

# Biosecurity in practice

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# Biosecurity

The combination of all measures taken to reduce the risk of **introduction** and **spread** of infectious diseases at farm level, throughout the region, country or even worldwide.



Prevention of  
new diseases  
[outside -> inside]



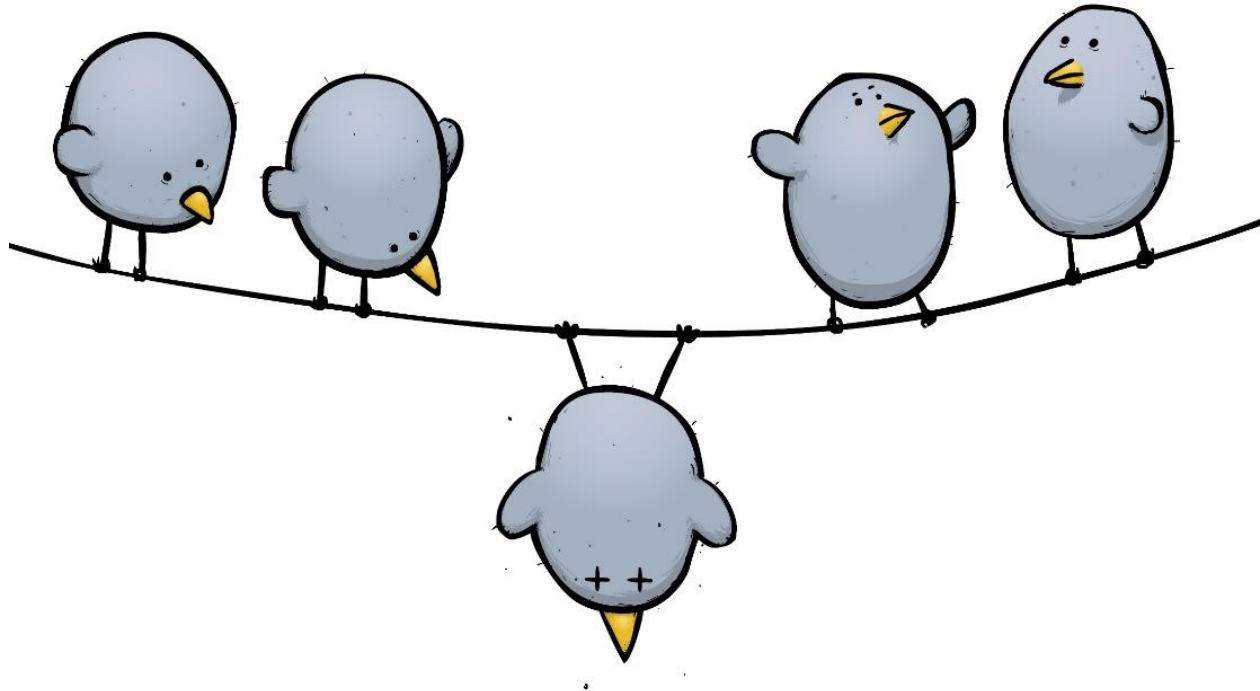
Control of  
existing diseases  
[inside -> inside]

# Biosecurity

Biosecurity is (**should be**) the basis of any disease control program



# Biosecurity



Better biosecurity = less disease

Better production results

Better animal welfare

Less antimicrobials

Public health and public opinion

Legislation

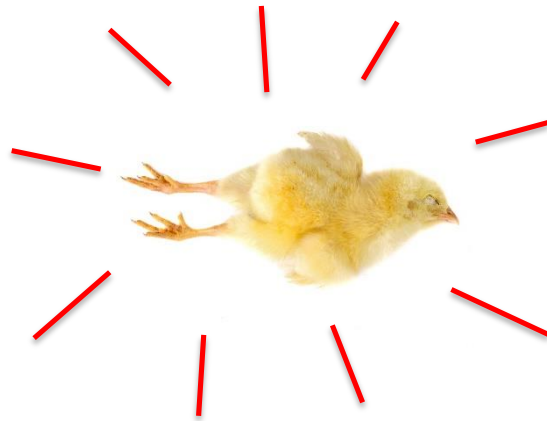
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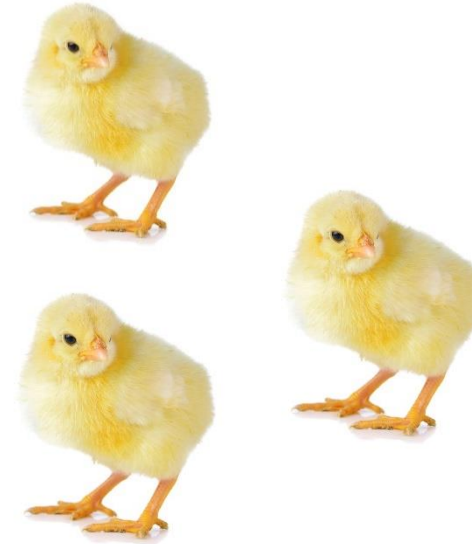
# General principles of biosecurity

# Separation of high and low risk animals



High risk – Infectious animals

DIRECT CONTACT



Low risk – Susceptible animals

# Separation of high and low risk animals





# Separation of high and low risk animals

## INDIRECT CONTACT



High risk – Infectious animals

Low risk – Susceptible animals

# Separation of high and low risk environments

'CLEAN ROAD'



'DIRTY ROAD'

Internal movements on the farm

*between different animal houses*  
*all-in/all-out*  
*working lines*  
*Sick bay*

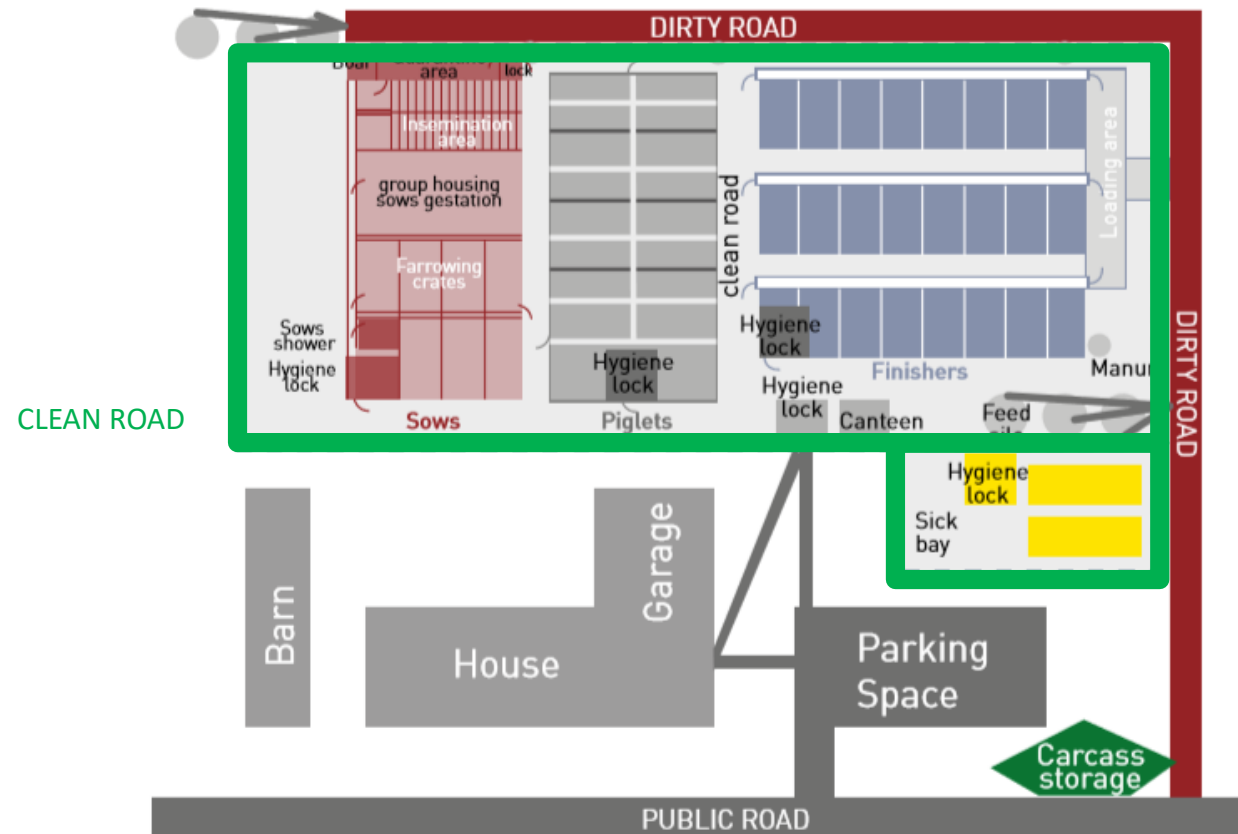
relatively easily accessible to visitors,  
suppliers and consumers

*cadaver collecting*  
*manure removal*  
*external transportation of animals*  
*feed delivery*

MEASURES

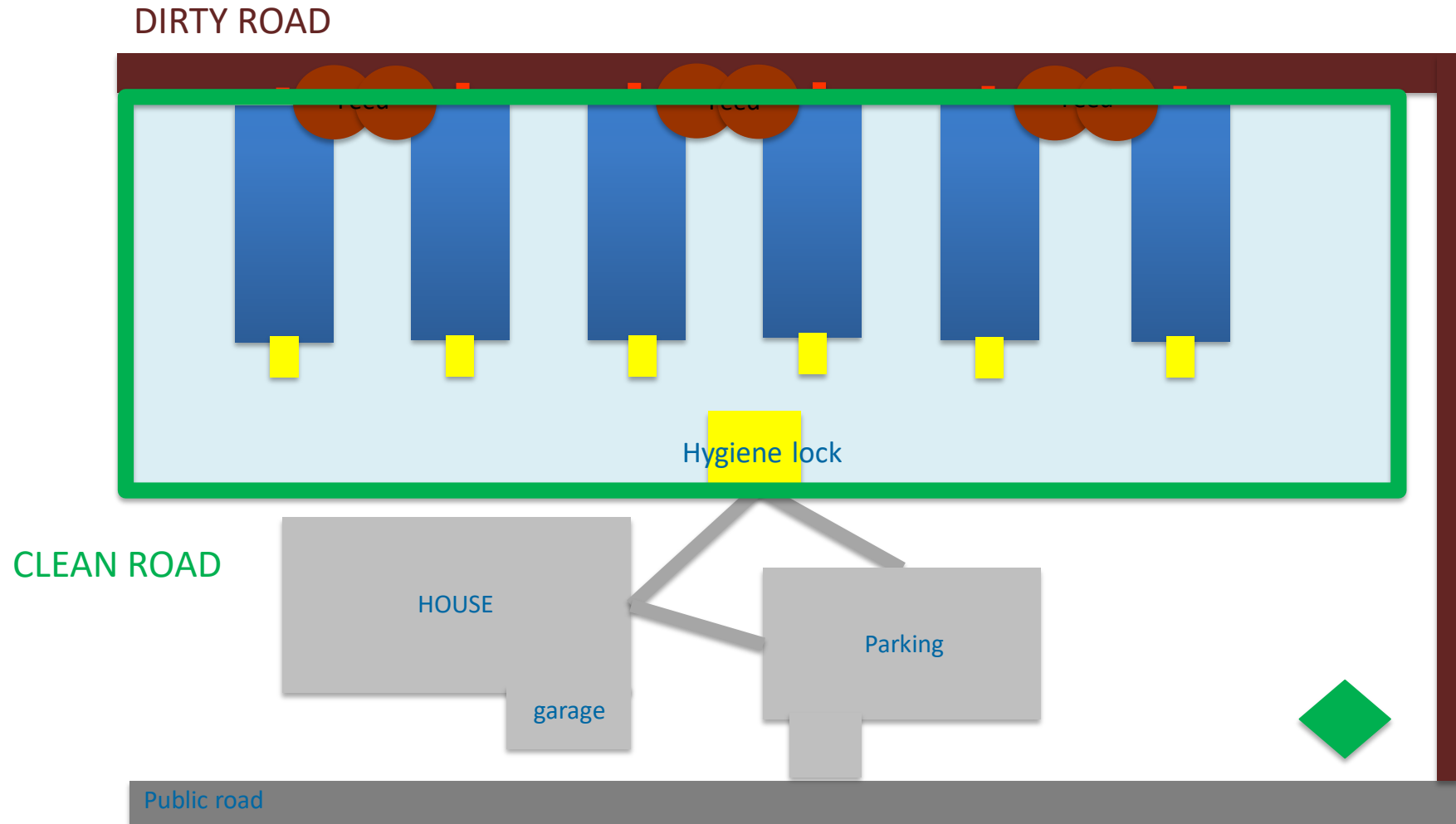
TRY TO BE CONSISTENT

# Separation of high and low risk environments



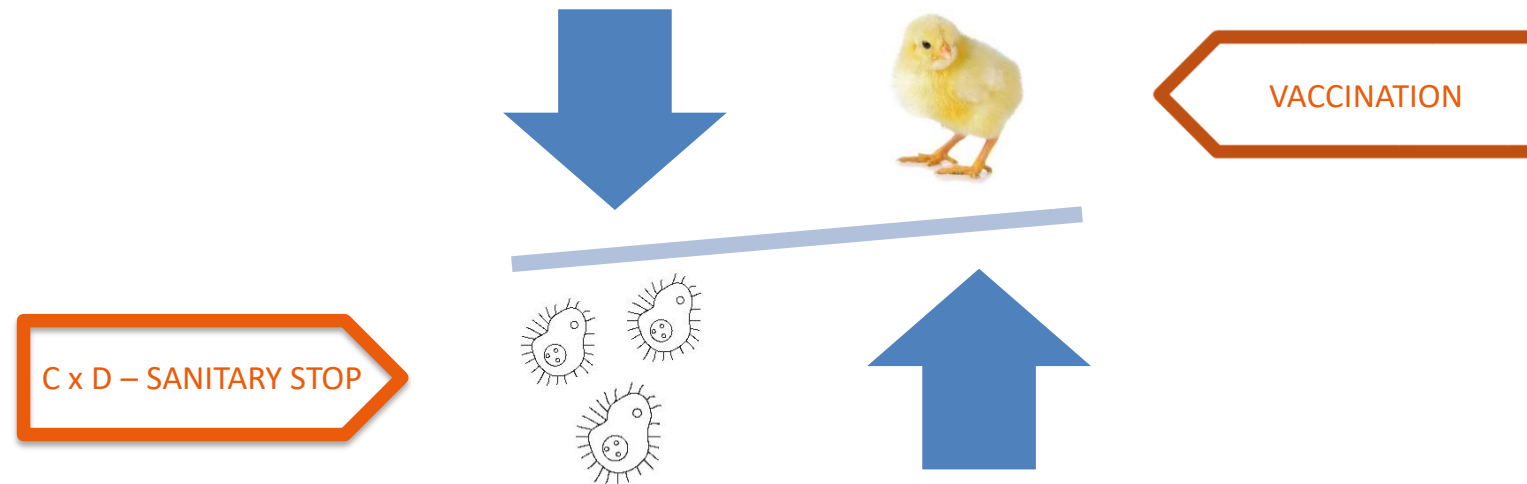


# Separation of high and low risk environments

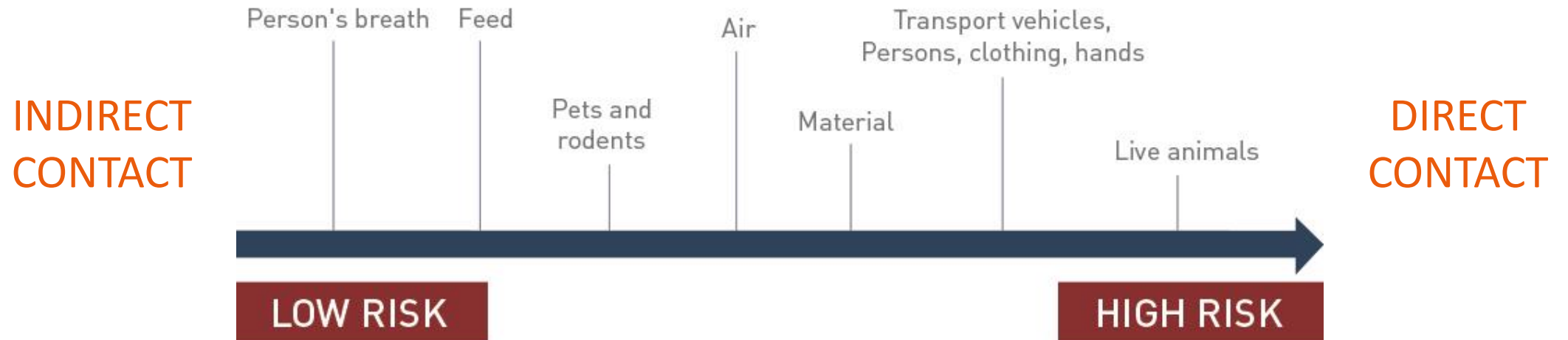


# Reduce the general infection pressure

GOAL = **infection pressure below level** which allows the **natural immunity** of the birds to conquer the threatening infections



# Not all transmission routes are equal importance





# Risk of disease transmission = probability + frequency of occurrence

If a certain transmission route has  
a **low probability of occurrence**  
but the handling is **repeated very frequently**

**the risk of transmission will be very substantial!**

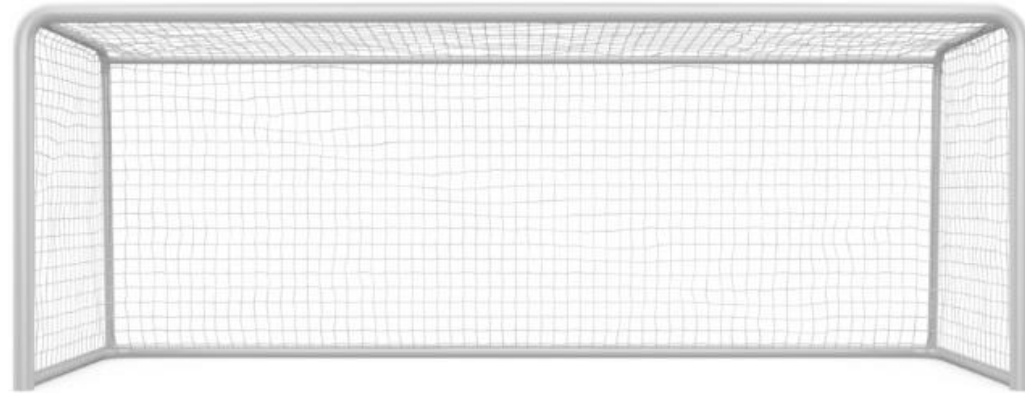
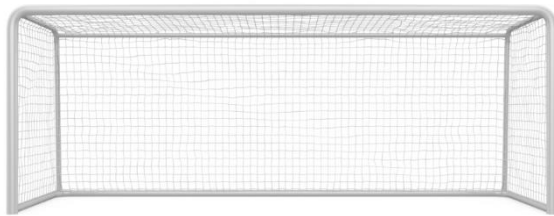
# Risk of disease transmission = probability + frequency of occurrence



If the rat enters very **frequently** because it has its nest in the walls of a animal house, this transmission route can be very important!!!!

