



Biosecurity

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Understanding biosecurity ...

Biosecurity is a trendy topic these days ...



World Health Organization
Food and Agriculture Organization of the United Nations

International Food Safety Authorities Network (INFOSAN)

3 March 2010
INFOSAN Information Note No. 1/2010 - Biosecurity

Biosecurity: An integrated approach to manage risk to human, animal and plant life and health




Poultry Digital Events Shop

Home | Genetics & breeding | Meat poultry | Egg layers | Health & disease | Processing | Equipment & innovation

Biosecurity: Protecting our flocks to sustain the supply

BIOSECURITY | TREATMENTS AND PREVENTION | HEALTH & DISEASE




Events

Home | Disease & welfare | Farm economics | Genetics & reproduction | Husbandry | Anatomy & physiology


Veterinarians serve as biosecurity champions

BIOSECURITY AND HYGIENE | MANAGING DISEASE | DISEASE AND WELFARE

12 poultry farm biosecurity principles you should know



BIOSECURITY BASICS FOR POULTRY GROWERS



fting a biosecurity plan and ensuring

Understanding biosecurity

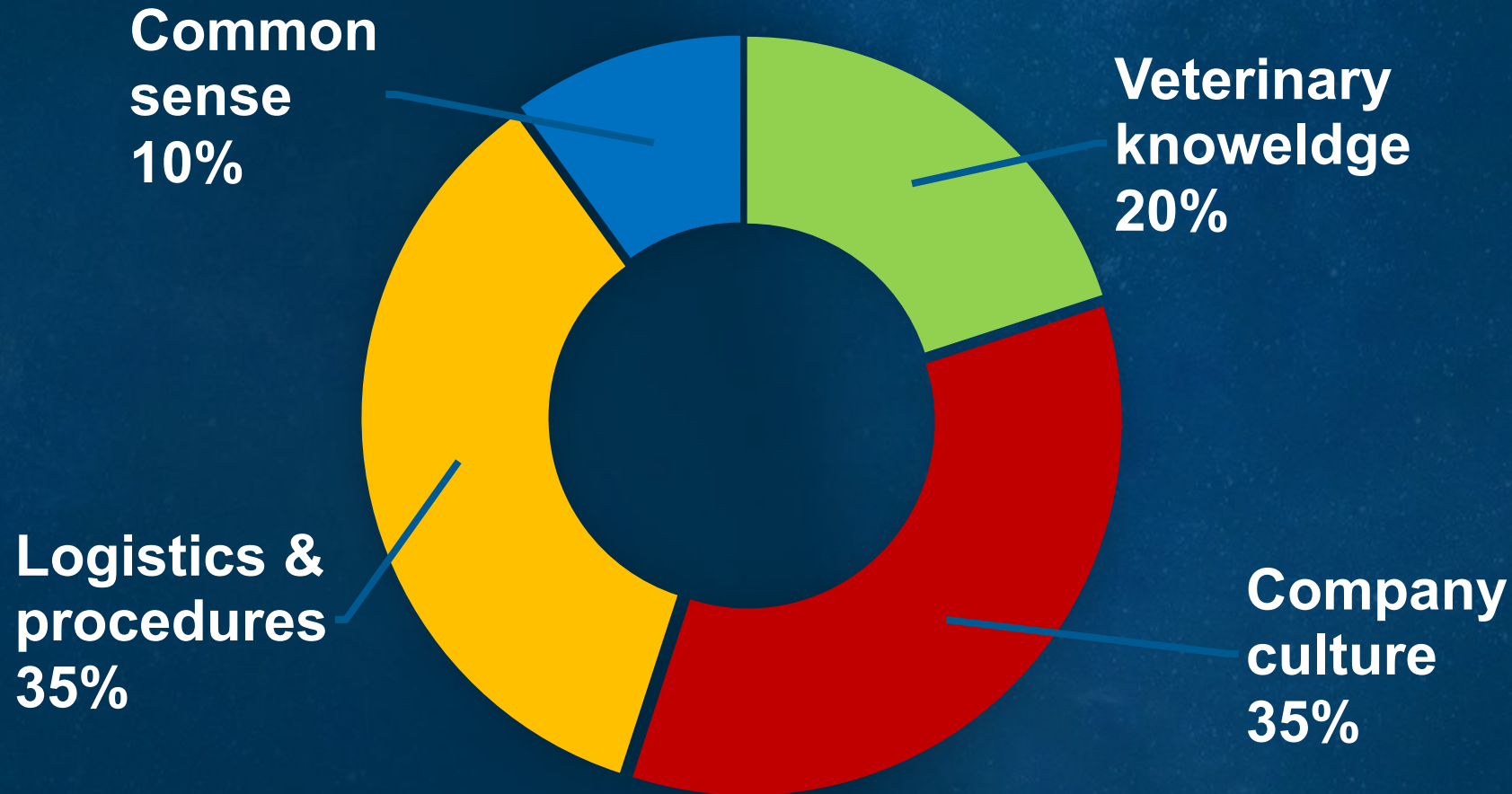
A clear definition

A set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population.

WOAH Terrestrial Animal Health Code

Understanding biosecurity ...

But this is about acts not about words



Understanding biosecurity ...

Biosecurity level



Country level



County level



Farm level



Design biosecurity

Farm location matters



200 m

Design biosecurity

Multi-age farms always make things more complicated.



