none"> •Broad spectrum •Short contact time •Inexpensive 	<ul style="list-style-type: none"> •Stable in storage •Relatively safe 	<ul style="list-style-type: none"> •Broad spectrum 	<ul style="list-style-type: none"> • Good efficacy with organic material • Non-corrosive • Stable in storage 	<ul style="list-style-type: none"> • Stable in storage • Non-irritating to skin • Effective at high temperatures and high pH (9-10)
Disadvantages	<ul style="list-style-type: none"> •Rapid evaporation •Flammable 	<ul style="list-style-type: none"> •Carcinogenic •Mucous membranes and tissue irritation •Only use in well ventilated areas 	<ul style="list-style-type: none"> •Only functions in limited pH range (5-7) •Toxic to fish (environmental concern) 	<ul style="list-style-type: none"> •Inactivated by sunlight •Requires frequent application •Corrodes metals •Mucous membrane and tissue irritation 	<ul style="list-style-type: none"> •Inactivated by QACs •Requires frequent application •Corrosive •Stains clothes and treated surfaces 	<ul style="list-style-type: none"> •Damaging to some metals 	<ul style="list-style-type: none"> • Can cause skin and eye irritation 	
Precautions	Flammable	Carcinogenic		Never mix with acids; toxic chlorine gas will be released			May be toxic to animals, especially cats and pigs	
Vegetative Bacteria	Effective	Effective	Effective	Effective	Effective	Effective	Effective	YES—Gram Positive Limited—Gram Negative
Mycobacteria	Effective	Effective	Variable	Effective	Limited	Effective	Variable	Variable
Enveloped Viruses	Effective	Effective	Limited	Effective	Effective	Effective	Effective	Variable
Non-enveloped Viruses	Variable	Effective	Limited	Effective	Limited	Effective	Variable	Not Effective
Spores	Not Effective	Effective	Not Effective	Variable	Limited	Variable	Not Effective	Not Effective
Fungi	Effective	Effective	Limited	Effective	Effective	Variable	Variable	Variable
Efficacy with Organic Matter	Reduced	Reduced	?	Rapidly reduced	Rapidly reduced	Variable	Effective	Inactivated
Efficacy with Hard Water	?	Reduced	?	Effective	?	?	Effective	Inactivated

READING THE LABEL OF DISINFECTANTS

- Before using any disinfectant the label **MUST** be read and understood.
- The label gives you valuable information.
- Caution or warning
- Dangerous Poison
 - Slightly Toxic
 - Highly Toxic
 - Extremely Toxic

DISINFECTANTS ARE DANGEROUS !

- Disinfectants are dangerous chemicals = poisons
- We have to be careful when we use disinfectants
Disinfectants might cause poisoning:



- Acute (fast) toxicity with certain disinfectants may
Cause: dizziness, nausea and itchy eyes or skin
- Chronic (slow) toxicity may occur gradually over many years
may cause: permanent disability because the body has
become very sensitive

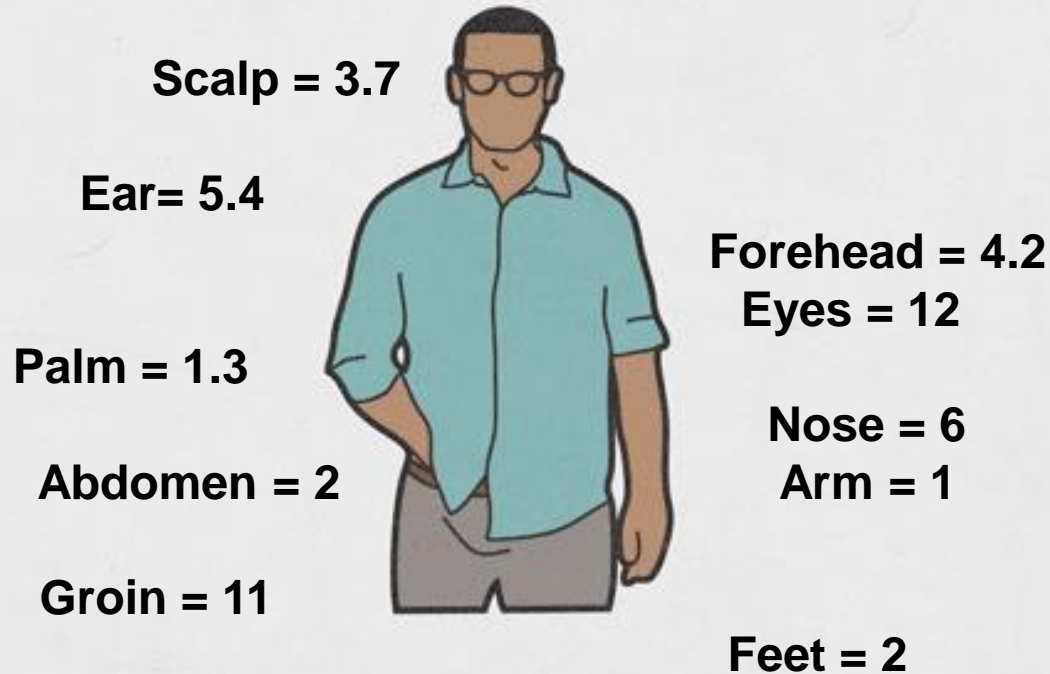


How dangerous a disinfectant is?