= **indirect contact** (< direct contact)

# Larger animal groups pose higher risks





# Larger animal groups pose higher risks

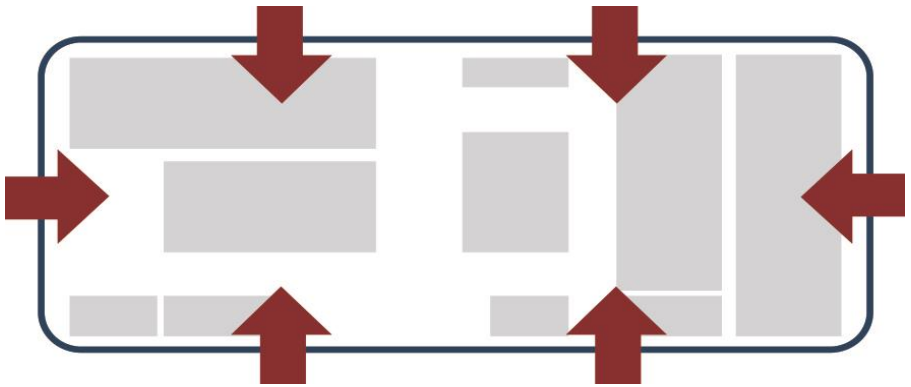
more animals that may be infected  
infection pressure ↑

more contacts with the outside world

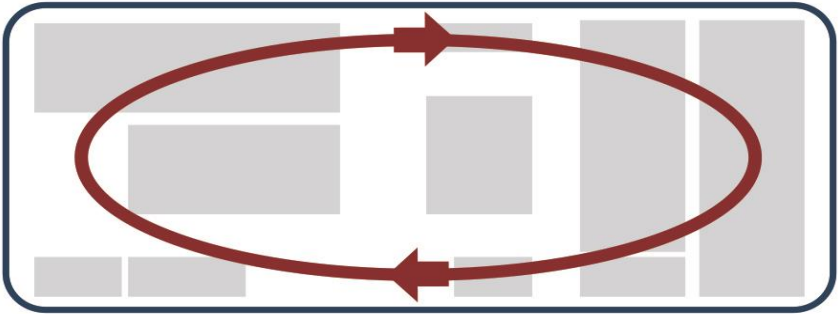
consequences of disease can be more severe



# Biosecurity

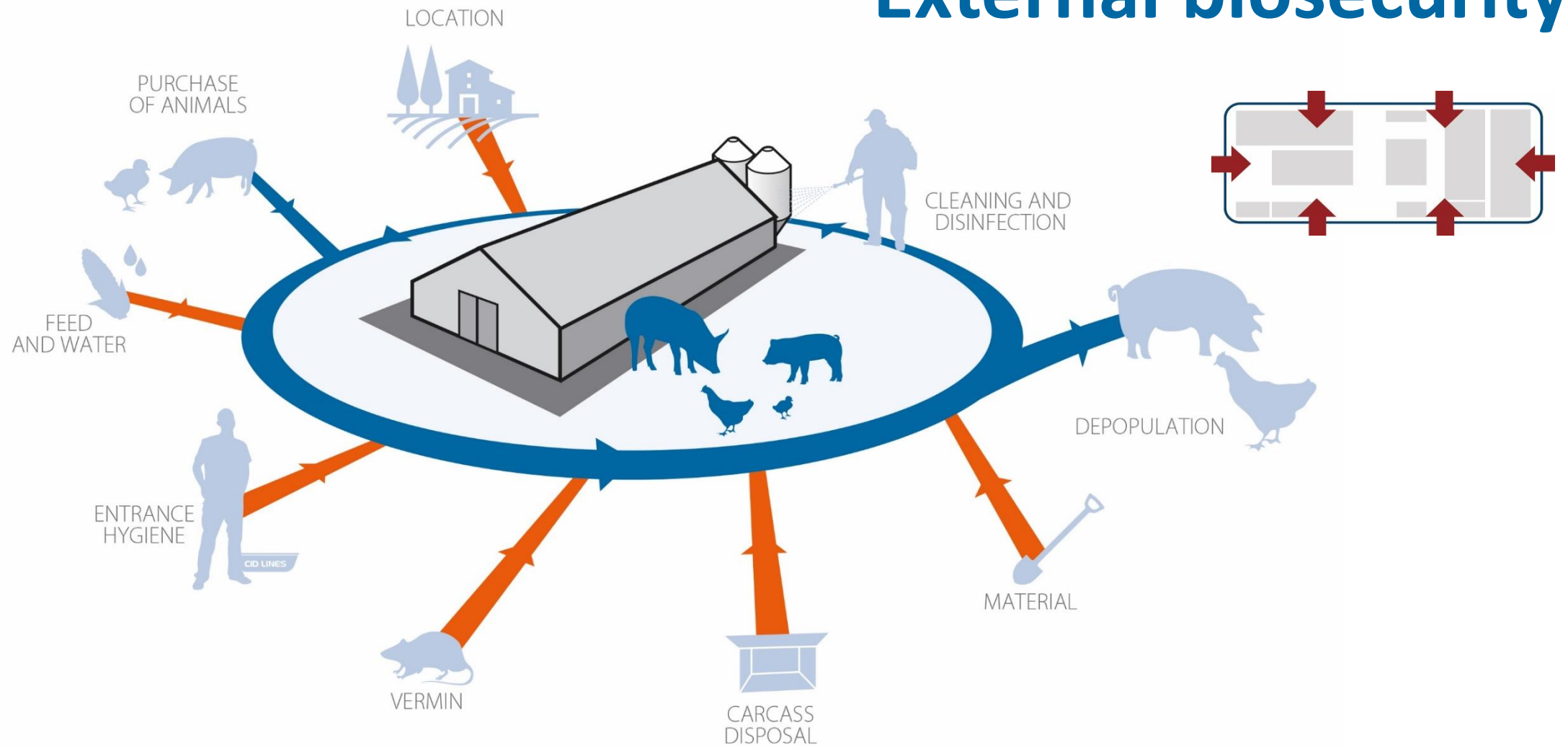


EXTERNAL BIOSECURITY

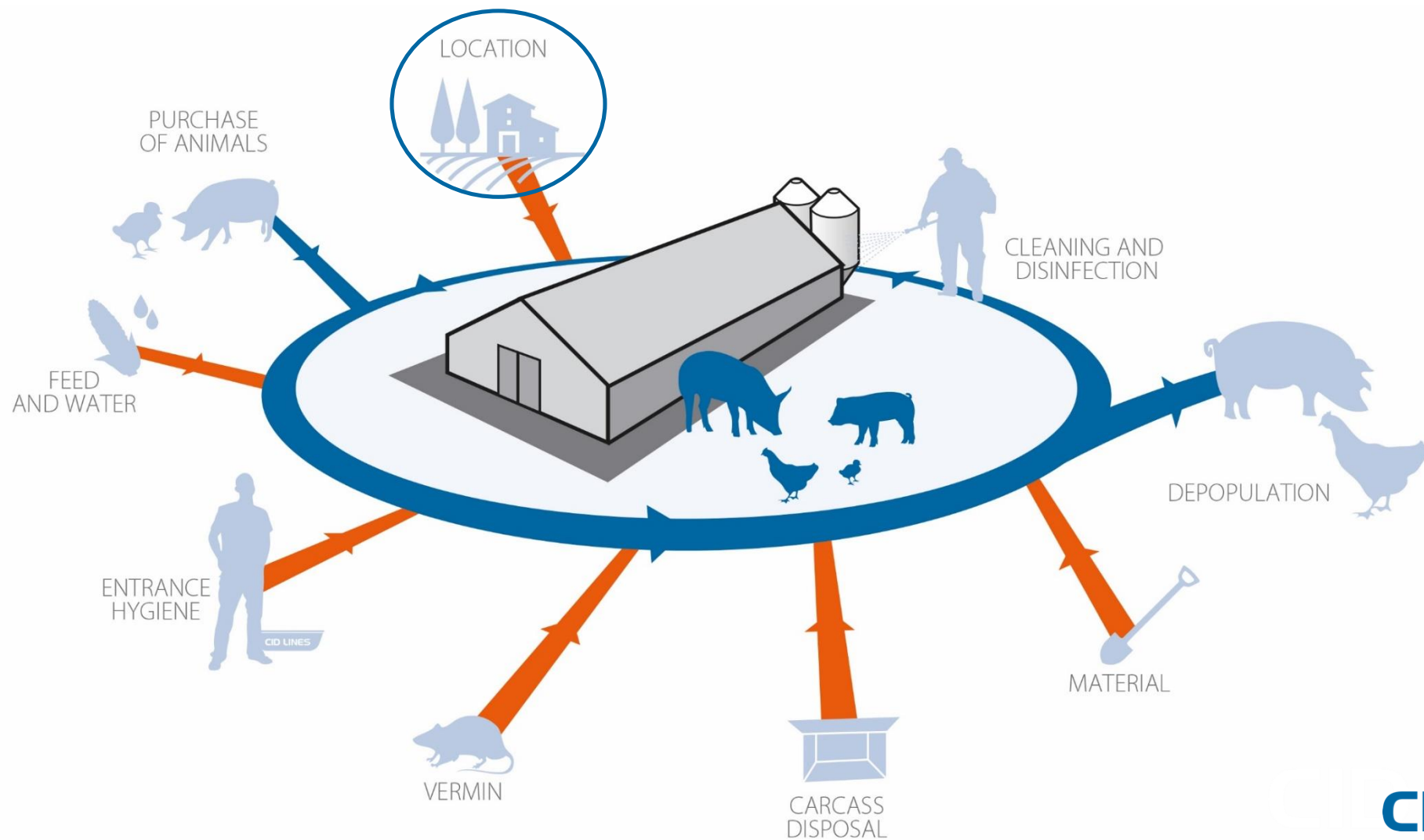


INTERNAL BIOSECURITY

# External biosecurity



# Location of the farm





# Location of the farm

**no stunning or stagnant water** in the environment of the farm

**no manure from other poultry or pig farms** spread on the neighboring farmlands

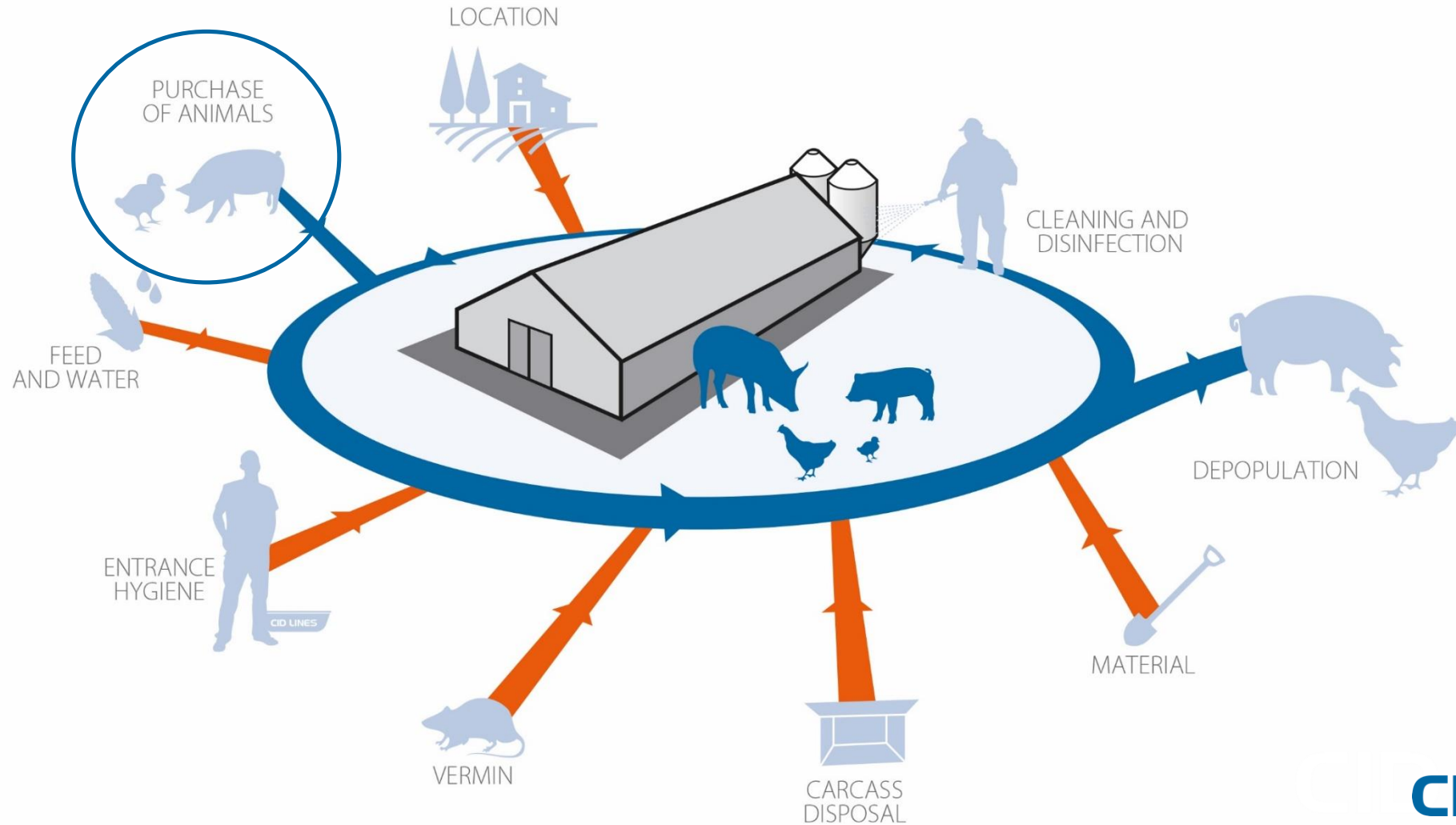


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# Purchase of animal and semen





Any introduction of new animals involves the **risk of unintended introduction of pathogens** against which no farm immunity exists



# Purchase of one day old chicks

ODC come from **same supplier**

**first delivered** on your farm

truck has to be **cleaned and disinfected** before loading the chicks at the hatchery