50 m

Structural biosecurity

Biosecurity requires adequate equipment



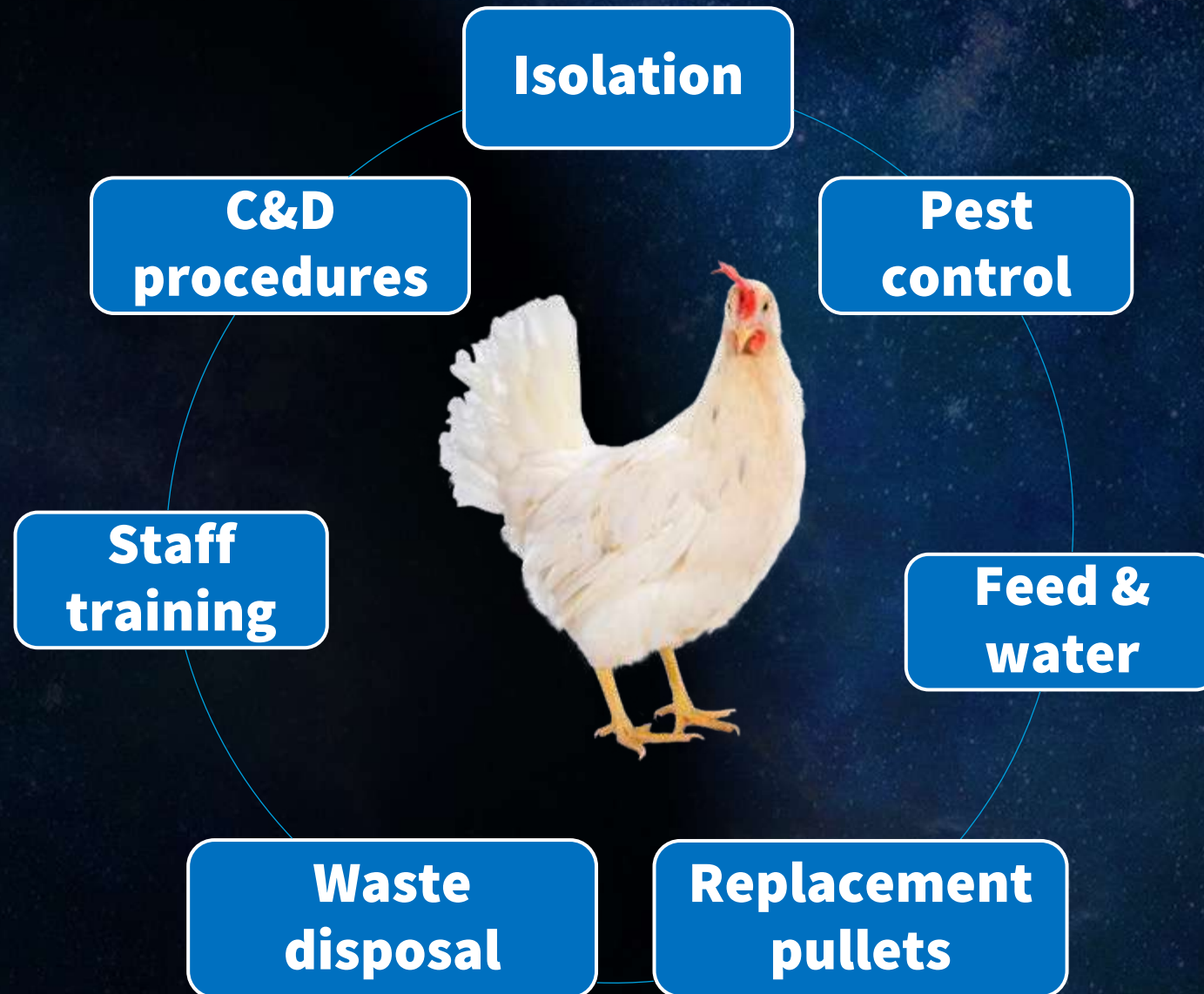
Operational biosecurity

But farmers DO make biosecurity happens

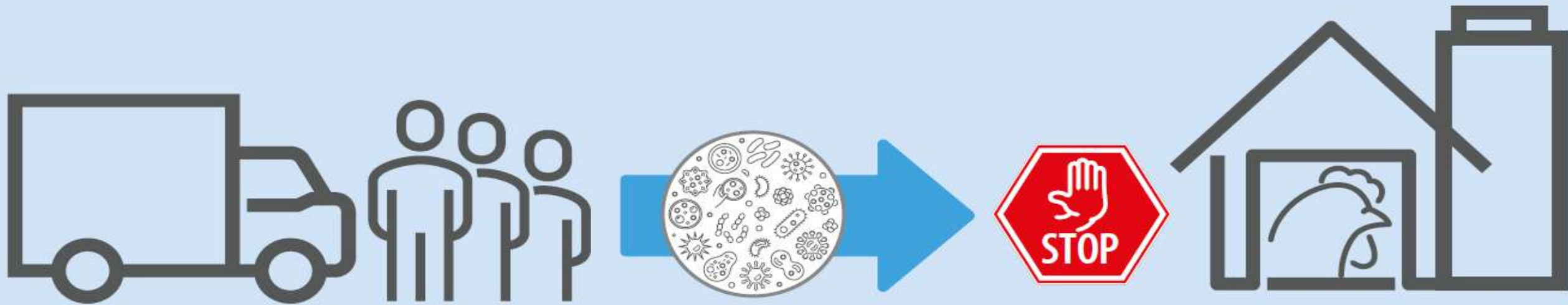


**Trained
+
Committed
=
Good
Biosecurity
Practices**

Biosecurity programs



Isolation program



Avoid the introduction of diseases through visits or tools

 Visits

 Tools

Isolation program

MG survival in different materials

4 days



Cotton

3 days



Hair

2 days



Straw

1 day



Wood



Feather



Rubber



Nose

Isolation program

Visits policy (Easiest and best to implement)



Isolation program

A decision tree for accepting visits



Isolation program

The vehicles are not for driving on the farm



External parking



No entrance to all avoidable vehicles



Complete disinfection for all entering vehicles

Isolation program

Entrance to a farm (ideally)



Logbook

Fecha	Nombre	Empresa	Metodo de traslado	Metodo de la visita	Ultima visita en granja	Autorización



Locker



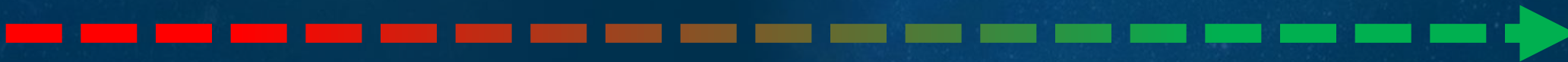
Shower



Farm Cloths



Hygiene block



Isolation program

Tools and personal belongings stay out



Leave your personal belongings outside...



Disinfect any items before bringing them into the farm.



Stuff coming from other farms **MUST** be rejected

Isolation program

After going through this foot bath my boots will be:



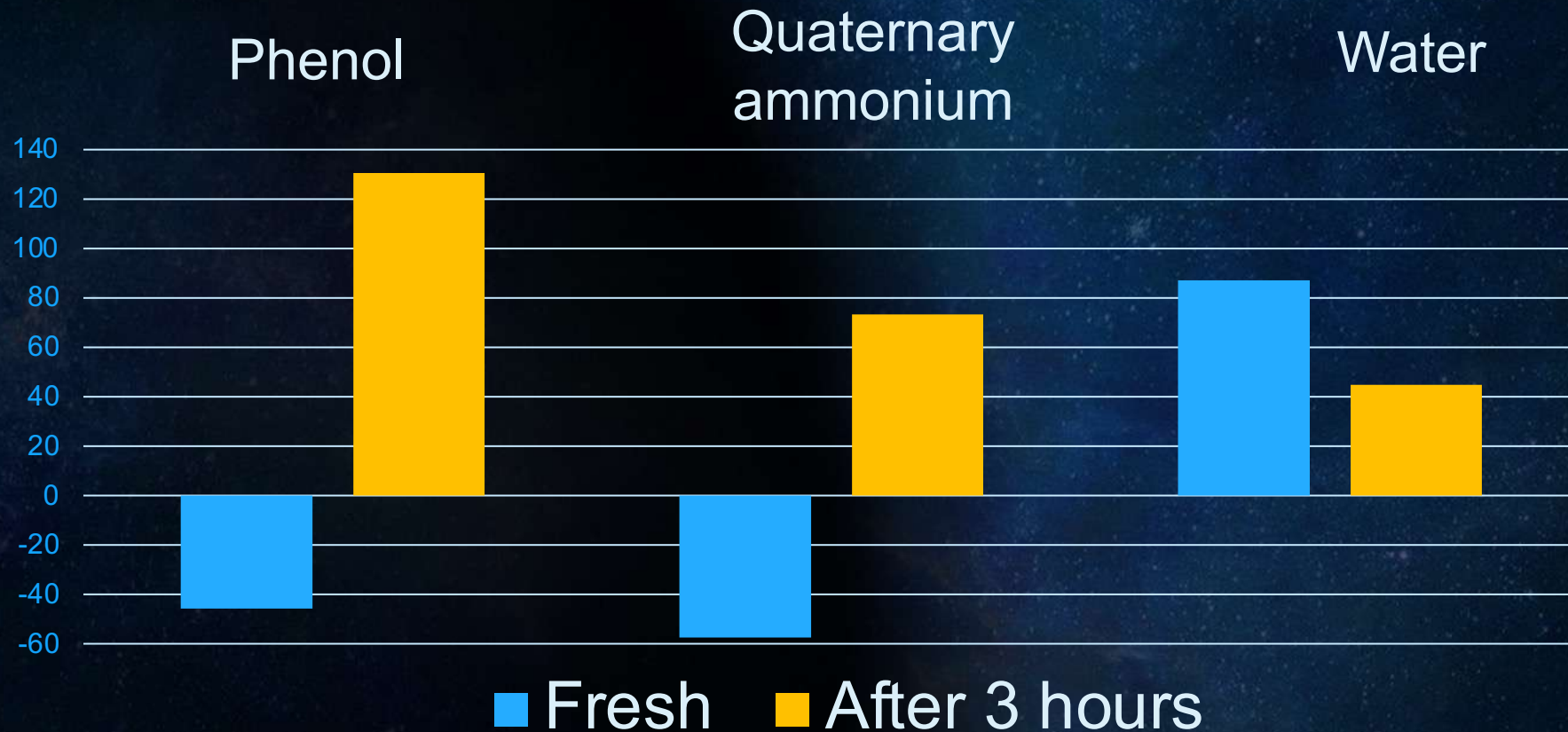
A) More contaminated?

B) Less contaminated?

(Hint: It's Answer A!)

Isolation program

% change in total bacteria counts in shoe swabs after being footbathed in a hatchery



