

How to control and prevent African Swine Fever?

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WORK

CID LINES



Epidemiology of ASF

Current events

Disease description

Transmission

Prevention and control



EPIDEMIOLOGY OF ASF

First identified in the early 1900s in Eastern Africa

2 important genotypes for **Europe**

GT 1: West of Africa

GT 2: South of Africa



GT 1

WEST OF AFRICA
(1957)



PORTUGAL



SPAIN
ITALY (SARDINIA)

GENOTYPE I



GENOTYPE II



GENOTYPE III



GENOTYPE IV



GENOTYPE V



GENOTYPE VI



GENOTYPE VII



GENOTYPE VIII



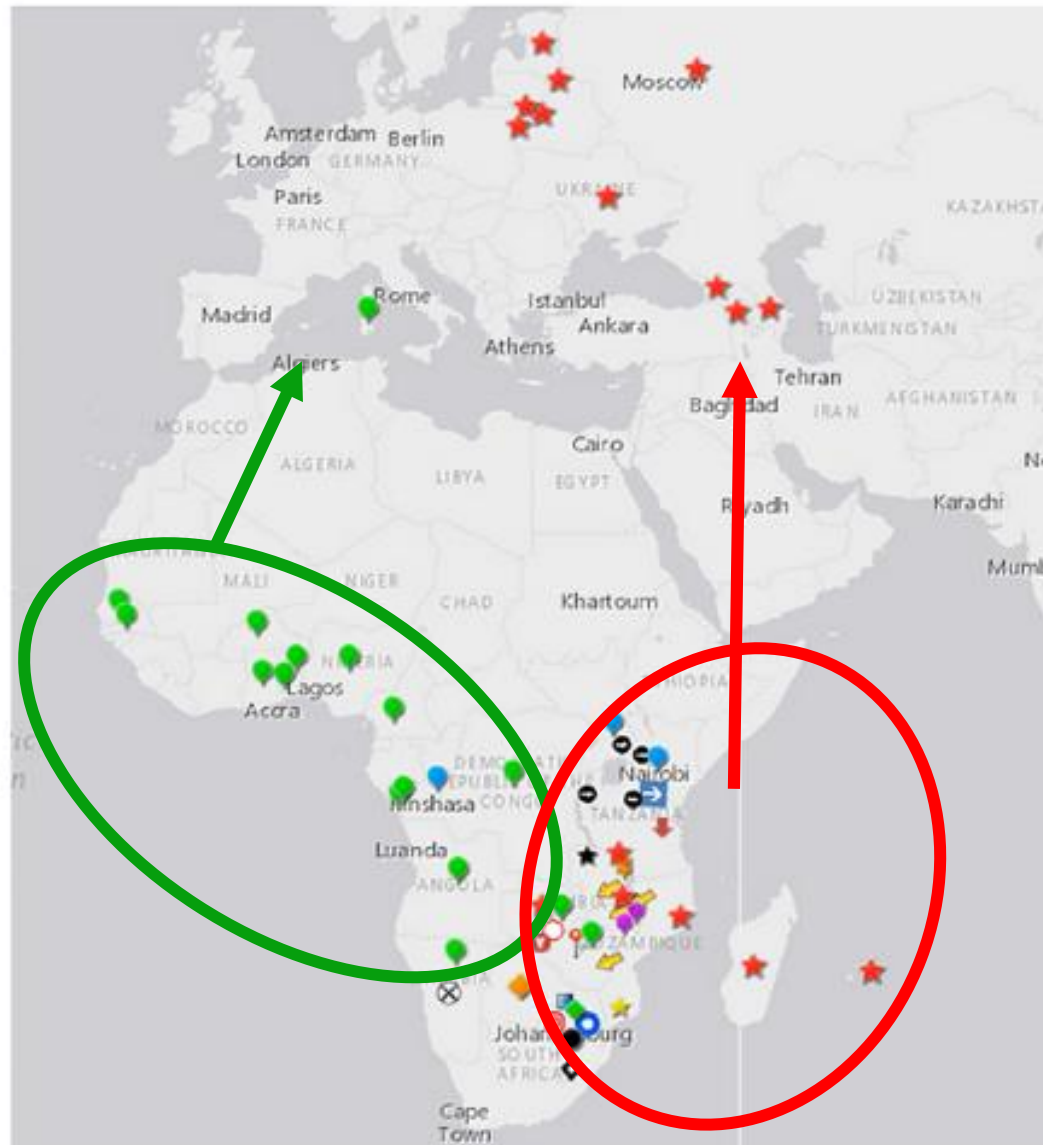
GENOTYPE IX



GENOTYPE X



GENOTYPE XI