**as few deliveries** as possible





# Purchase of piglets, sows, gilts and boars

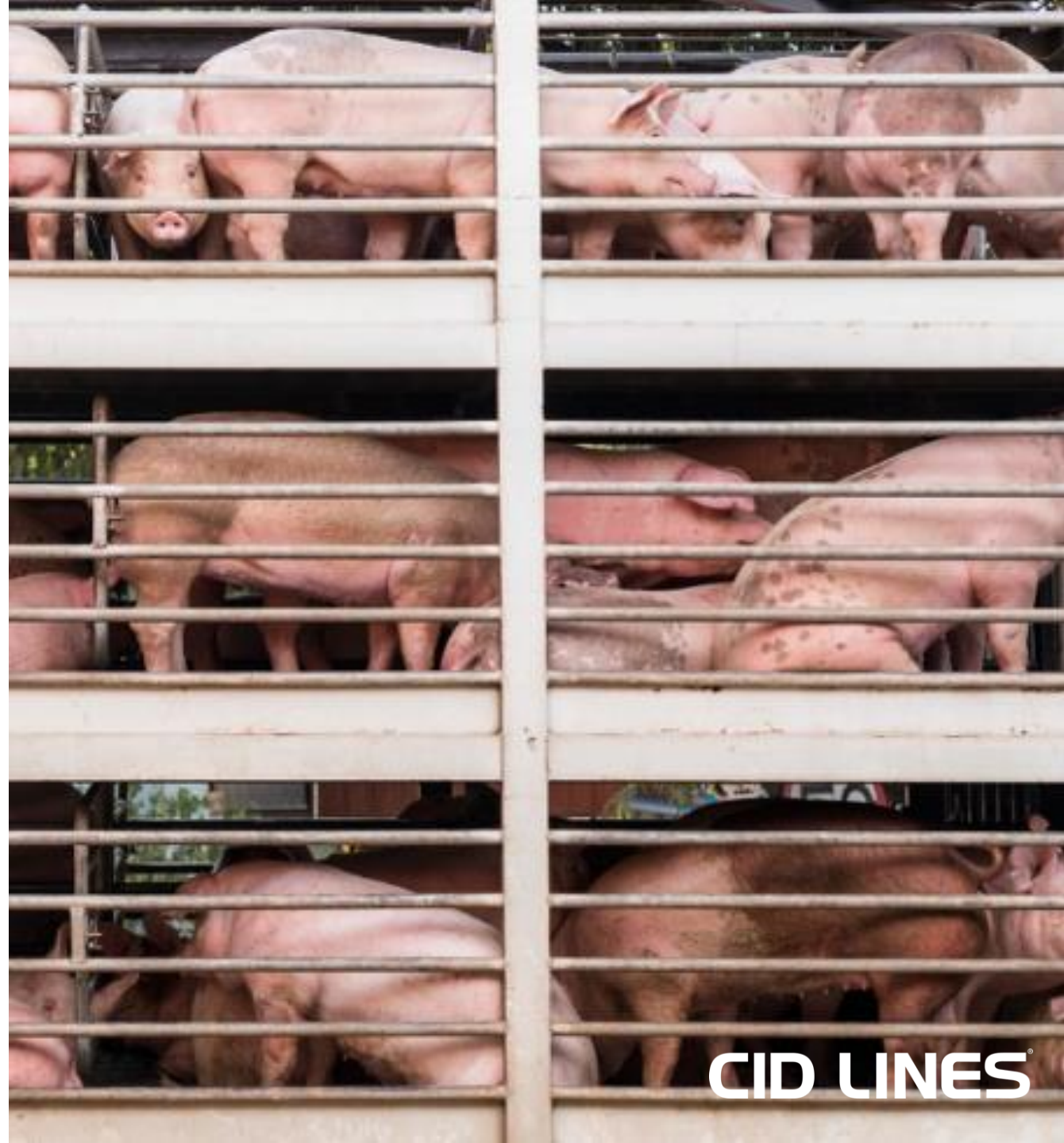
pigs come from **same supplier**

attention for **health status** of the supplier

**as few deliveries** as possible

**first delivered** on your farm

truck has to be **cleaned and disinfected** before loading the pigs





# Purchase of breeding pigs



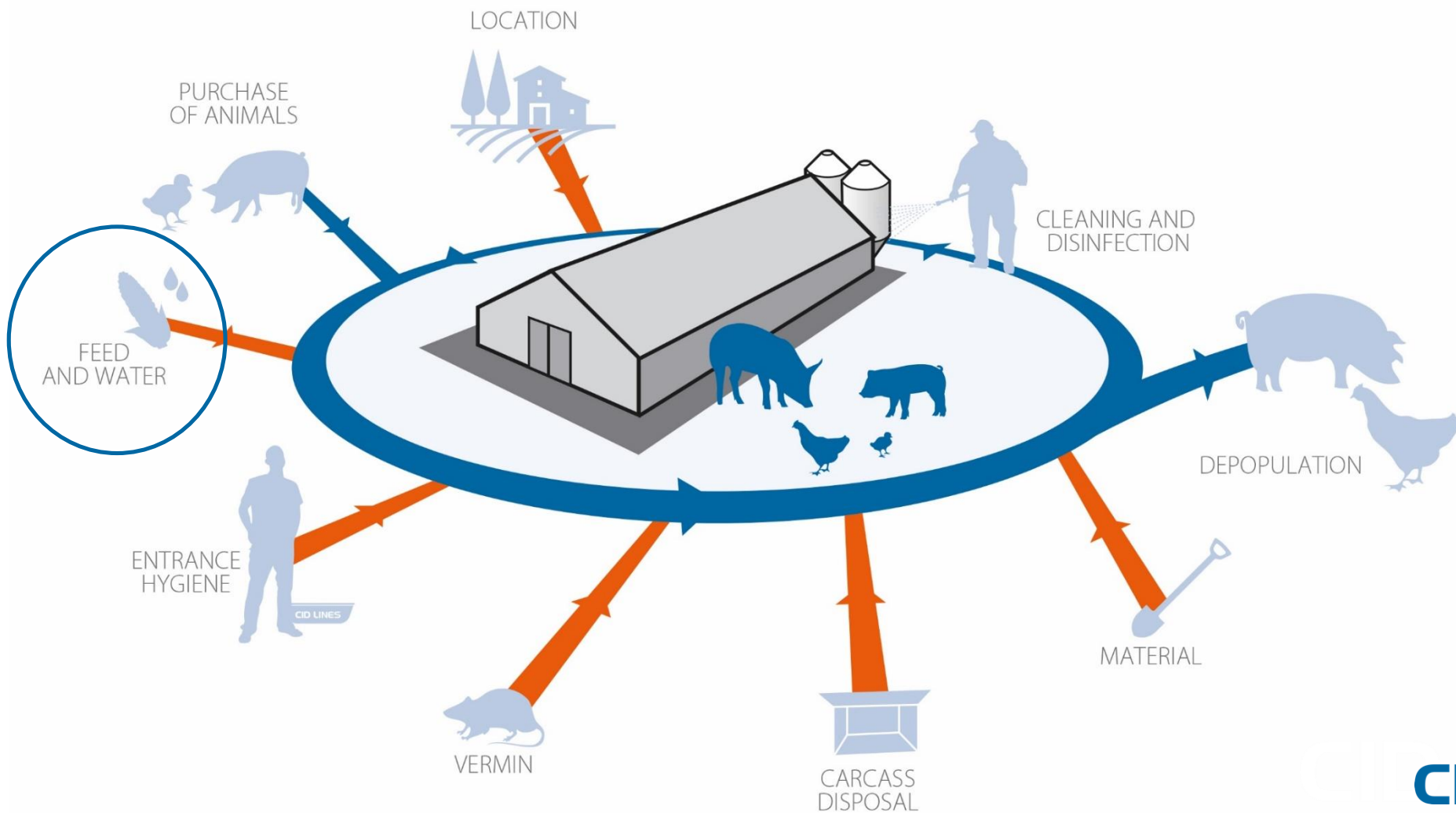
# Purchase of semen

for biosecurity reason **better not**,  
but not always possible

origin from a farm/boar station with  
a known **higher or equal health  
status**



# Feed and water supply



# Feed supply

feed delivery along the **'dirty road'**

**no access for the feed supplier** to the animal houses

feed **silos well sealed** against water birds and vermin

**as few deliveries** as possible







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# Water supply

## DRINKING WATER HYGIENE



**Cleaning at** sanitary stop    **Treatment during** production cycle



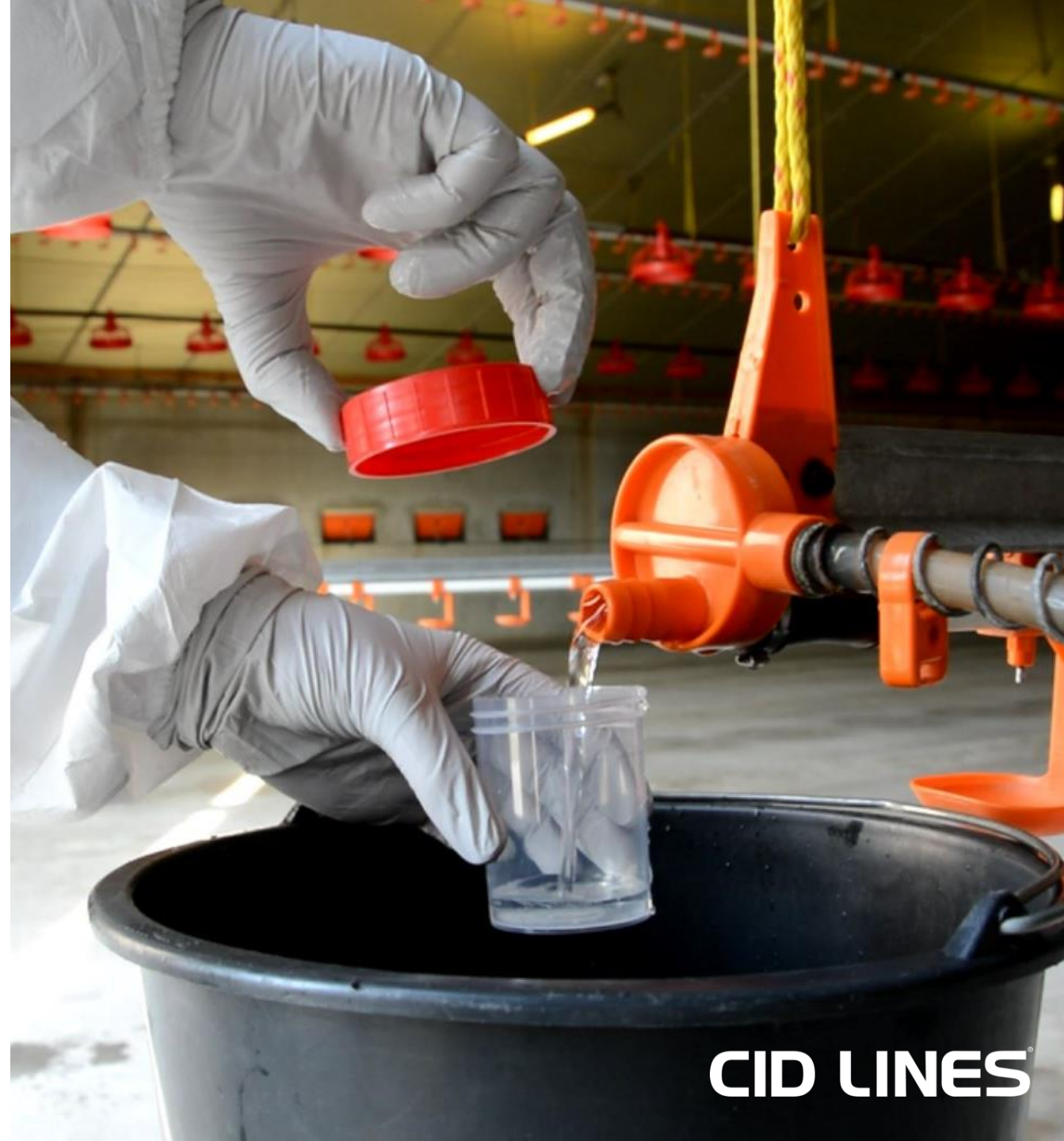


# Water supply

regular **quality and safety checks**  
of the drinking water

Source

Last nipple or last drinking cup





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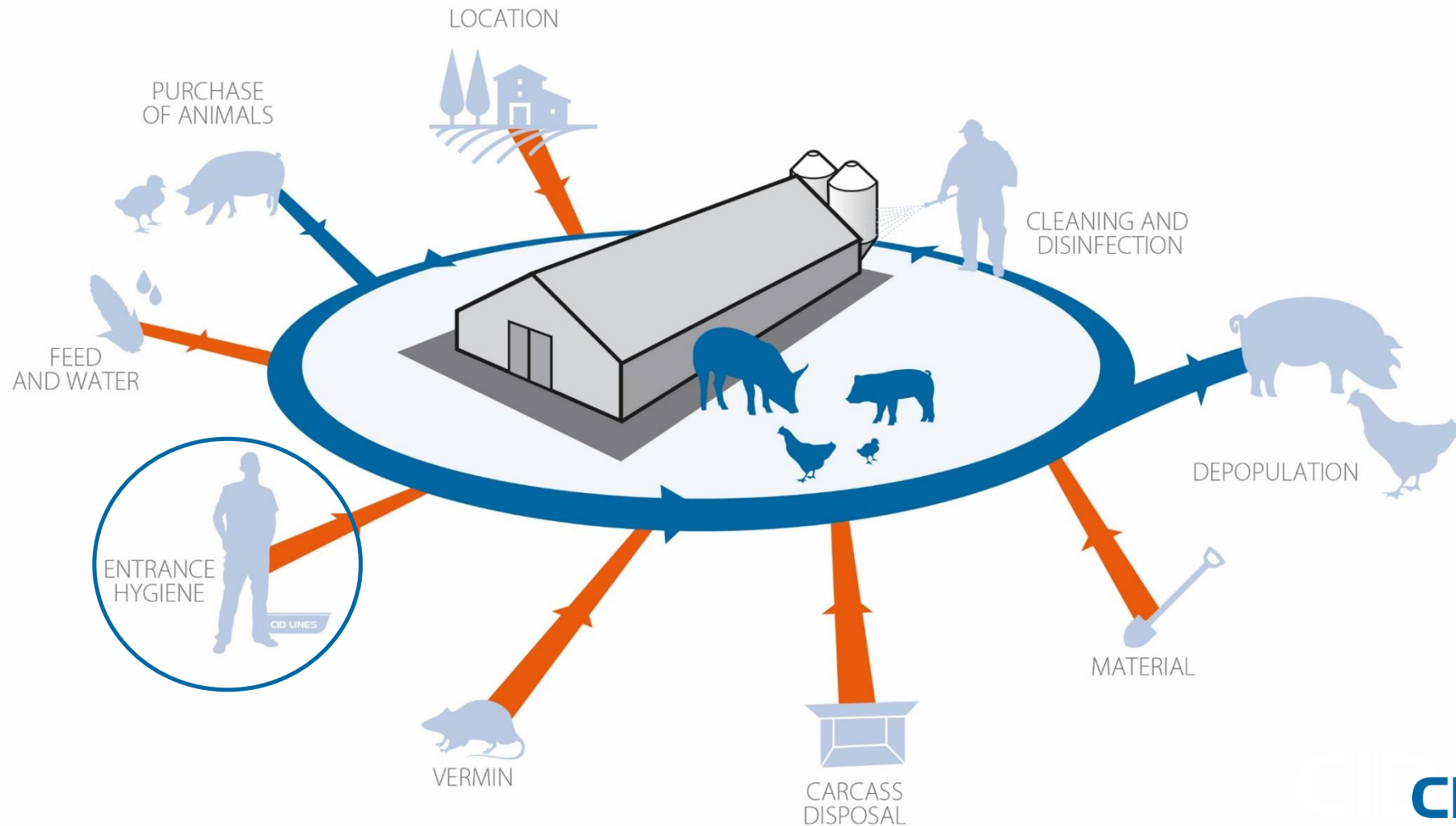


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# Entrance of persons and visitors



# Entrance of persons and visitors

keep the **number of people** with access to farm and animal facilities to a **minimum**