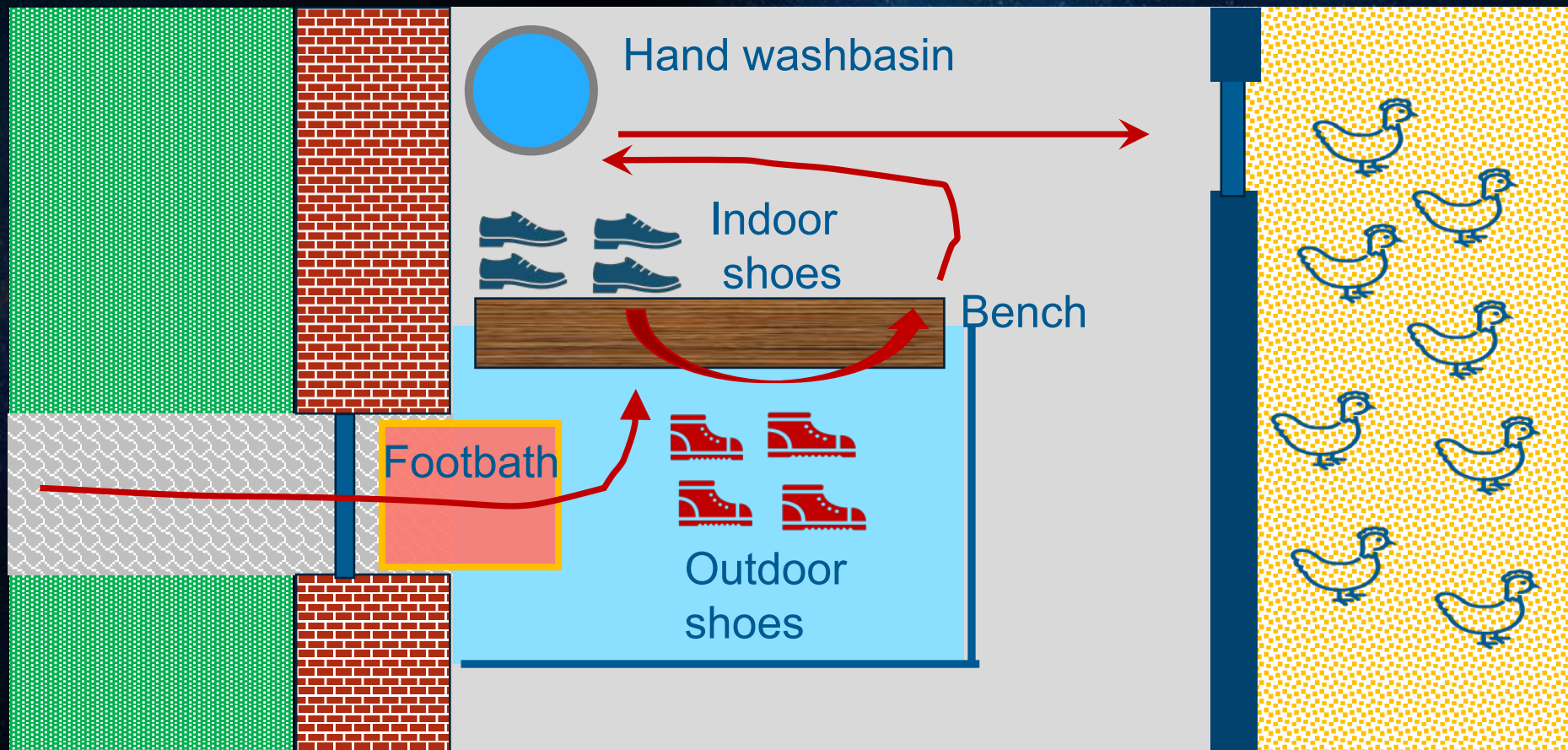
Isolation program

Sanitary block / Danish Barrier / Bench System

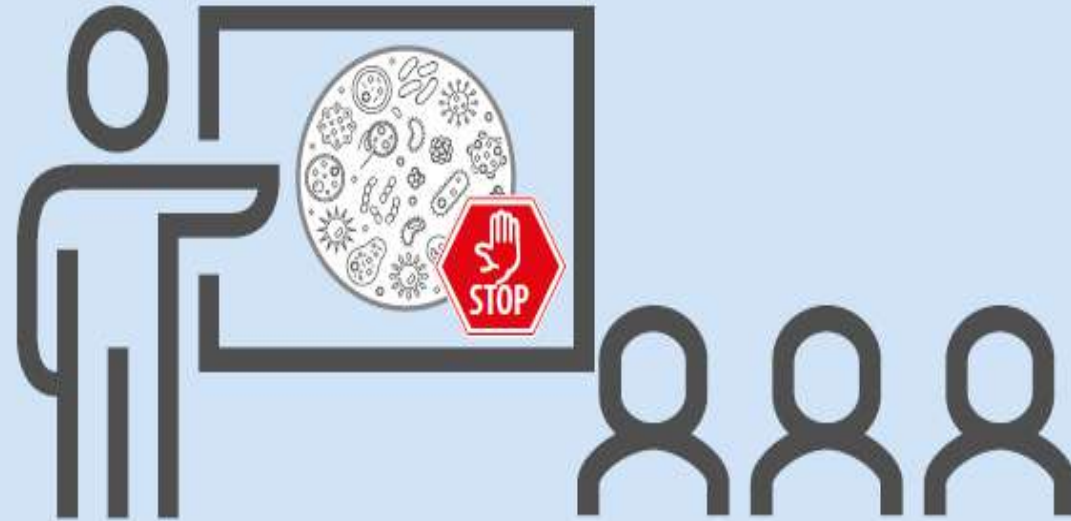
Outside

Anteroom

Henhouse



Staff training



Avoid the introduction of diseases through workers or their actions



Workers

Staff training

BASIC rules for Poultry Workers



No visit to other farms.



No keeping backyard poultry at home.



No bird related hobbies.

Staff training

Staff needs for good biosecurity



Knowledge



Commitment



Easy-to-follow

Staff training

Biosecurity errors when entering and leaving poultry houses



Not respecting the delimitation between dirty and clean areas

Odds ratio

Footbath VS Bench System

13.16

Short visit (< 17m) VS long visit

2.41

Observer in the room

4.61

Not signing the logbook

Odds ratio

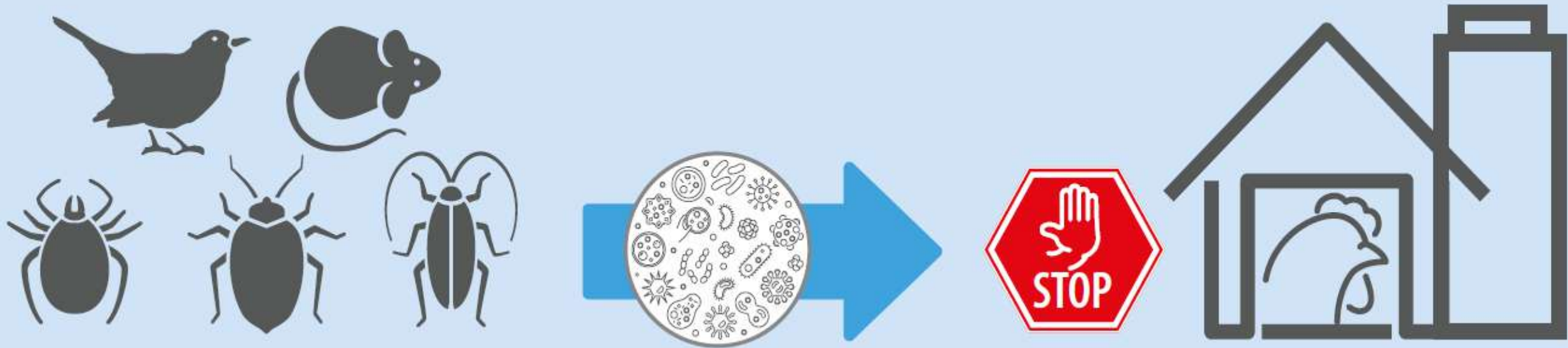
Capacitación del personal

5.74

Observer in the room

5.70

Pest control program



Avoid the introduction of diseases through rodents, birds or insects

-  Rodents
-  Birds
-  Insects

Pest control program

Rodents: We cannot coexist!



Erysipelas
(Meerburg 2012)

Salmonellosis
(Meerburg 2012)

Fowl Cholera
(Meerburg 2012)

...