Depends on:

- The type of substance and what it is made of
- The speed and the way it enters the body
- The amount of substance that enters the body

ABSORPTION RATE



A splash in the eyes is absorbed **12 TIMES** faster than a splash on the arm.

POISONING

Chemicals can enter your body through 3 ways:

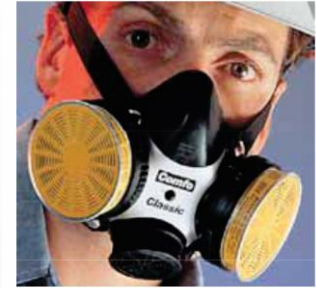
1. through the lungs when breathing or smoking
2. through the mouth when eating and drinking
3. through the skin and eyes

Remember!

When handling chemicals you need to make sure you wear the right clothes and equipment for your protection



PROTECT YOUR MOUTH AND LUNGS



Breathing in disinfectant vapors or spray particles

- The main danger exist when:
 - Mixing chemicals
 - Spraying in confined spaces
 - Using fumigants such as formaldehyde or chlorine
- Accidental drinking of chemical by drinking (by children)

WEAR RESPIRATORS

- If the label states a respirator to be worn then **TOXIC** vapors will be released.
- You must use a full face or half face respirator fitted with appropriate filters

Remember!

- Dust or biological masks are not designed to filter chemical's spray droplets and vapors



EYE PROTECTION

- Contamination of the eyes can result from:
 - Drift, splash or spill of chemicals
 - Rubbing eyes with contaminated hands or clothing
- Chemical absorbed through the eye very rapidly
- Always wear eye protection when handling or spraying chemicals



Use: goggles

or



face shield

SKIN ABSORPTION

- Absorption is highest when temperature is hot and skin is perspiring (hot season)
- Longer chemicals are in contact with skin, the more chemical is absorbed.
Don't wait! wash your skin with soap and plenty of water immediately
- Clothing which has been sprayed must be removed as soon as possible and washed with soap and water

PROTECT HANDS AND ARMS

- Gloves that cover the forearms are the best.
- Make sure they are resistant to chemicals -PVC).
- Turn base of glove over when spraying overhead

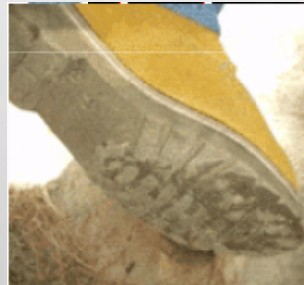
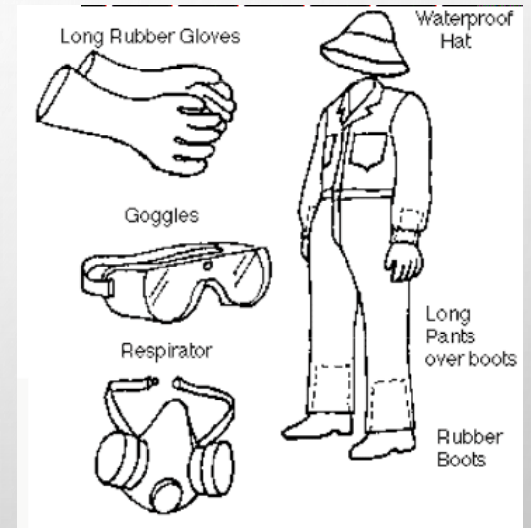




BODY PROTECTION



- Overalls and gloves
- Wide brim hat
- Rubber boots



APRONS FOR EXTRA PROTECTION

PVC or neoprene aprons extending from neck to ground give excellent front protection from spills and Splashes

Easy to put on and wash

Use when mixing chemicals



REMEMBER!

- Always wash your hands and face with soap after spraying disinfectant
- Never eat or smoke when spraying disinfectant



Quiz

1. Organic matter increases the effect of disinfectants
true or false

2. How would you define Decontamination?

3. Name 3 essential pieces of protective clothing to be used when spraying disinfectant.

4. Under what (3) conditions can chemical vapors, dusts or spray particles be inhaled to cause poisoning?

What do you think ?

1. What are the 3 key points you want to remember from this module?
2. What additional information do you need on this module?

THANK YOU.

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