**check-in** for visitors

farm specific **clothing and shoes**





# Entrance of persons and visitors

hand hygiene

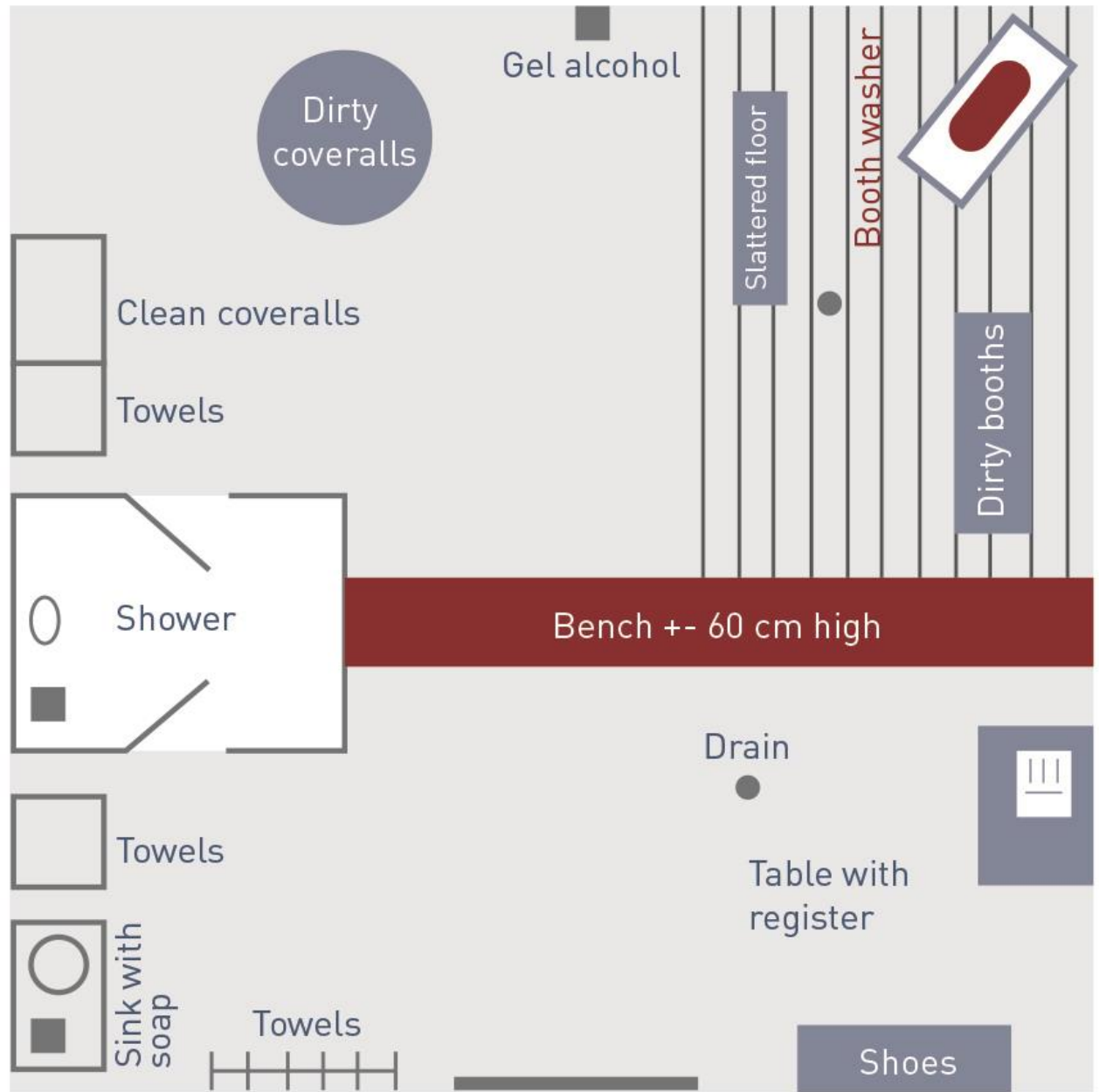
hygiene lock with footbath or booth washer

employees should **not work at other poultry or pig farms**

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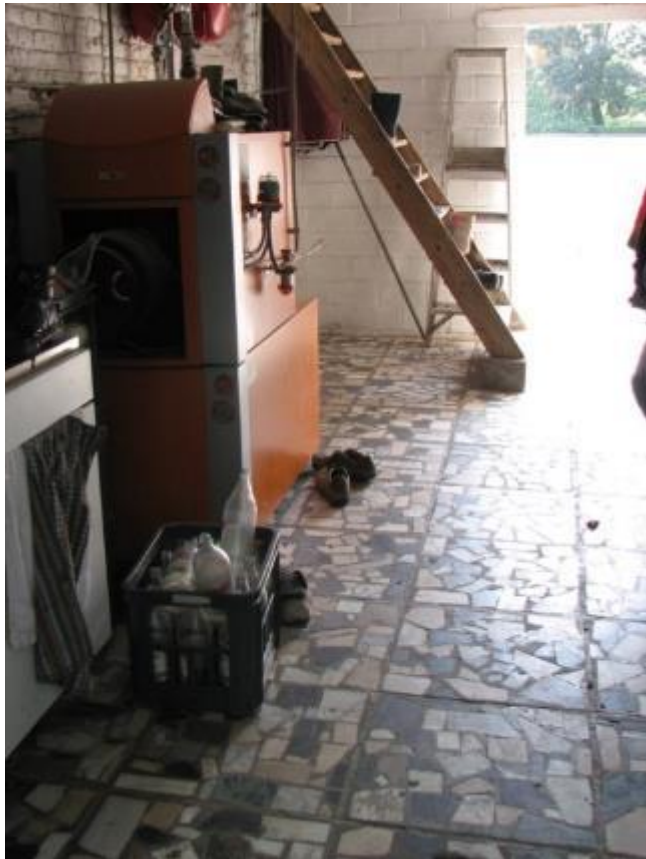
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**BOOT HYGIENE**

**STEP 1**



Dry cleaning (brush)  
Take away all rests of manure.

**STEP 2**



Rinse with water

**STEP 3**



Disinfect

**STEP 4**



Renew  
Renew the solution regularly: 2-3 times/week

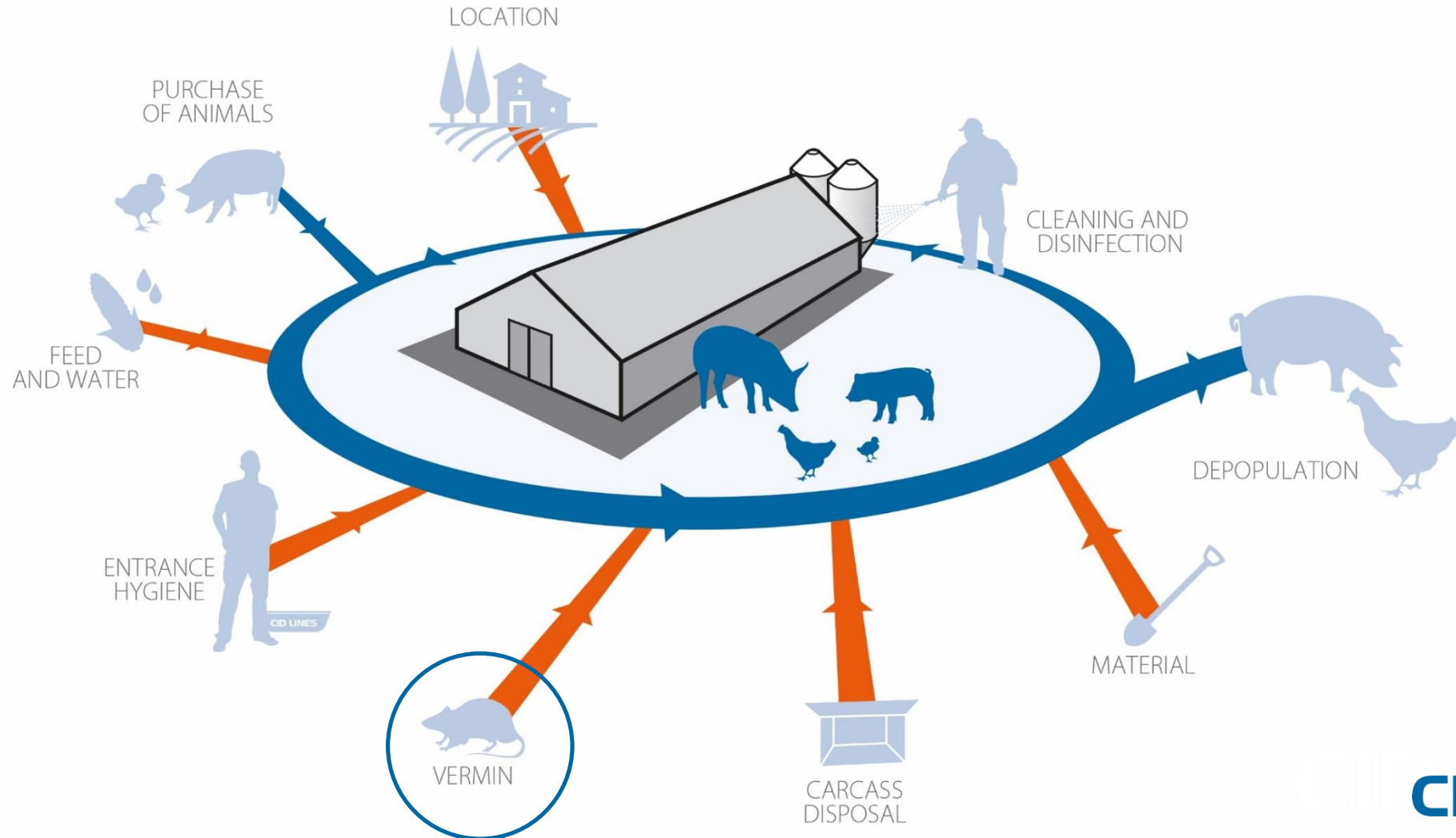








# Infrastructure and biological vectors



# Infrastructure

**no outdoor** access for the animals

**enclosed** farm

**no manure** stored **on farm**







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# Biological vectors

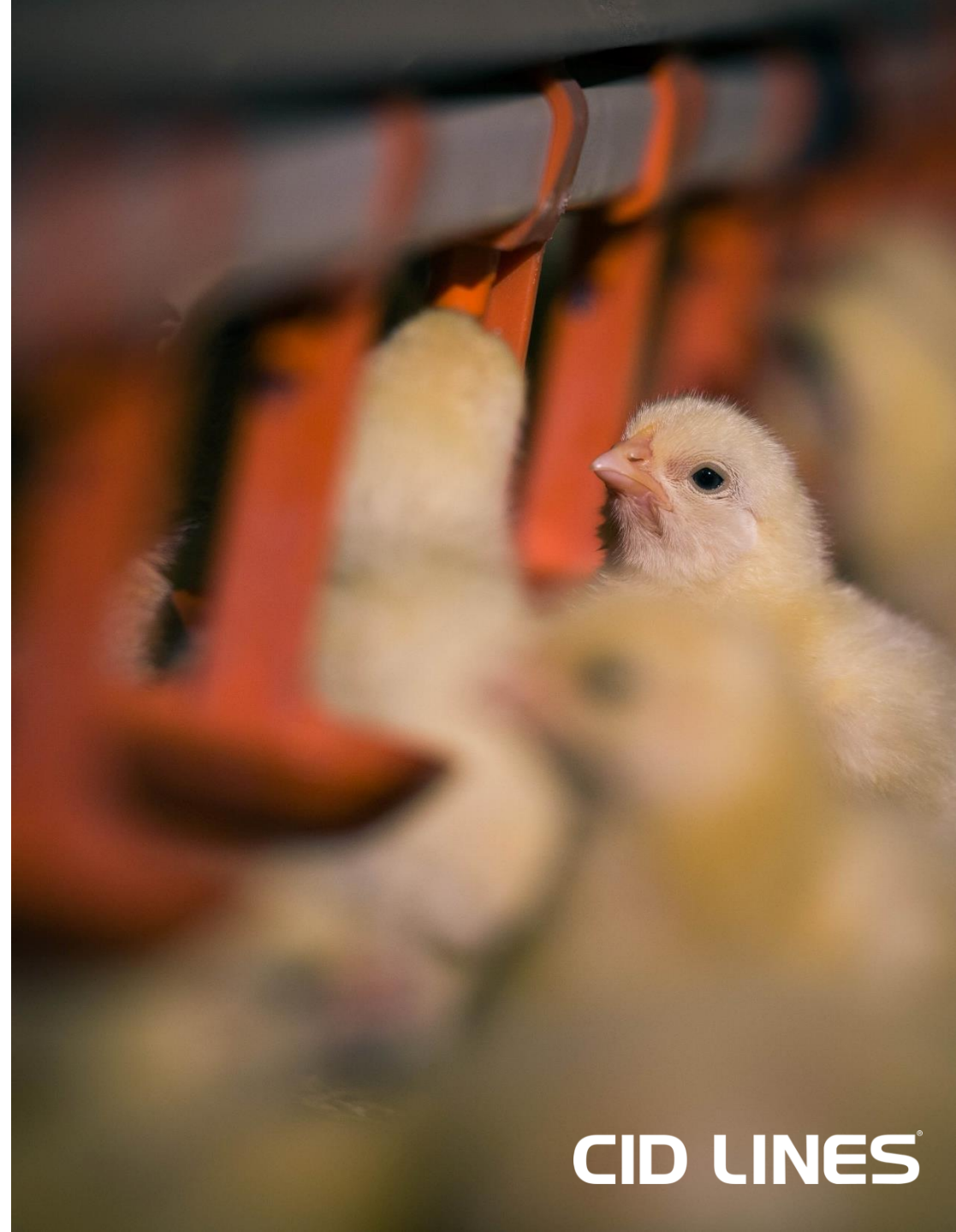
bird and vermin proof **grids at the air inlets**

outside of the farm (around the walls) **paved and clean**

strict **vermin control program**

**no pets** in the animal houses

**no 'backyard' poultry, no pet pigs**



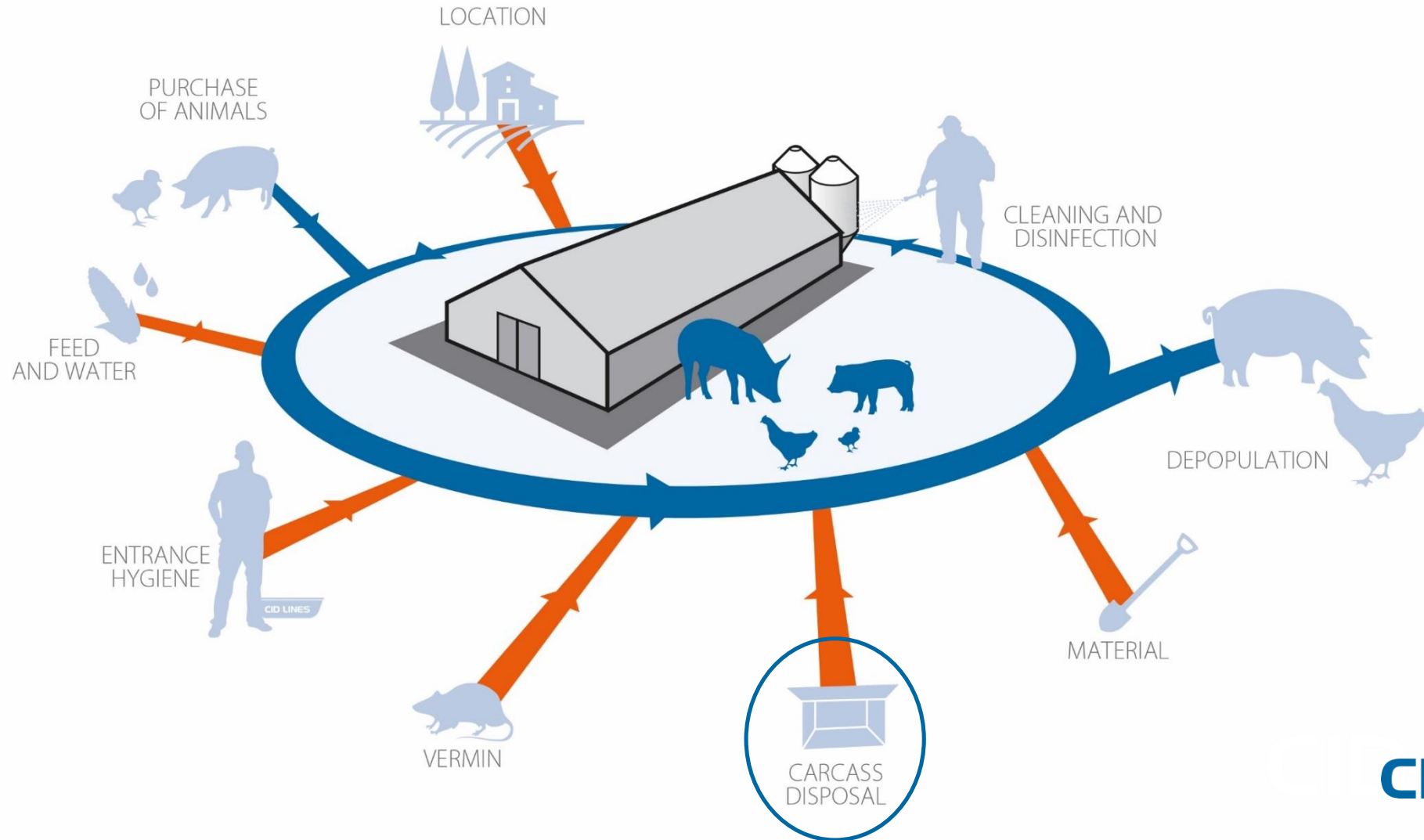








# Removal of manure and dead animals





# Removal of manure

manure removed along the  
'dirty road'