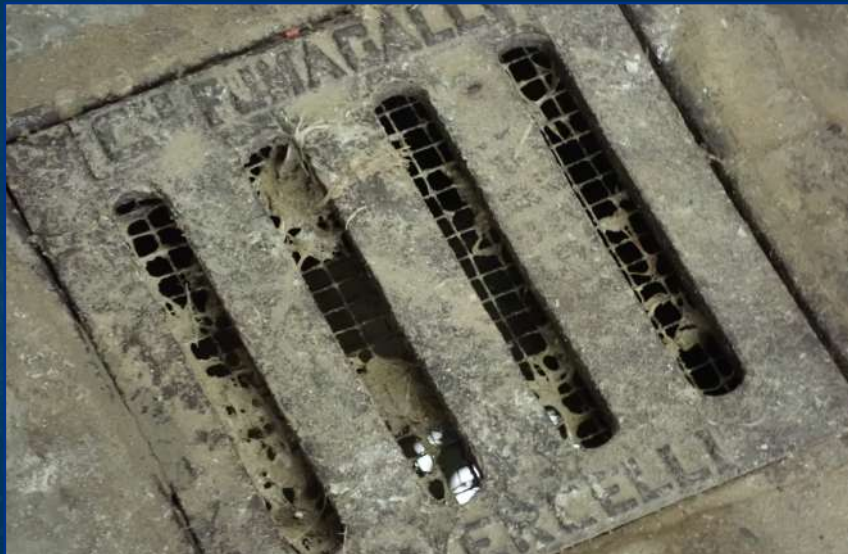


Mechanical
transmission

Pest control program

Getting rid of rodents

Passive control



Active control



Pest control program

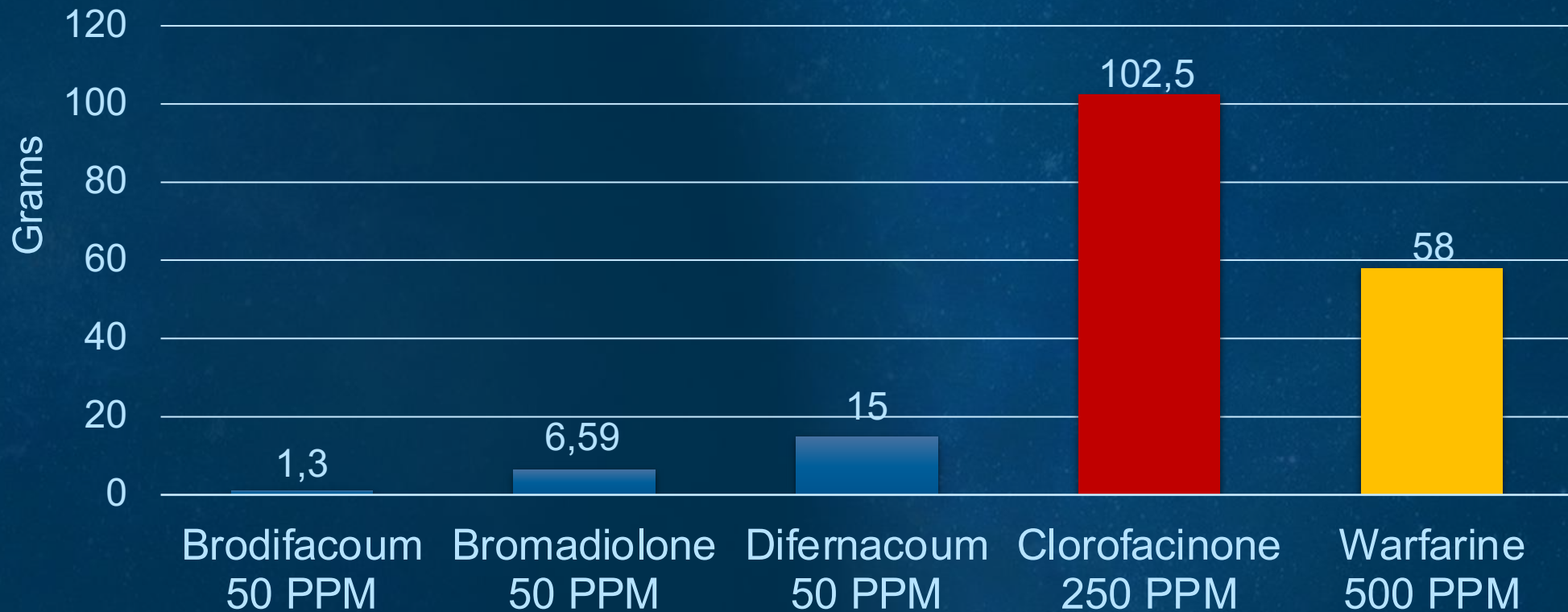
Passive control: step-by-step progress



Pest control program

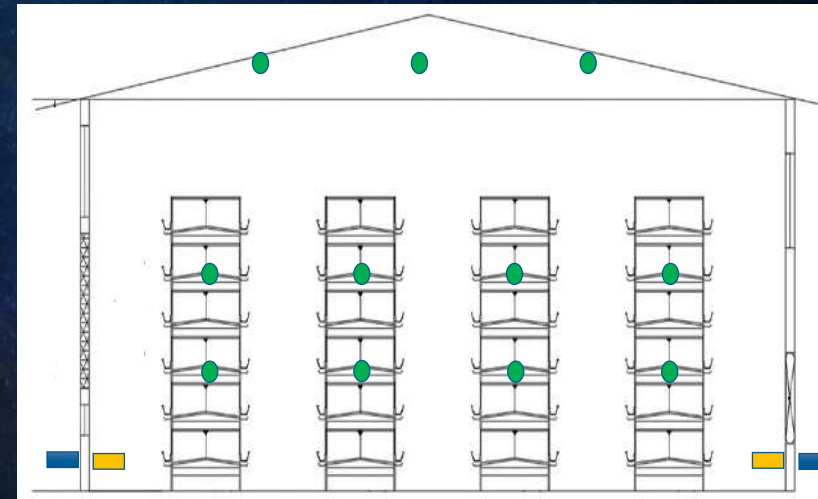
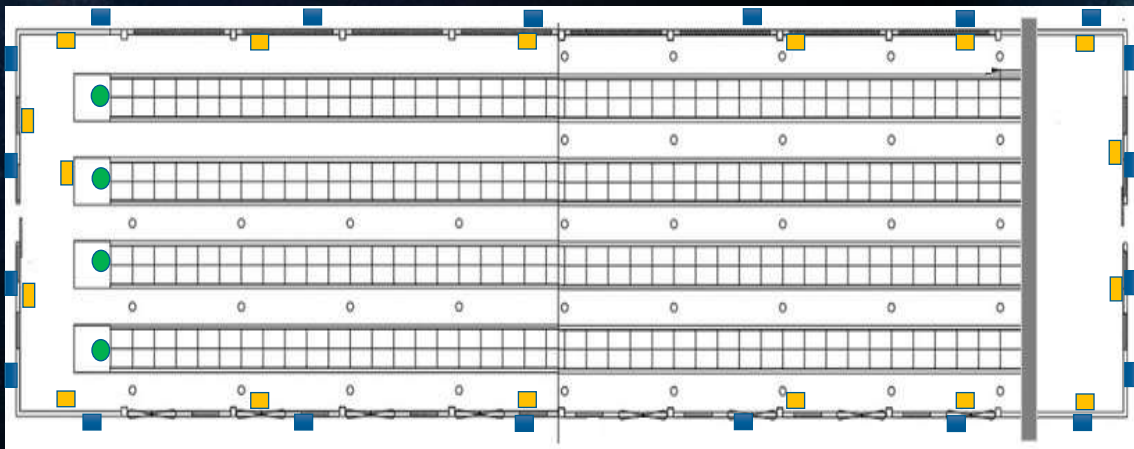
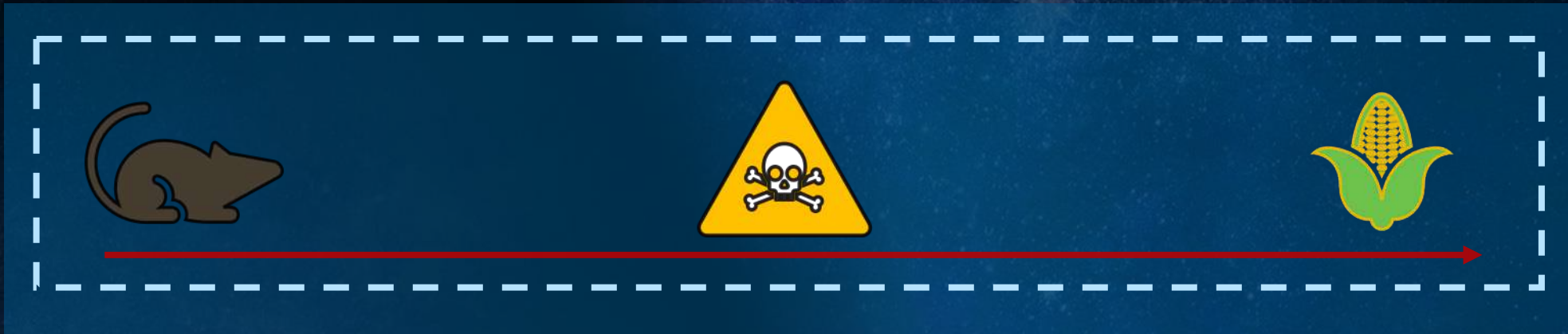
Does rodent poison really kill?

DL 50 for bait for a standard rat



Pest control program

Active control: Strategy first!



■ Internal bait station

■ External bait station

● Hand placement

Pest control program

What if we just let a couple of cats out and leave it to them to sort it out?



A) Of course. They are excellent hunters and can eat thousands of rats per week

B) No. They cannot control rodent population in a poultry farm

(Hint: It's Answer B!)

Pest control program

2.3.4.4b H5N1 HPAIV: NUEVO PAPEL DE LOS MAMÍFEROS

RESEARCH

Outbreak of highly pathogenic avian influenza A(H5N1) clade 2.3.4.4b virus in cats, Poland, June to July 2023

Katarzyna Domańska-Blicharz¹, Edyta Świętoń², Agnieszka Świątalska³, Isabella Monne⁴, Alice Fusaro⁴, Karolina Tarasiuk¹, Krzysztof Wyrostek¹, Natalia Styś-Fijot¹, Aleksandra Giza², Marta Pietruk², Bianca Zechchin⁴, Ambra Pastori⁴, Łukasz Adaszek⁵, Małgorzata Pomorska-Mól⁶, Grzegorz Tomczyk¹, Calogero Terregino⁴, Stanisław Winiarczyk^{5,7}

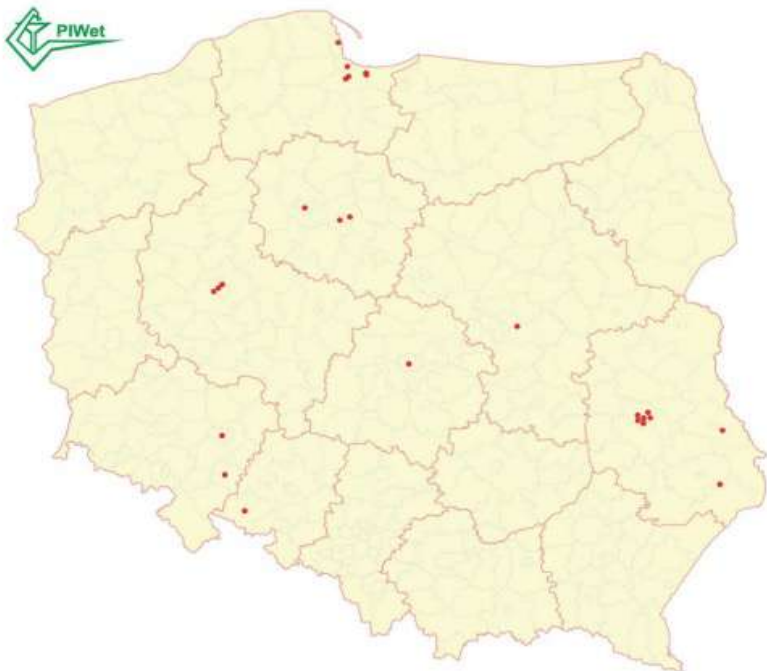


Foto: Korea Times

Fuente:
Domanska 2022

Pest control program

Wild birds: The flying rodents (even worse)



Poultry houses
MUST be bird-proof



Do not attract birds
by feed spillage or
others



Do not allow birds to
nest in your premises

Pest control program

Insects (and mites) do more than suck



**Dermanyssus
gallinae**

Salmonella (Valiente Moro, 2009)
Escherichia coli (Valiente Moro, 2009)
Erisipela rushiopatie (Chirico et al, 2003)
Pasteurella (Petrov, 1975)

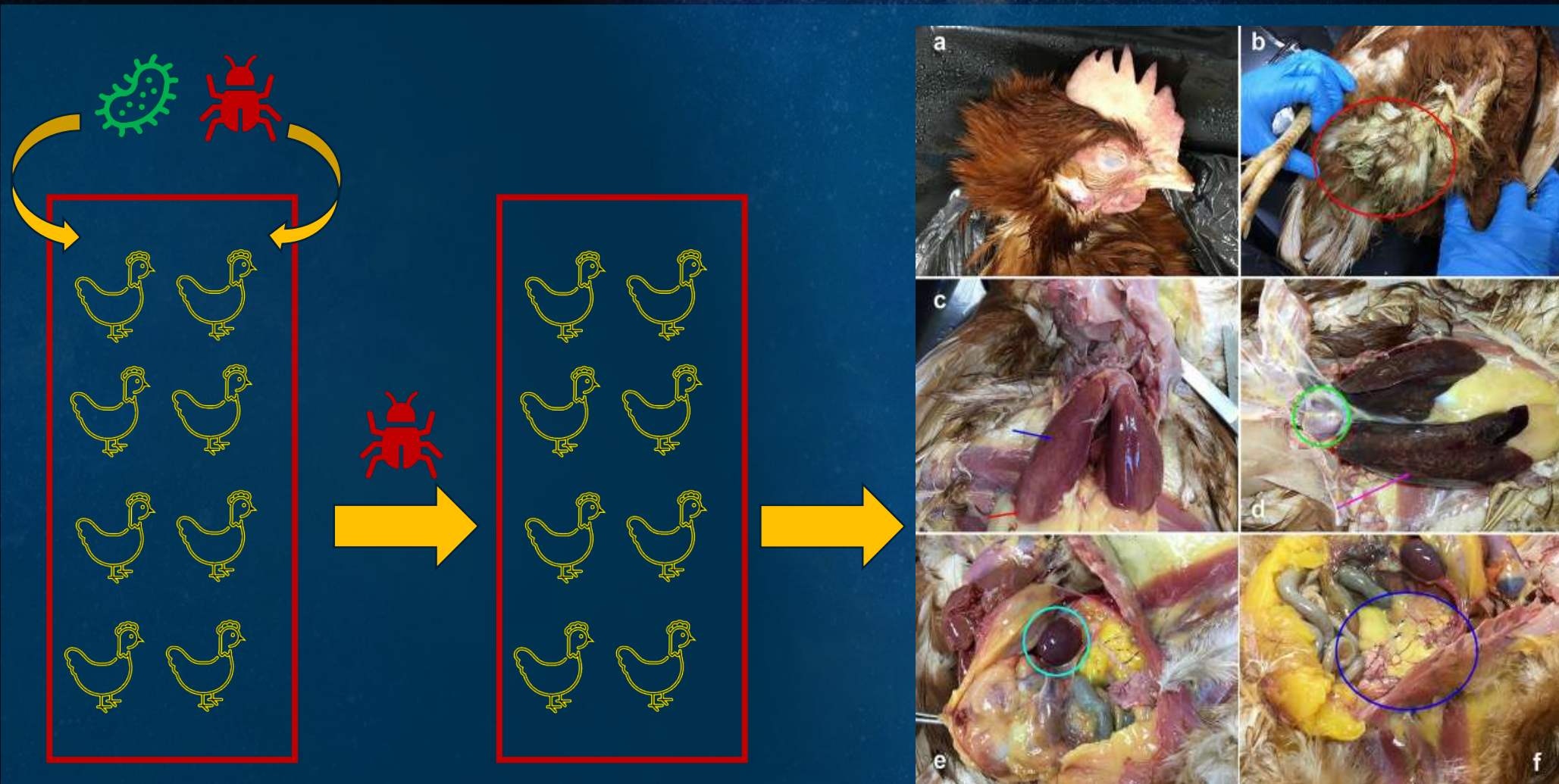


**Alphitobius
diapernis**

Salmonella (Roche, 2009)
Campylobacter (Crippen, 2012)
Tapeworms (Goodwin, 1996)
IBD (Goodwin, 1996)