Farm specific hoses for removal  
of manure in pig farms





# CARCASS DISPOSAL

**DEAD ANIMALS = SOURCE OF INFECTION**

Remove the cadavers as **early as possible**

Remove them along **the dirty road**

Wear **gloves** while manipulating





# CARCASS DISPOSAL

## CADAVER STORAGE

**physically separated** from the animal facilities

**well closed against vermin and pets**  
**cooled** facility

**regularly cleaned and disinfected**











STEP 1



Dry cleaning

STEP 2



Foaming

STEP 3



Rinse with water

STEP 4



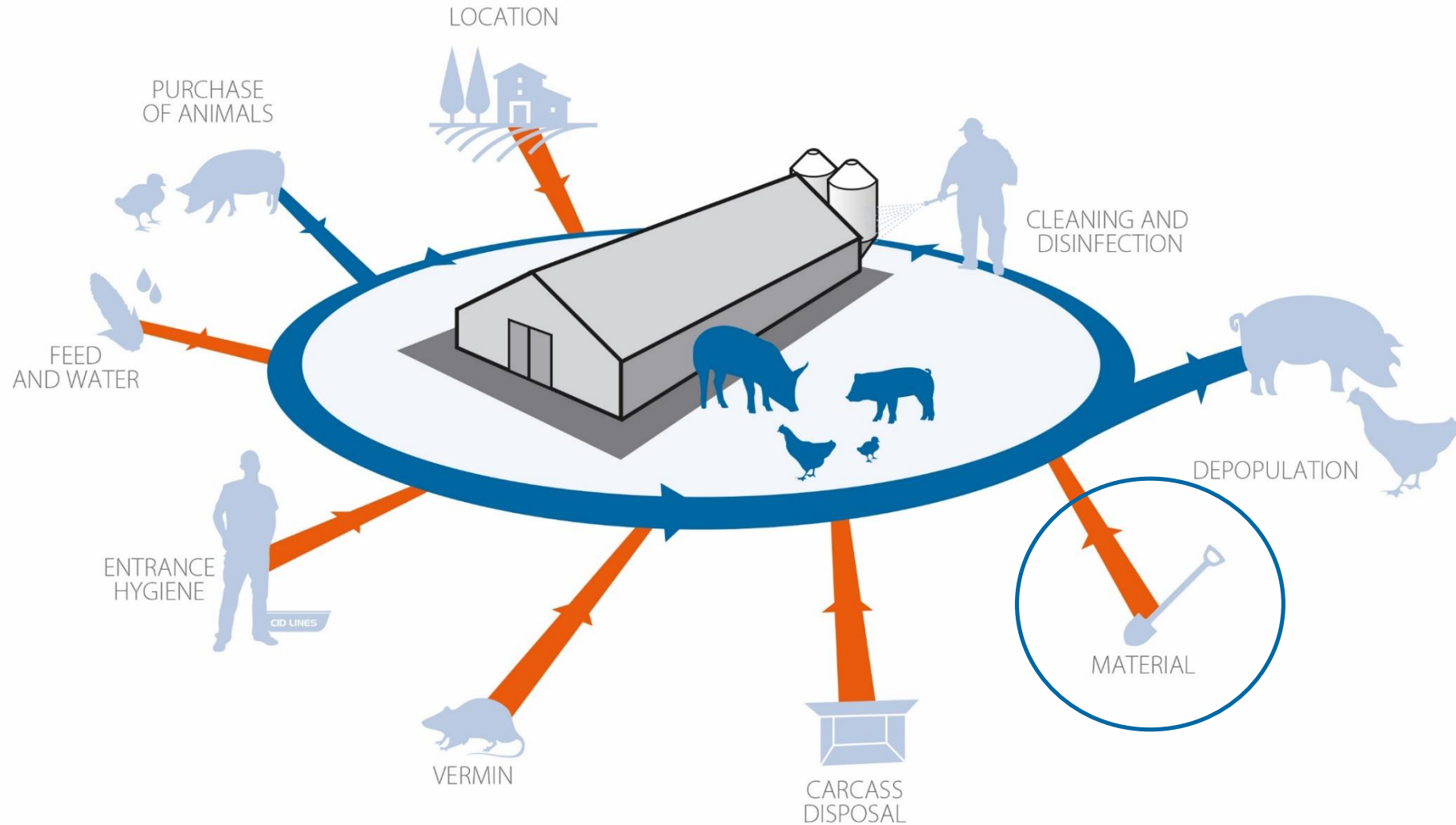
Disinfecting



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# Supply of material





# Supply of material

farm specific material

preventive measures for new  
material supply at the farm  
(disinfection before entering)





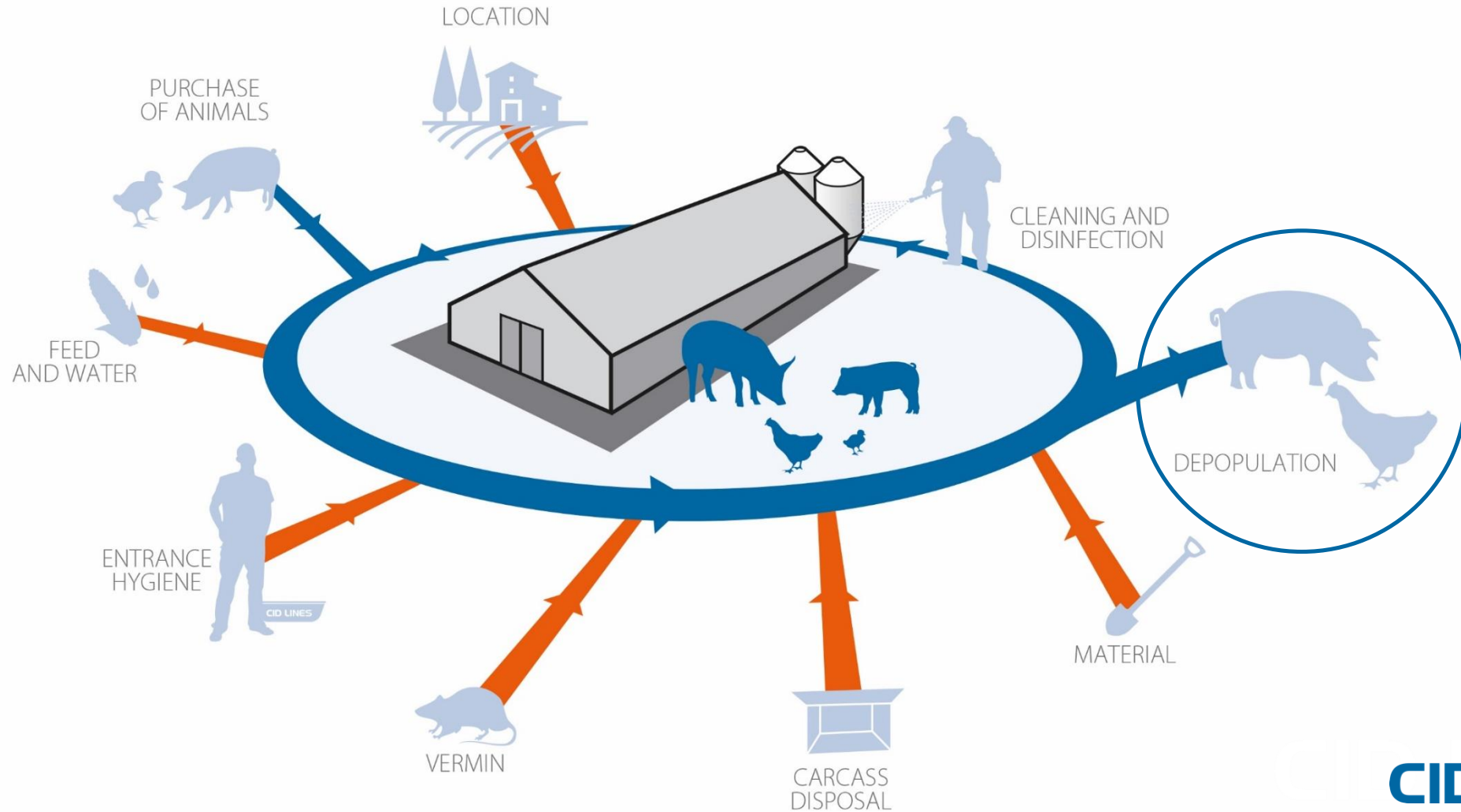


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# Depopulation of animals





# Depopulation of broilers

farm specific clothing and shoes for the catching team

transport vehicle **empty** upon arrival at the farm

transport vehicle **cleaned and disinfected**

depopulation in **1 step**





# Depopulation of pigs

no access for the driver to the stables

transport vehicle **empty** upon arrival at the farm

transport vehicle **cleaned and disinfected**

loading from a **separate loading area**

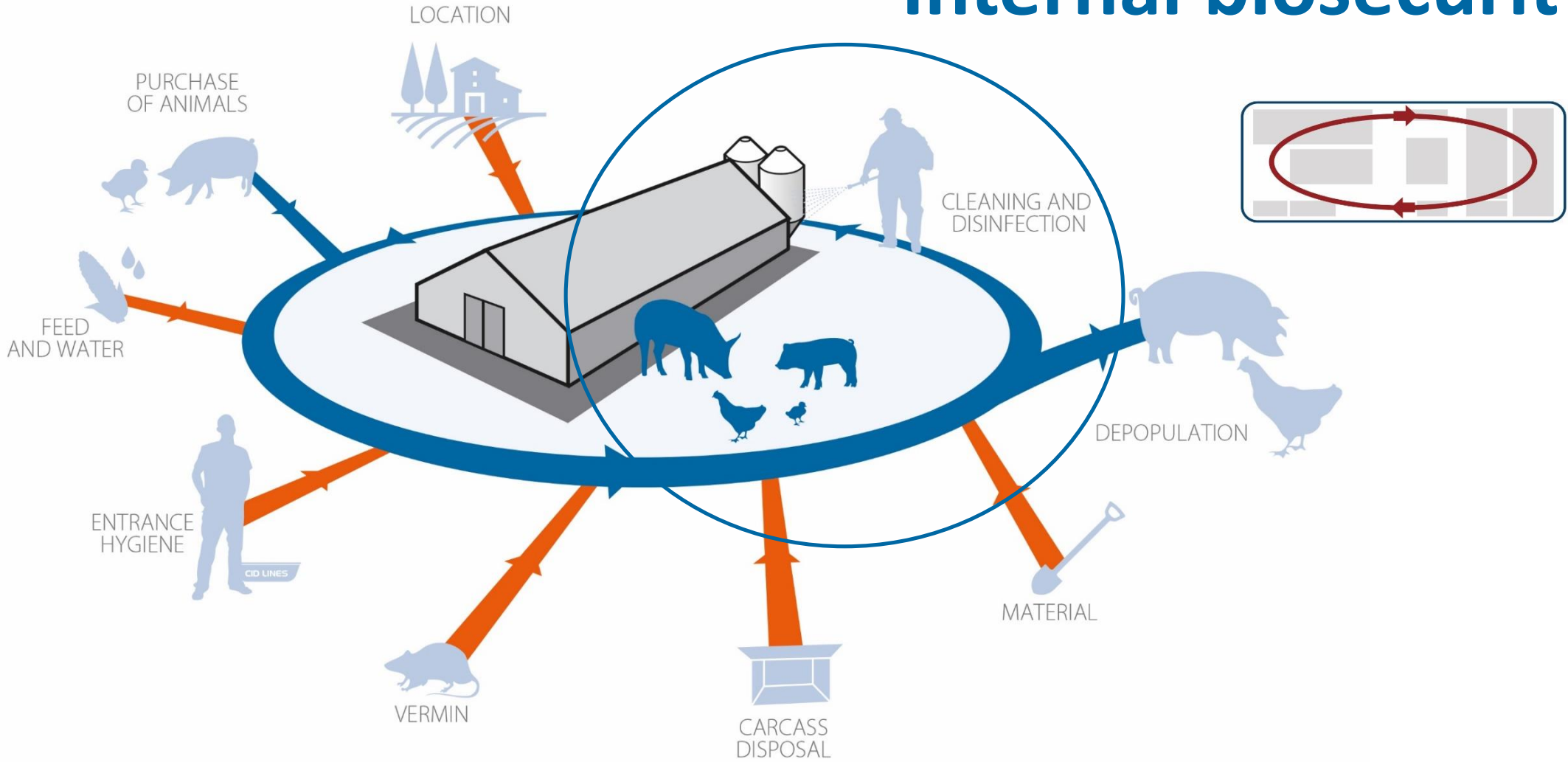
**no possibility** for the animals **to return** to the stables







# Internal biosecurity



# Disease management

## Poultry

strictly complied **protocol for vaccination**

once or two times a day **removal of dead birds**

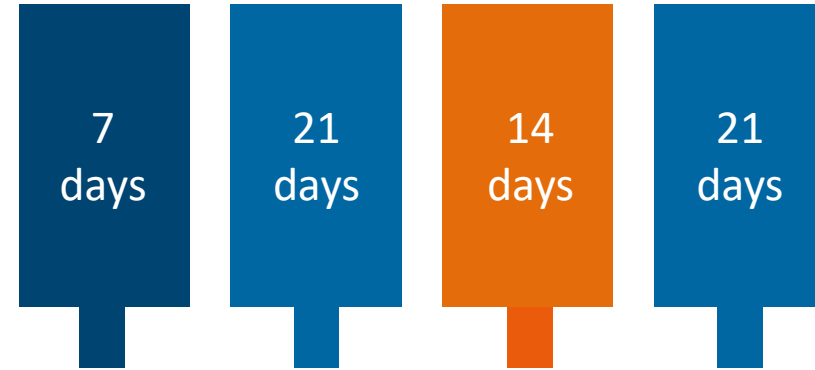
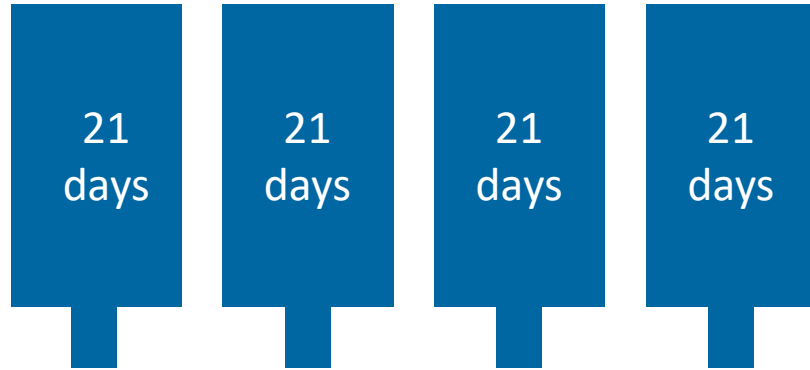
good **stocking density**

poultry houses with the **same age**

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# Disease management

## Pigs

strictly complied **protocol for vaccination**

regular evaluation of **disease status** on farm: serology, slaughterhouse findings...

good **stocking density**

**stay-behinds: isolated** from the healthy ones

**diseased animals handled after** the healthy animals

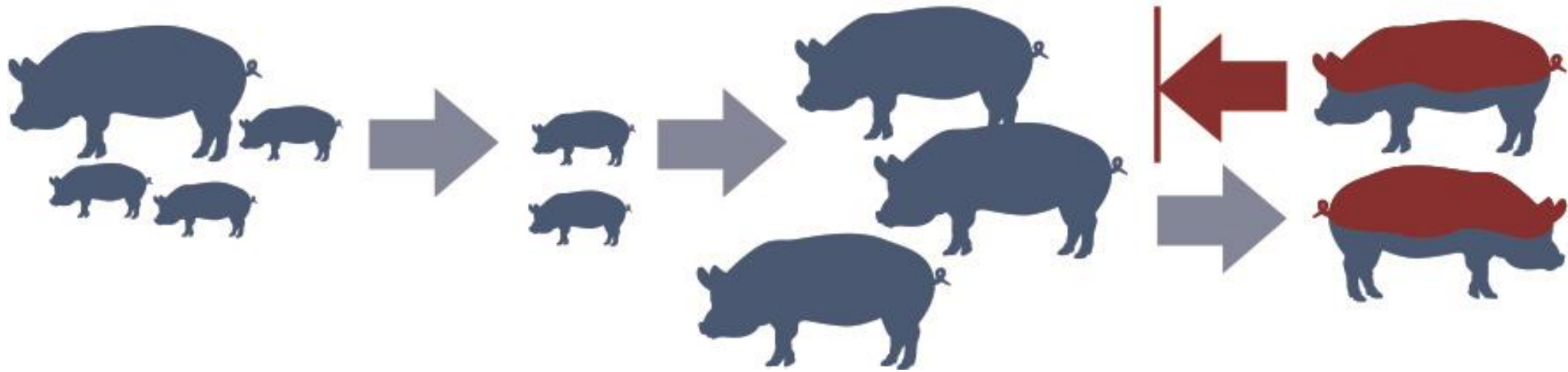
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# Disease management