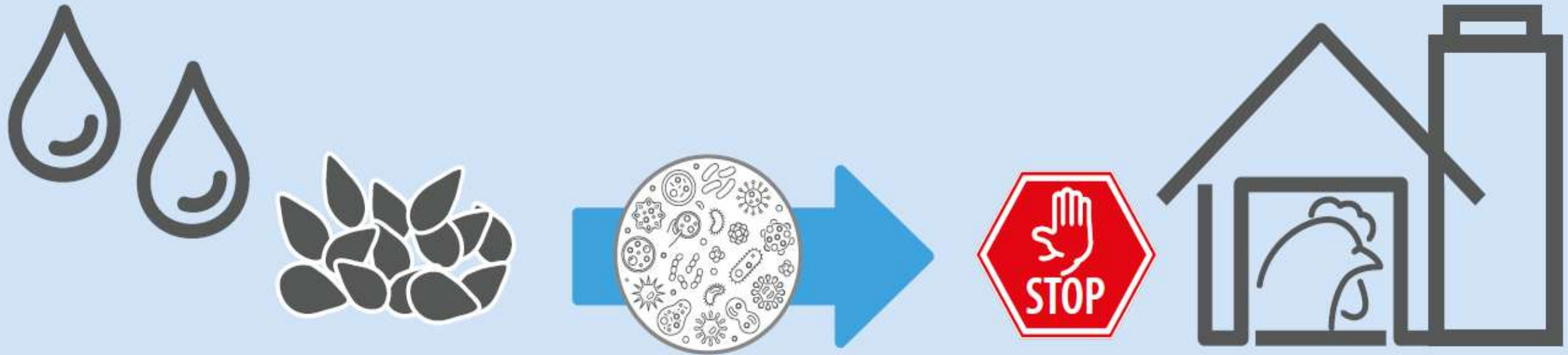
Pest control program

Evidence of red mite-mediated avian typhosis transmission



Source:
Cocciolo 2020

Feed & Water program



Avoid the introduction of diseases through feed and water



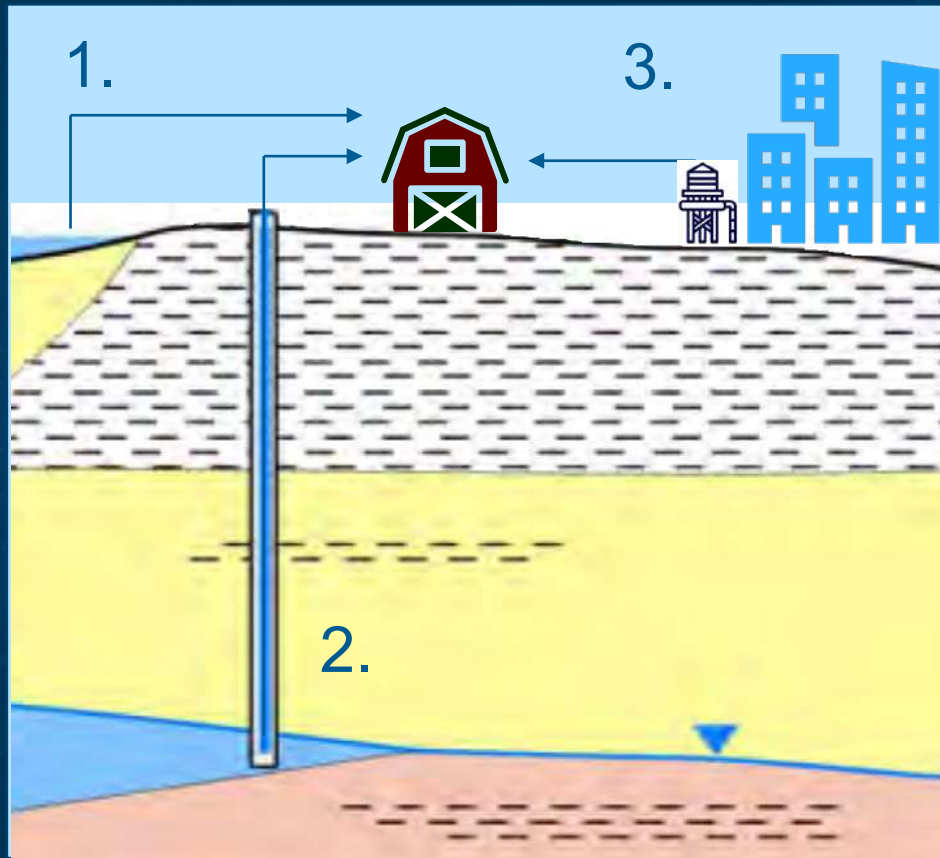
Feed



Water

Feed & Water program

Water source really matters



1. **Surface waters**

Microbiological quality

2. **Well**

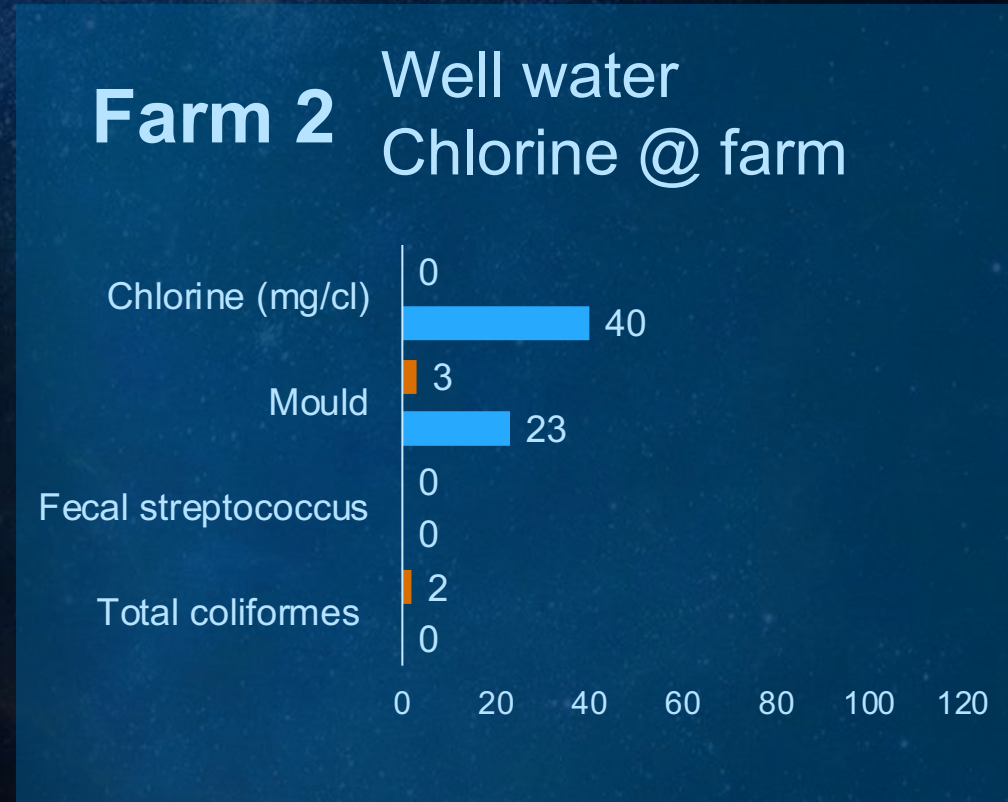
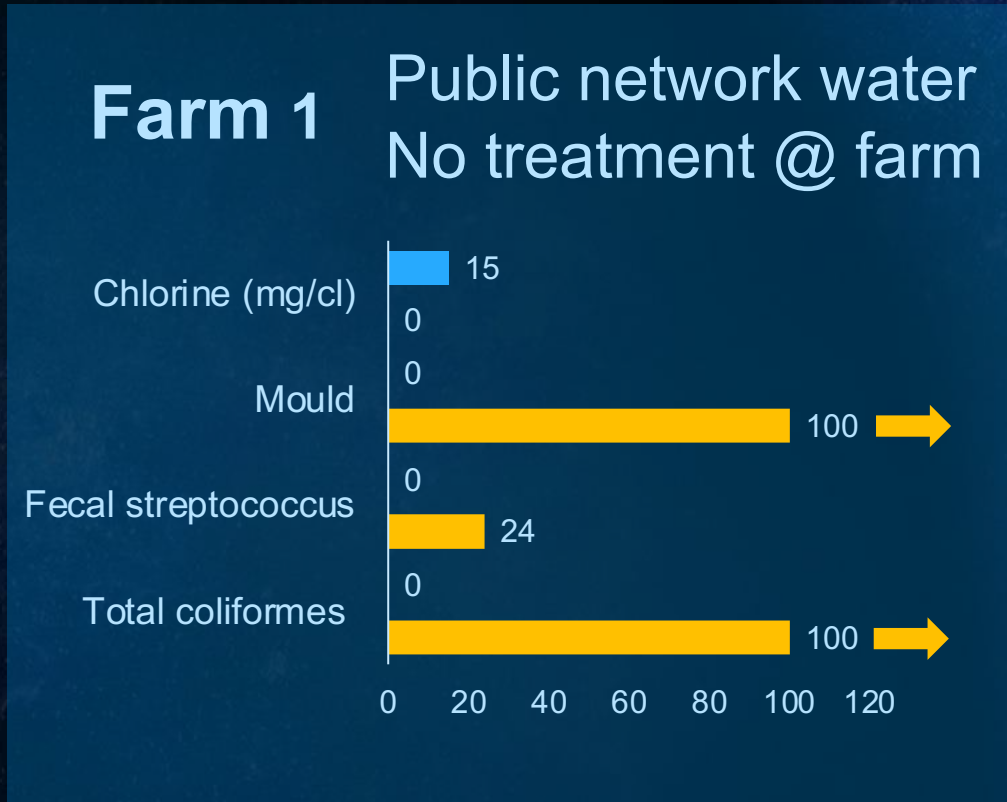
Chemical Quality

3. **Public water network**

Pre-treatment

Feed & Water program

Water sanitation is a must in any case



■ Collection point
 ■ End of the pipeline

Feed & Water program

Feed hygiene is also a must

Raw materials storage

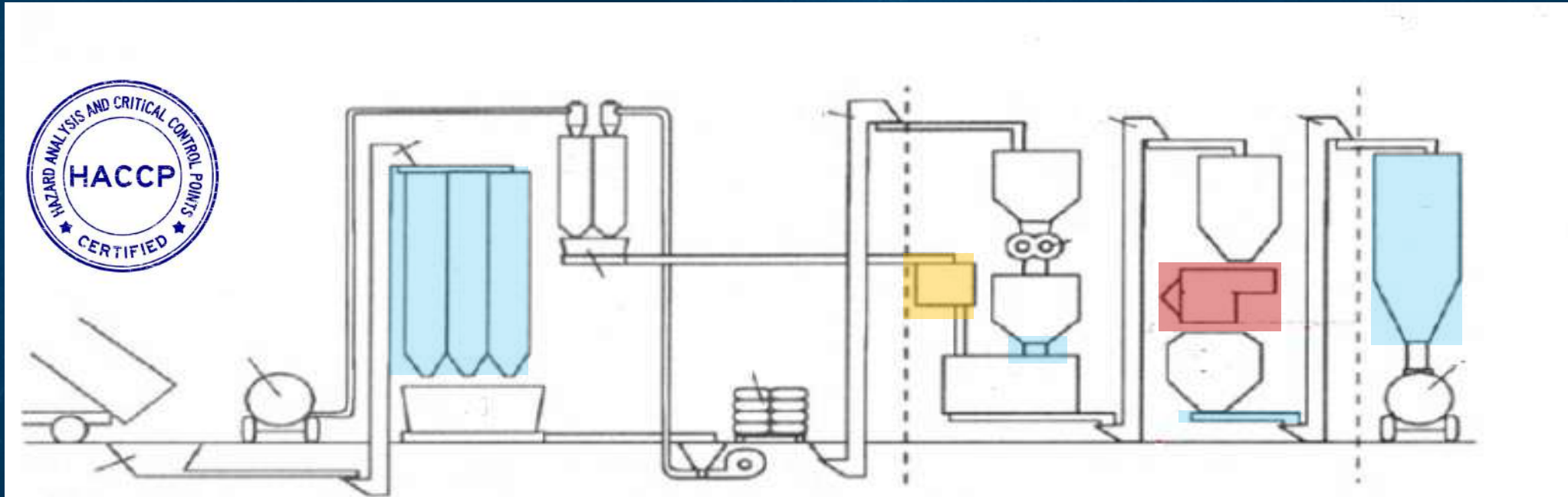
Production

Final feed

1 .Sampling: Raw material(2/4)

Hot spot (1/4)

Feed (1/4)