## Pigs



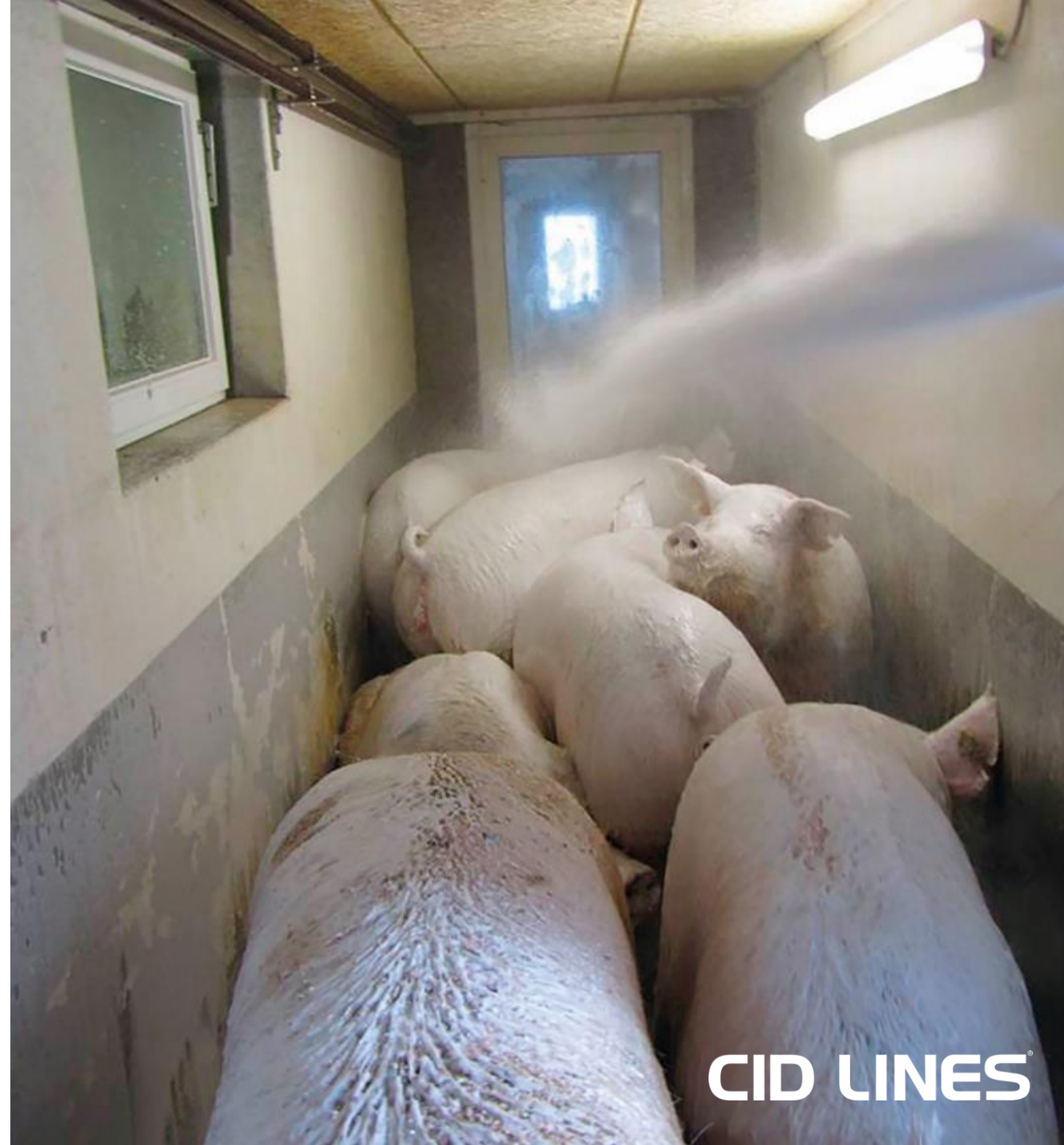


# FARROWING AND SUCKLING PERIOD

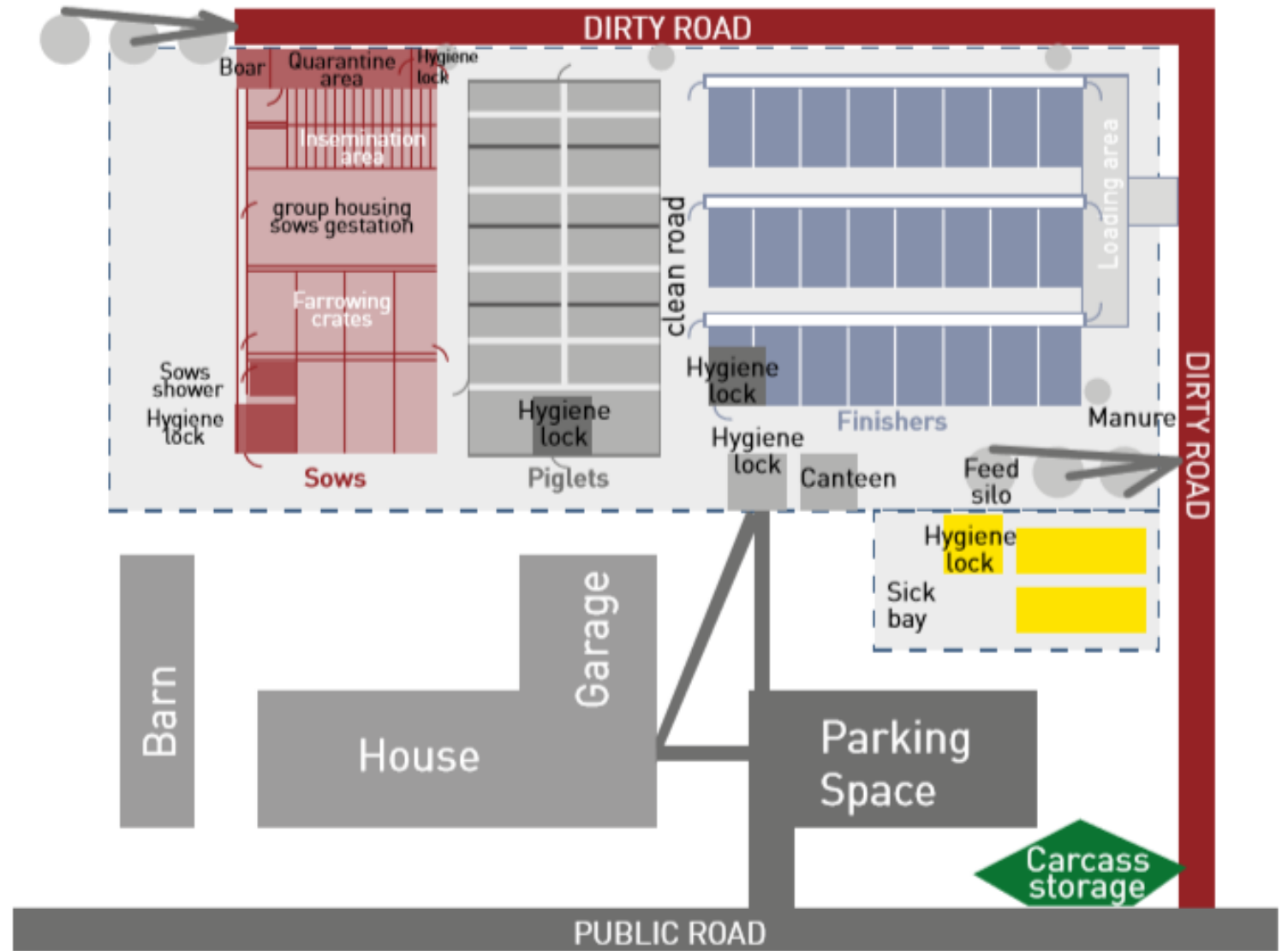




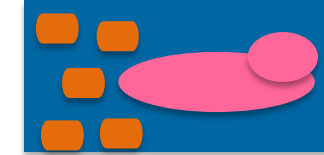
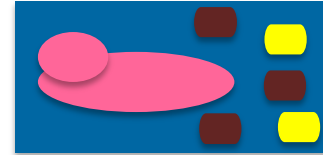
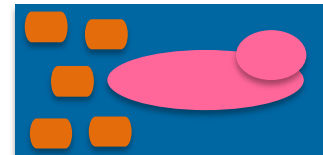
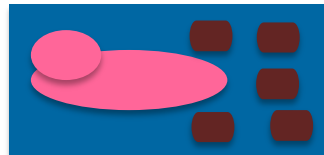
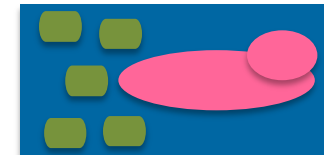
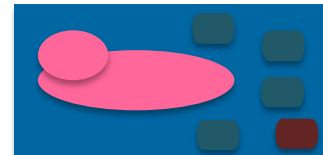
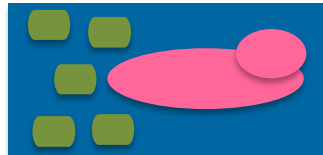
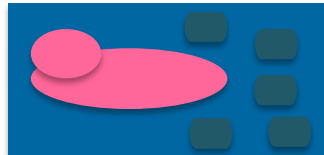
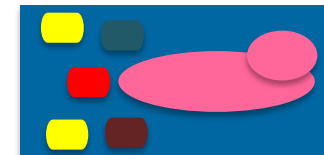
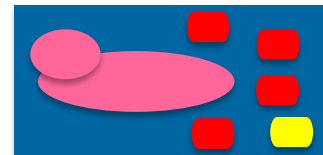
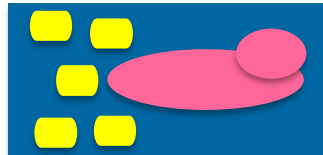
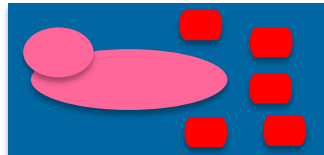
**Wash the sows before moving them to the farrowing unit**



# Separated farrowing house



# Minimize cross-fostering



not after 48h  
post  
farrowing

only once



# Manipulation of the piglets

As few manipulations as possible  
castration, vaccination, clipping of  
the teeth...

regularly cleaning and disinfection  
of materials for treatment  
(e.g. castration blade)



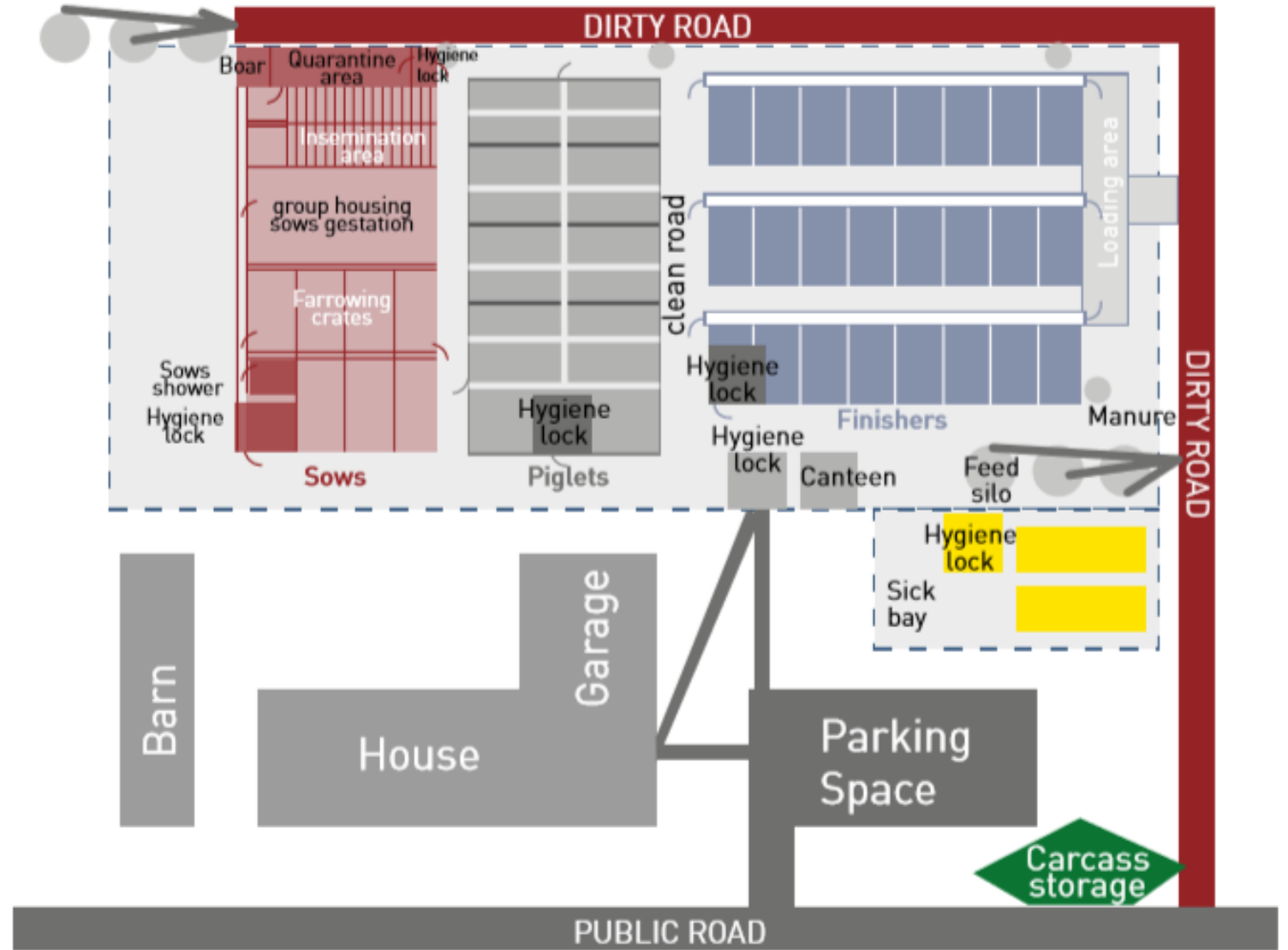
# NURSERY UNIT

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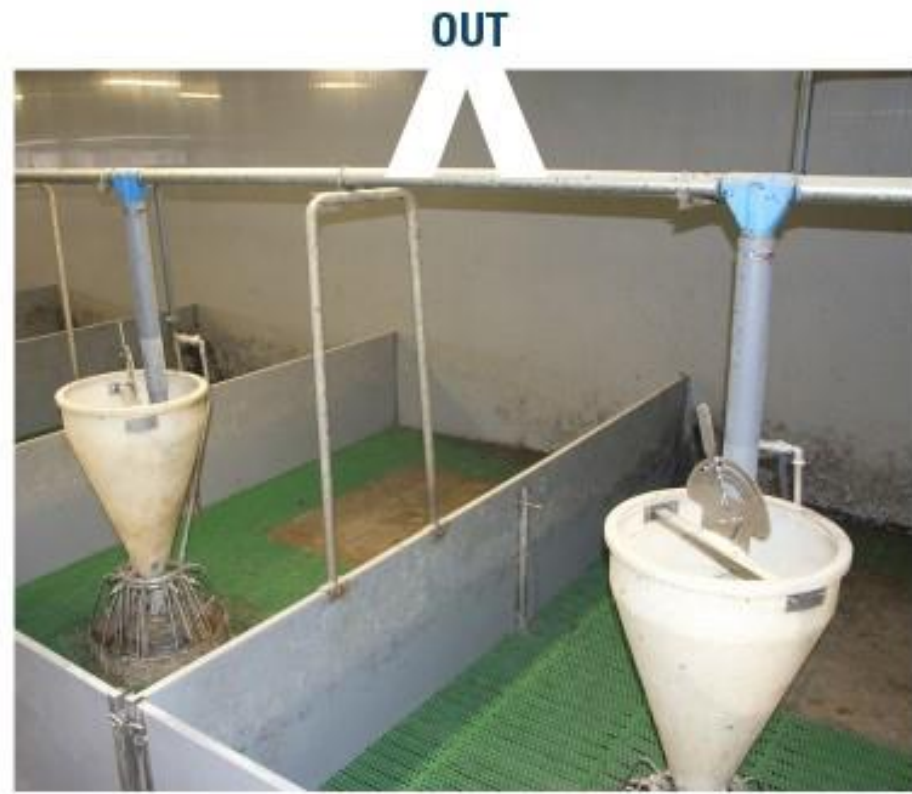
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# Separated nursery