2. Treatment:

Additives

Temperature

Replacement pullets program



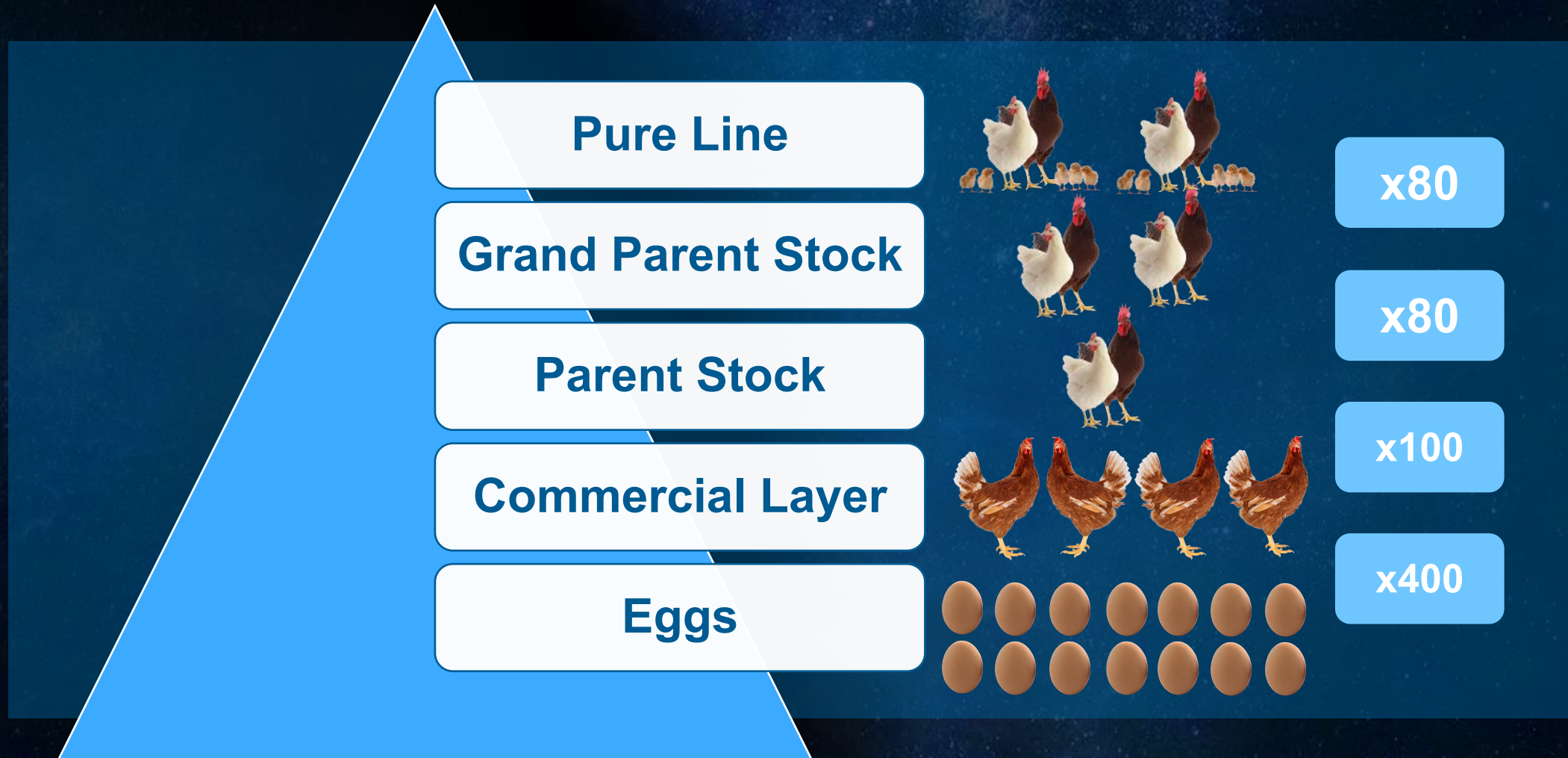
Avoiding the introduction of diseases through replacement pullets



Replacement pullets

Replacement pullets program

A highly verticalized industry ...



Replacement pullets program

...Thus, very vulnerable to vertically transmitted diseases

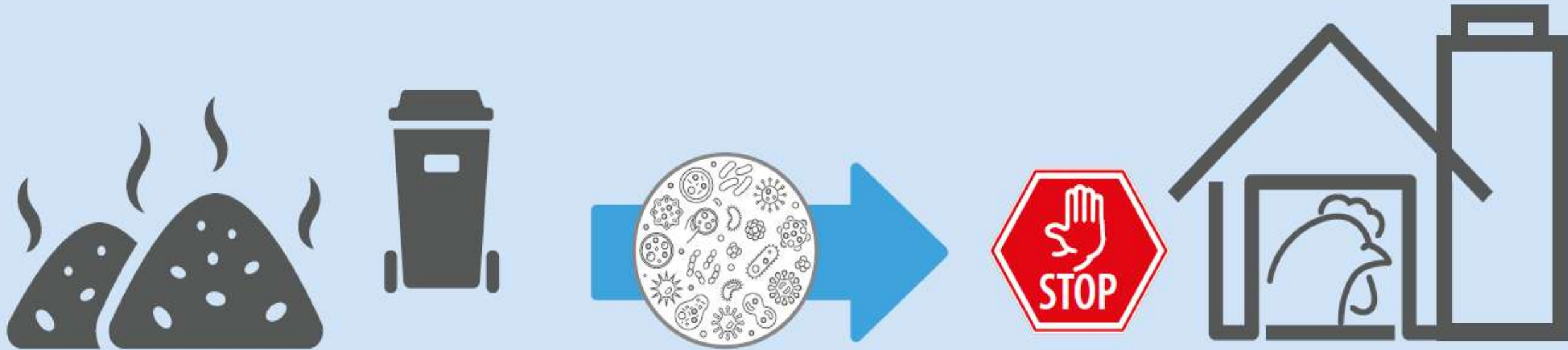


- Mycoplasma gallisepticum
- Mycoplasma sinoviae
- Salmonella spp.
- REV
- ALV
- IBH
- EDS
- REO
- ...



Get day old chicks
only from reliable &
trustworthy suppliers

Waste disposal program



Avoid the introduction of diseases during the processes of elimination of waste



Dead birds



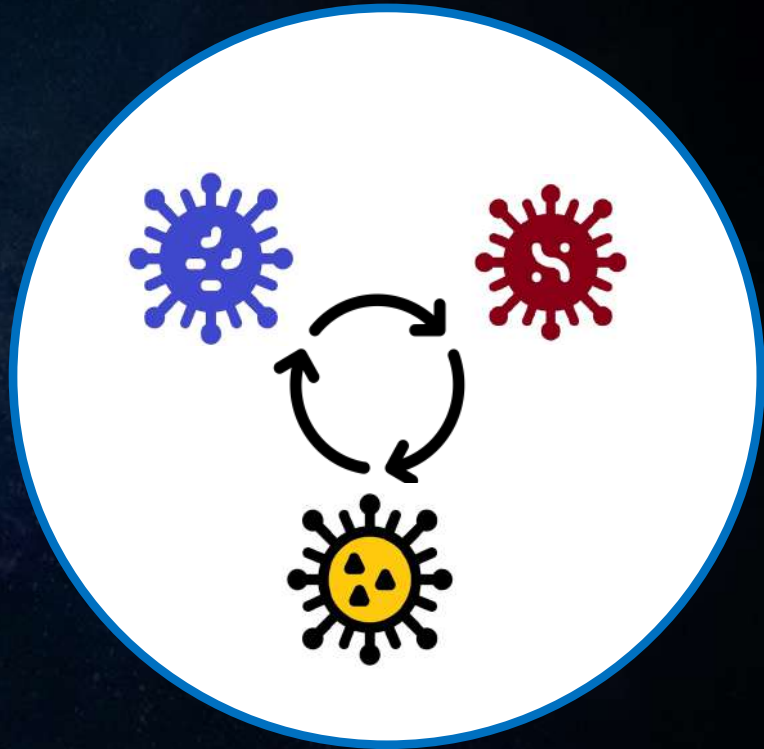
Manure



Depleted flock

Waste disposal program

What do Newcastle disease, Avian influenza, Laryngotracheitis have in common?



1. They kill a lot and they kill fast
2. Manure and dead birds play a key role in its spreading

Waste disposal program

Dead birds are not a sub product
They are a biological risk

Remove all dead birds
from the house daily



Store them in a
correct container



Destroy them totally
as soon as possible



Waste disposal program

Manure is a sub product
but it is still a biological risk



Remove it from the house as soon as possible



Treat the manure before spreading it on the fields.



Do not spread poultry manure around other poultry houses

Waste disposal program

How many farms does a catching crew visit in a day before yours?



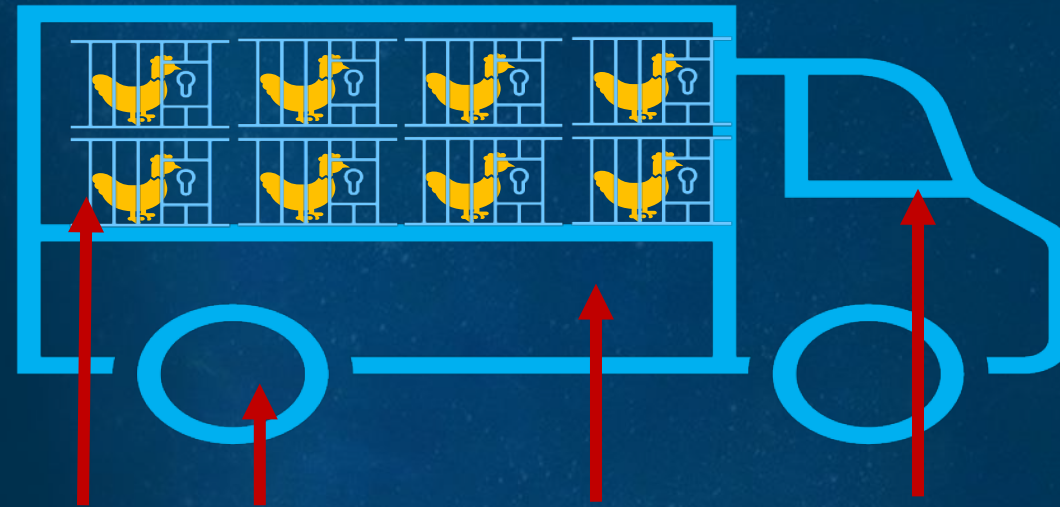
- A) None
- B) 1
- C) 2
- D) 3
- E) 4
- F) I have no idea ...