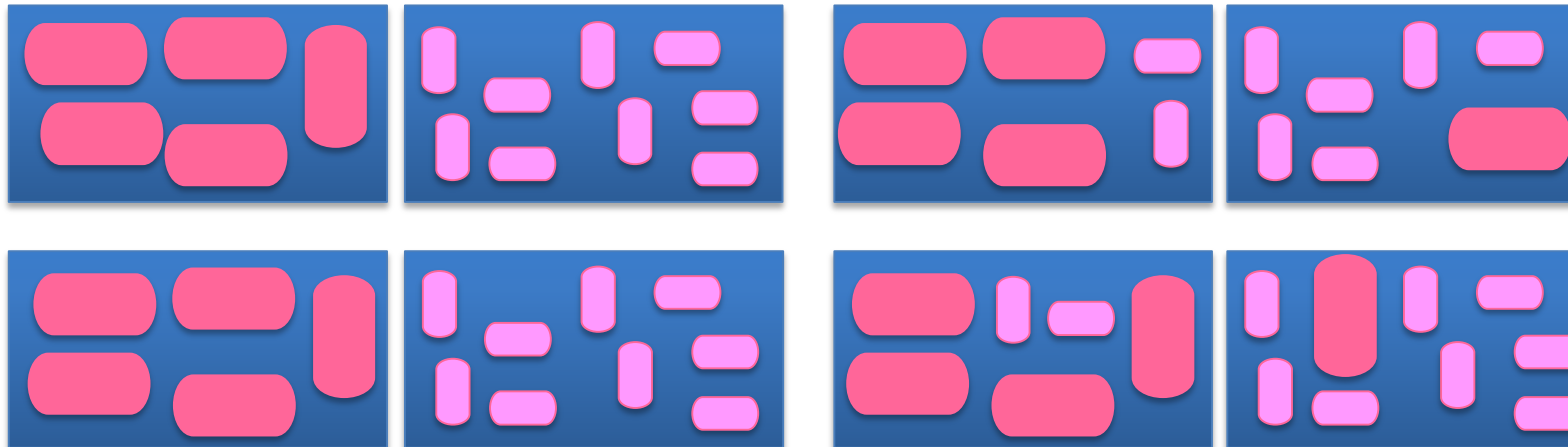




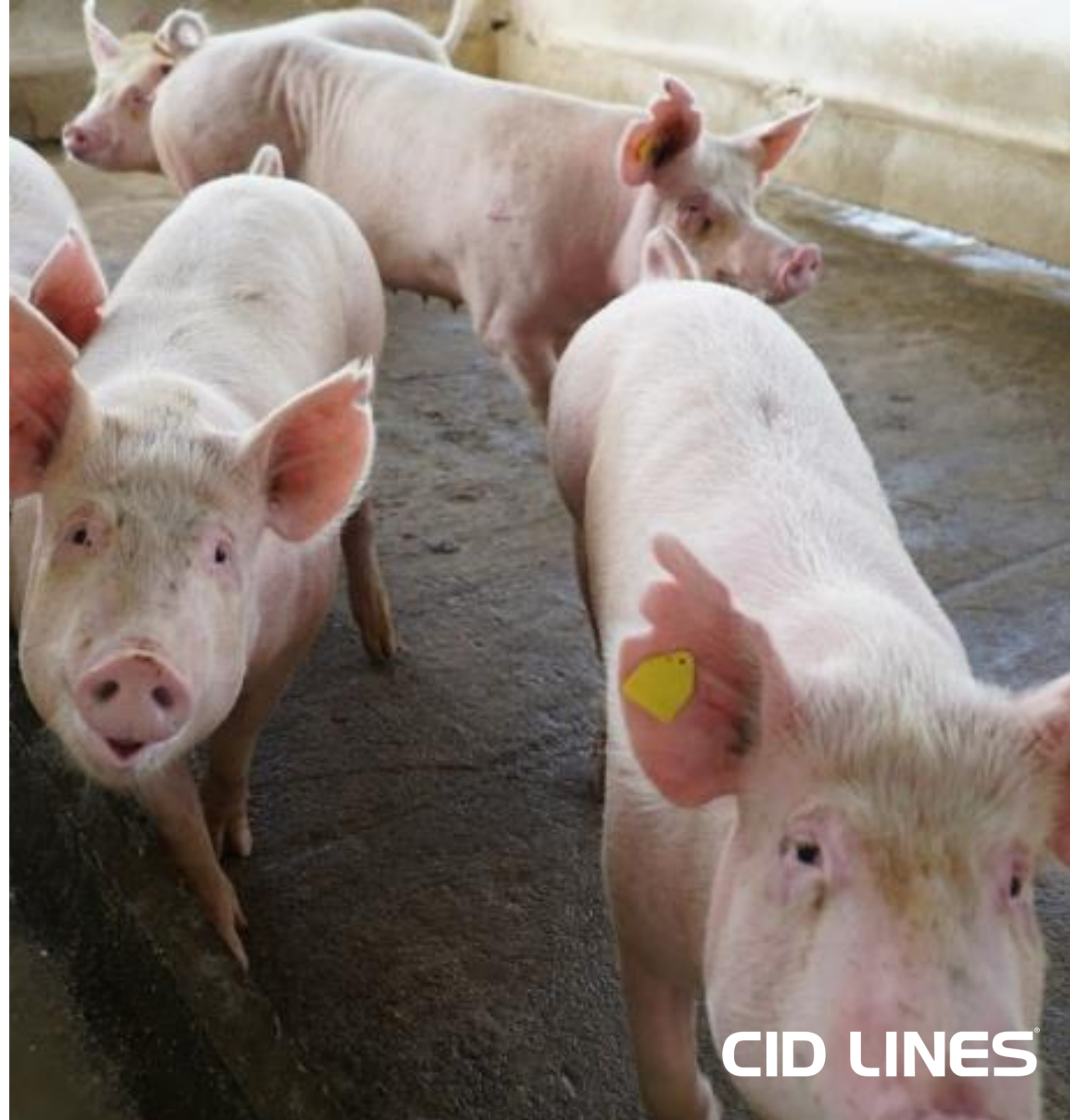
# All-in / all-out



# No mixing older piglets with younger piglets

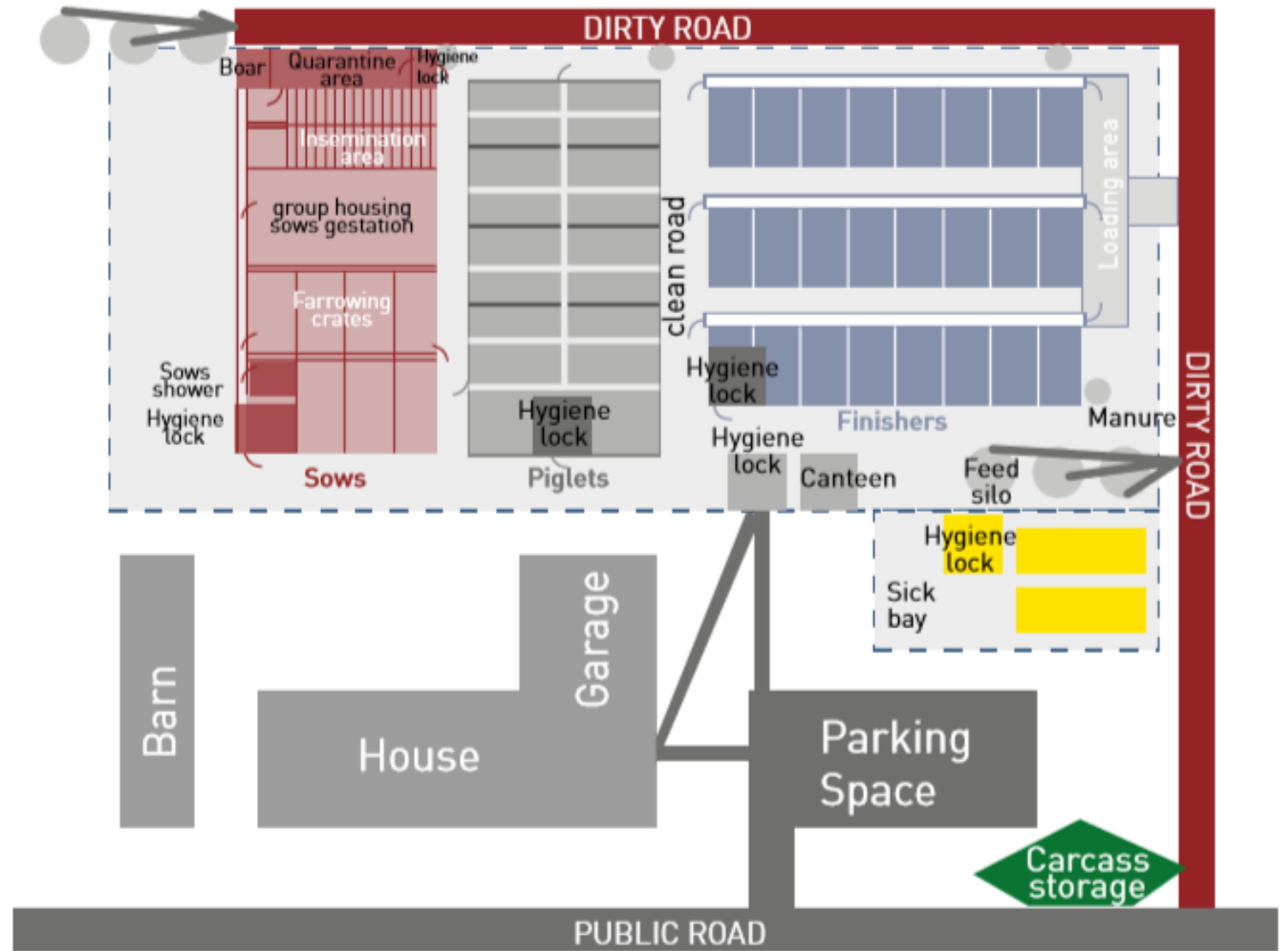


# FATTENING UNIT

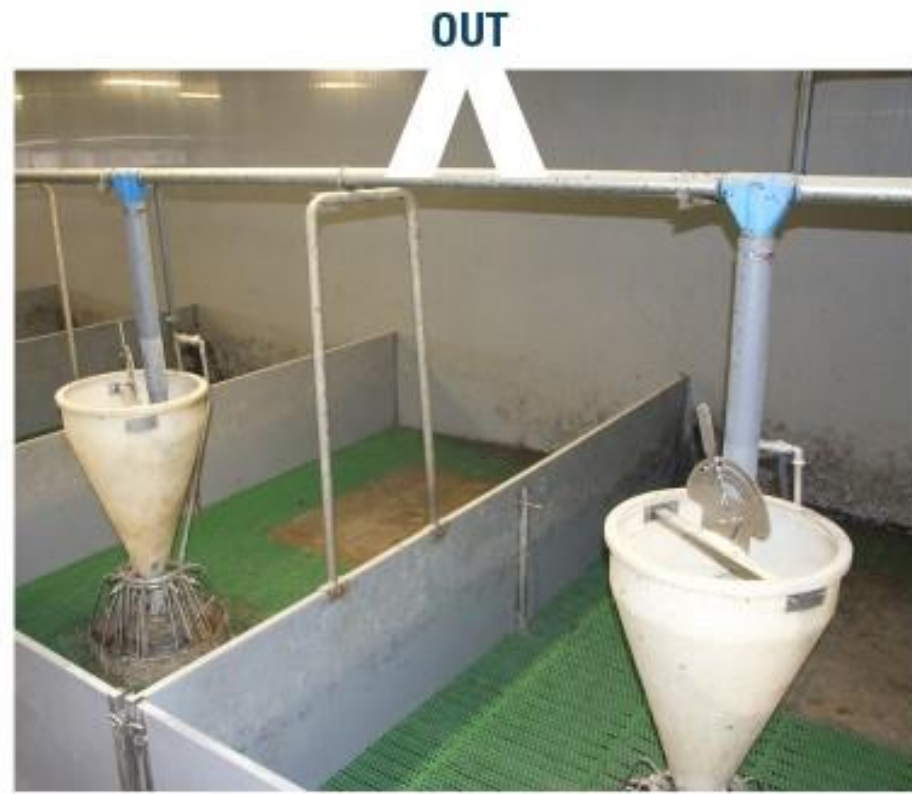




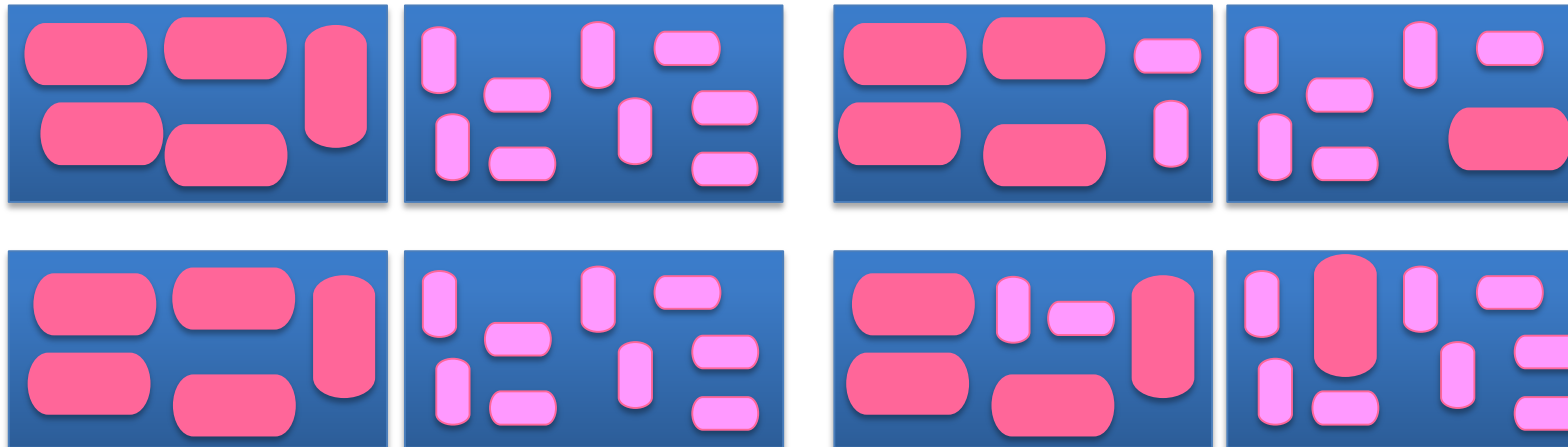
# Separated fattening unit



# All-in / all-out



# No mixing older pigs with younger pigs







# Cleaning and disinfection

cleaning and disinfection after every production cycle

Animal houses

Loading and unloading area

Hygiene lock

Drinking water lines

Feed silos and feeding lines

checking efficacy of cleaning / disinfection

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# Cleaning and disinfection



# Cleaning and disinfection

1 Dry cleaning to remove all organic material.





# Cleaning and disinfection

2 Cleaning of surfaces with detergent, preferably with high pressure.



# Cleaning and disinfection

**3** High pressure rinsing to remove all dirt.



# Cleaning and disinfection

- 4 Let the house dry completely to avoid dilution of the disinfectant that is to be applied in step 5.





# Cleaning and disinfection

5

Disinfection of all surfaces to achieve a further reduction of the concentration of germs



# Cleaning and disinfection

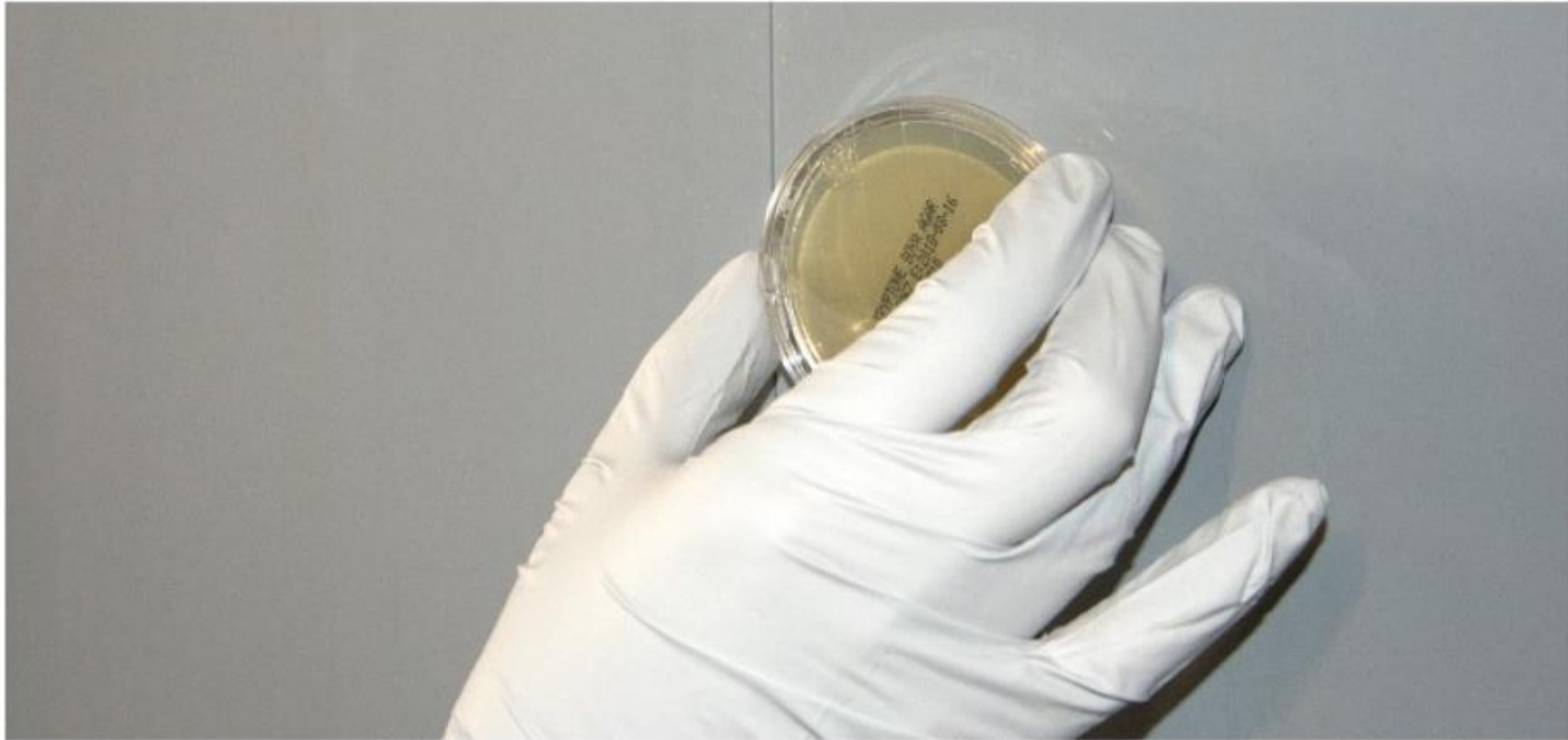
6

Let it dry completely before entering the animals.



# Cleaning and disinfection

**7** Testing of the efficiency of the procedure through sampling the surfaces.



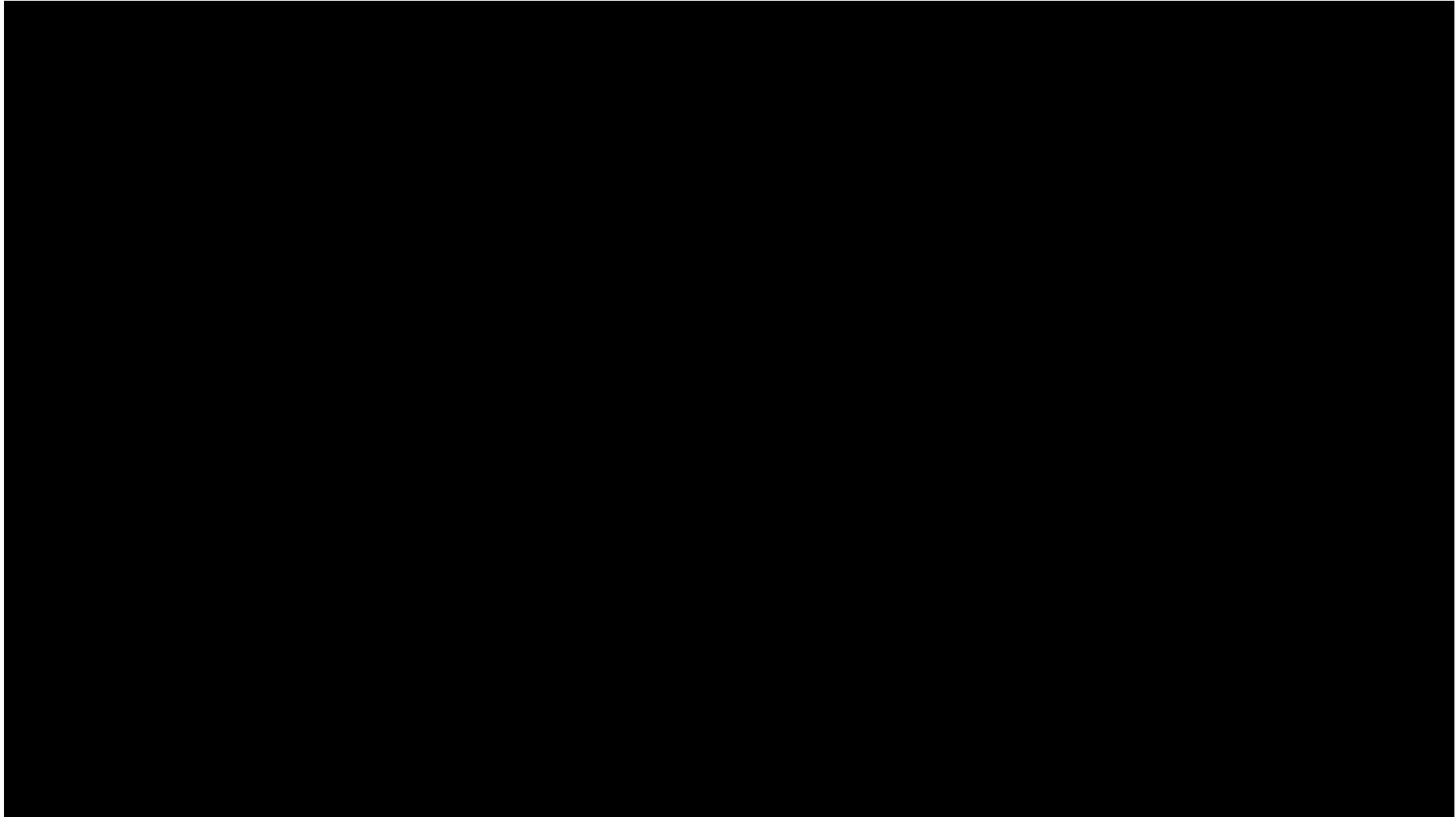


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# Materials and measures between compartments

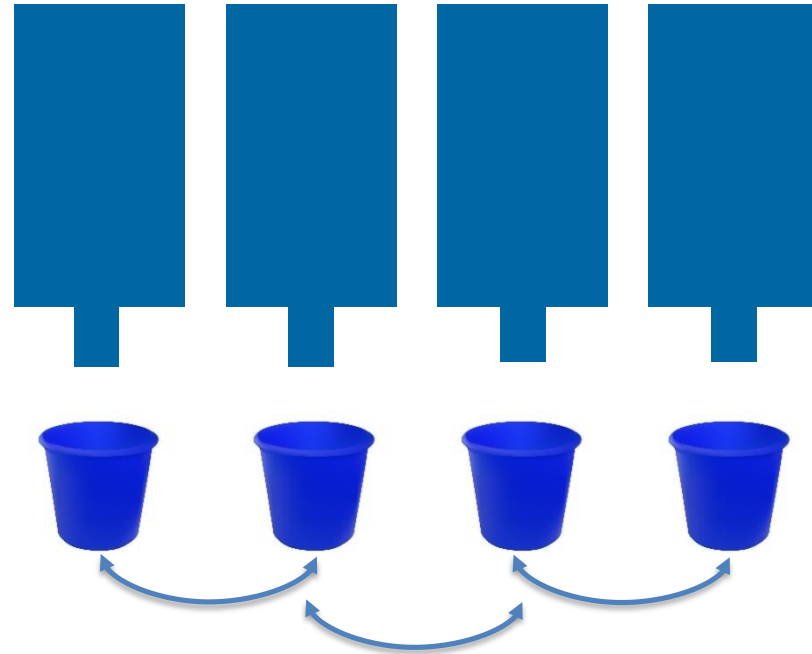
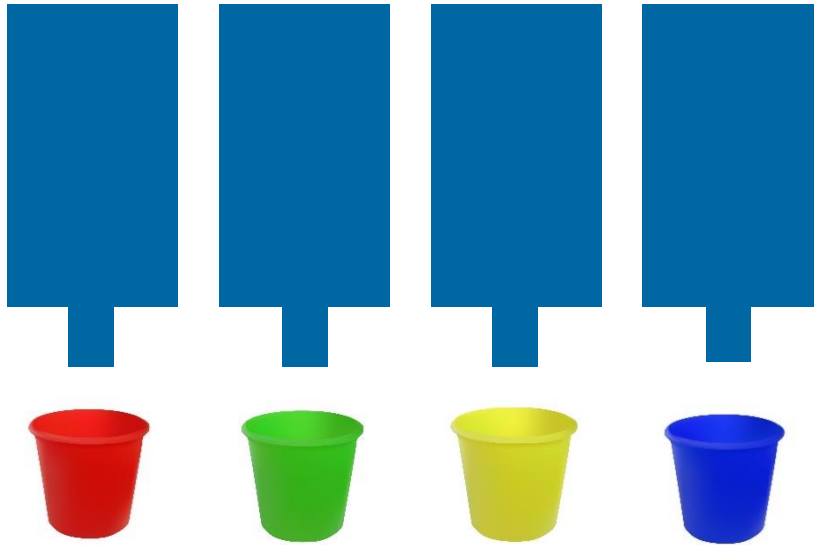
house specific clothing, shoes and material

effective **cleaning and disinfection protocol for the material** after every production round

injection syringes and needles **for every age group**







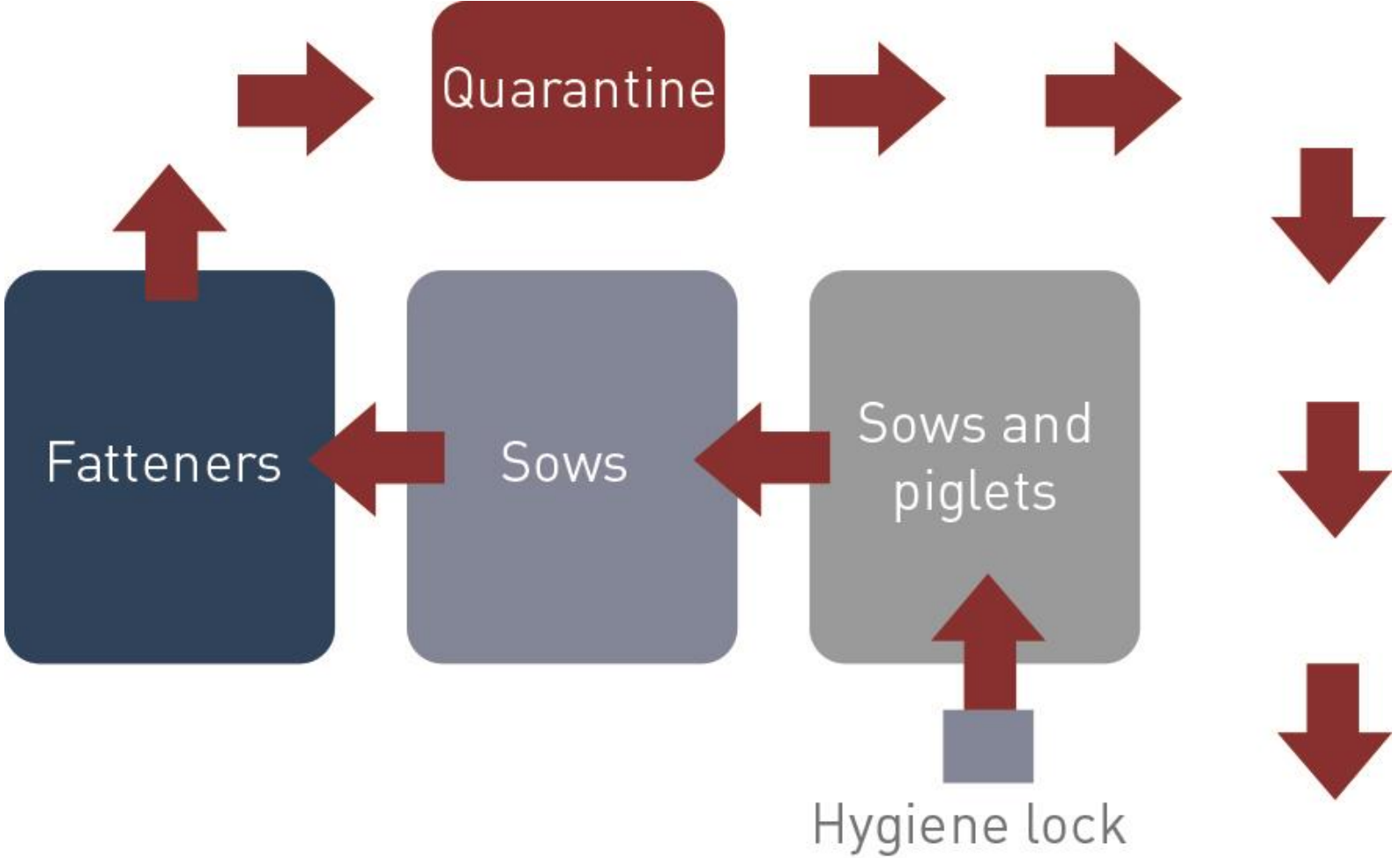


Farrowing house	RED
Nursery	BLUE
Service pens	YELLOW
Gestation pens	GREEN
Fattening unit	GREY
Quarantine	WHITE





# Working lines



## BIOCHECK.UGent, prevention is better than cure!

Welkom!

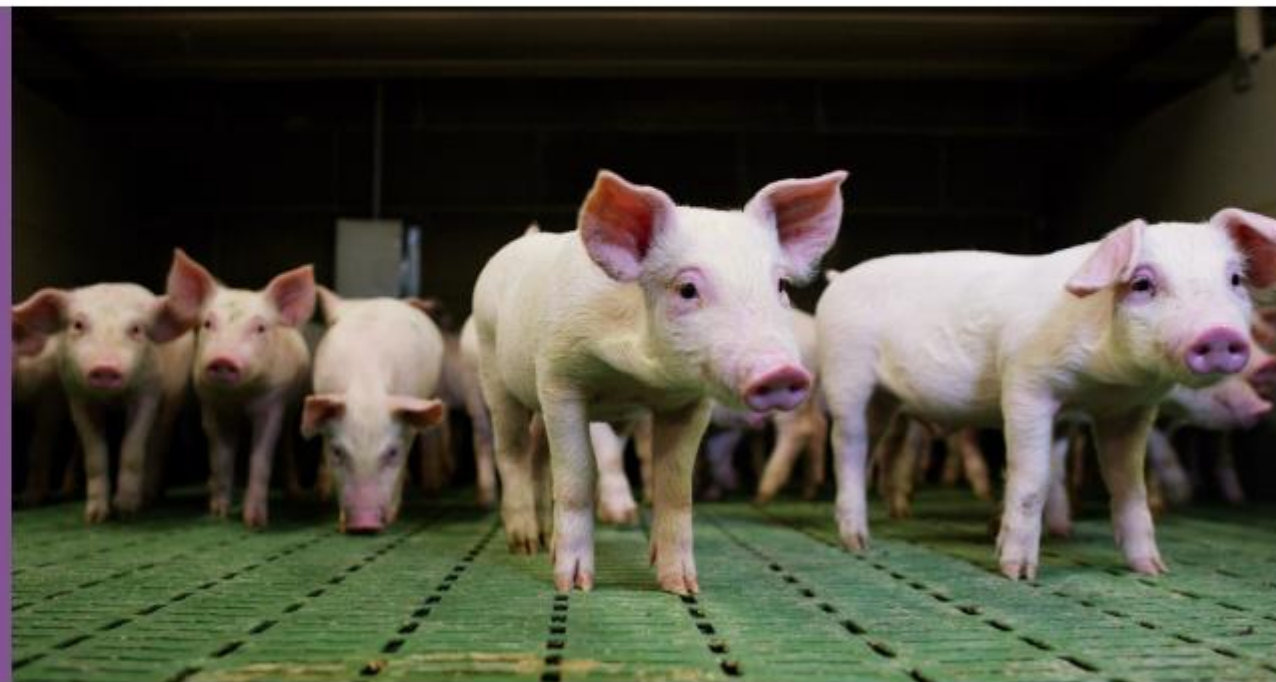
Biocheck.UGent is a risk-based scoring system to evaluate the quality of your on-farm biosecurity in an scientific and independent way.

Fill in the online [questionnaire](#) for free and receive valuable feedback about the biosecurity level of your farm. You get a summarizing and personal report with detailed results. These findings can help you to choose your own suitable biosecurity pathway.

Don't hesitate and get started to lift your farm to a higher biosecurity level!

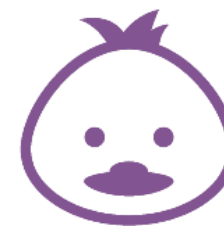
Start the Biocheck.UGent!

How to use Biocheck.UGent?



Free online application: [www.biocheck.ugent.be](http://www.biocheck.ugent.be)

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# Biosecurity in practice

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