Hint: F is the worst possible answer

Waste disposal program

Detection of Avian Influenza in trucks used for duck farms depopulation during the 2021 HPAI outbreak in France

Detection of the AIV genome was carried out by r-RT-PCR for type A influenza virus



	Crates	Wheel	Outside	Cabin
Before C&D protocole	75% n=79	38% n=8	87% n=8	62% n=8
After C&D protocole	29% n=80	12% n=8	22% n=8	38% n=8

Source`:
Huneau-Salaun
2022

Clean & Disinfection procedures



Avoid the transmission of diseases from one flock of birds to the next



Cleaning



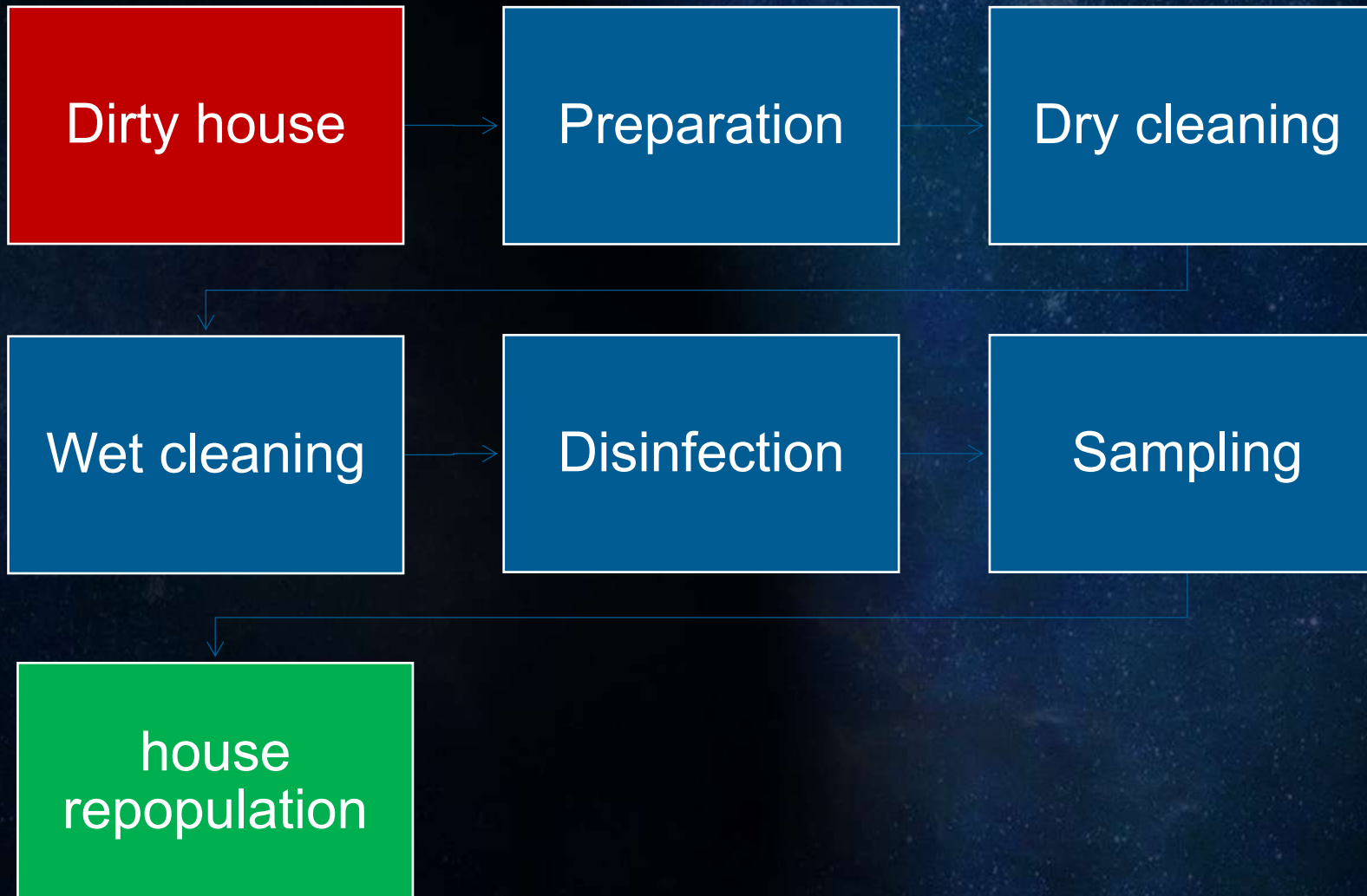
Disinfection



Sampling

Cleaning & Disinfection procedures

Cleaning & Disinfection procedures



Clean & Disinfection procedures

Disinfection is not magic. It is science.



Chemical substance



Organic material

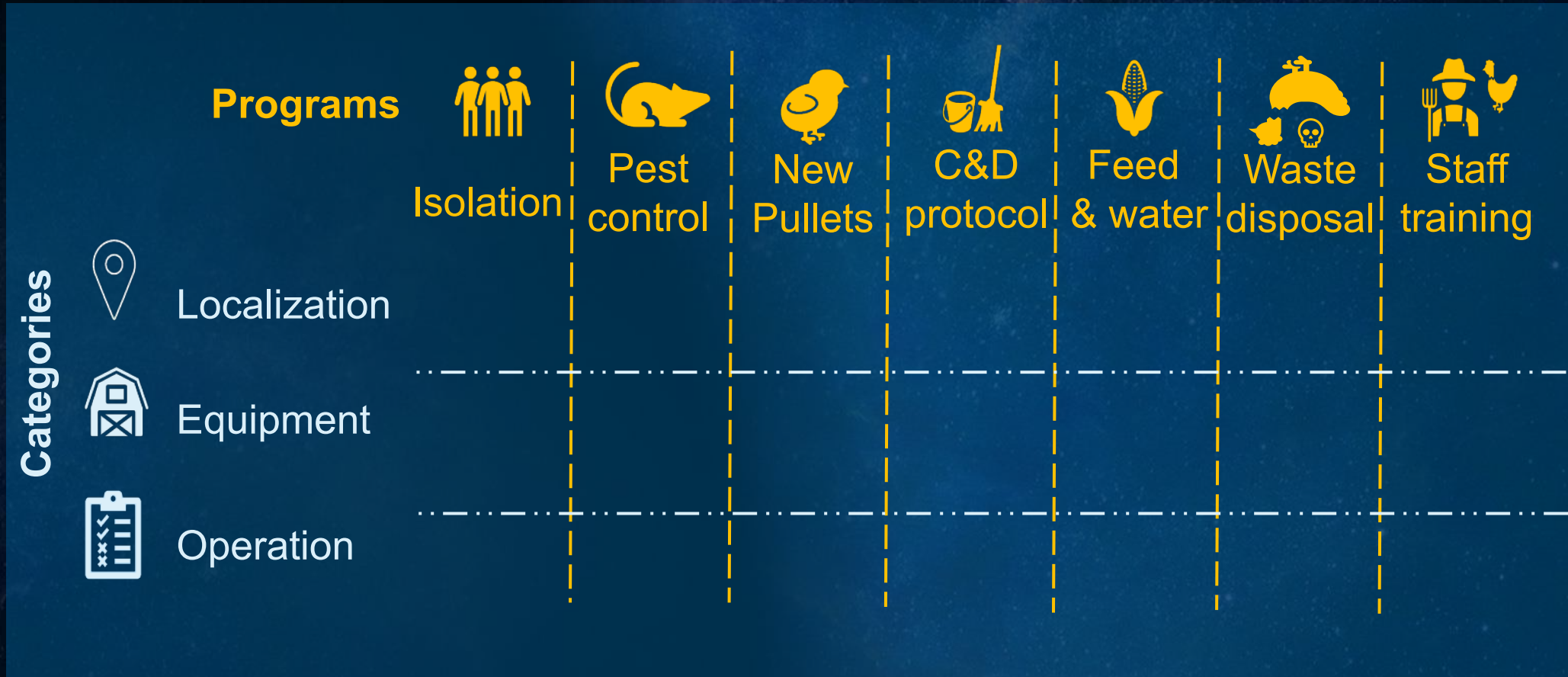


Contact time



Temperature

H&N biosecurity concept



Conclusions



A

Biosecurity needs the **involvement of the whole company** (from the CEO to the farmers).



B

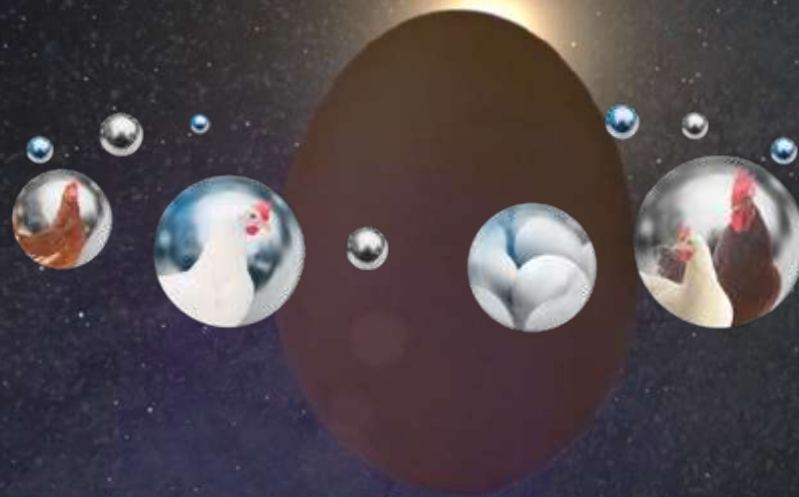
Biosecurity requires a wide range of areas of **knowledge**, but above all it requires **common sense**.



C

Biosecurity **works much better** if we convince our neighbors to work **together** according to its principles as well.





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