GENOTYPE XII



GENOTYPE XIII



GENOTYPE XIV



GENOTYPE XV



GENOTYPE XVI



GENOTYPE XVII



GENOTYPE XVIII



GENOTYPE XIX



GENOTYPE XX



GENOTYPE XXI



GENOTYPE XXII



GT 2

SOUTH OF AFRICA
(2007)



MADAGASCAR



GEORGIA

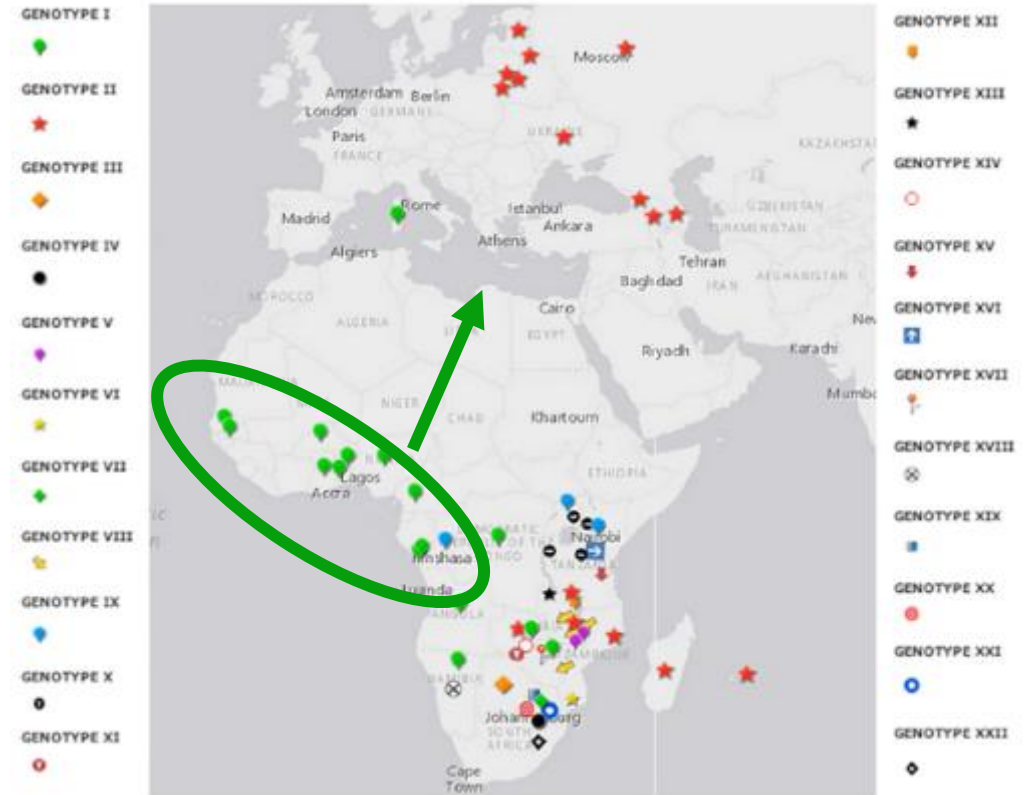
GT 1
WEST OF AFRICA
(1957)



PORTUGAL



SPAIN
ITALY (SARDINIA)



ERADICATED FROM OUTSIDE AFRICA IN THE MID-1900s

EXCEPTION: SARDINIA

GT 2
SOUTH OF AFRICA
(2007)



MADAGASCAR



GEORGIA



RUSSIA → WESTERN EUROPE → BELGIUM: 14/09/2018

EPIDEMIOLOGY VARIES BETWEEN COUNTRIES, REGIONS AND CONTINENTS

Characteristics of the virus

Present of wild hosts and reservoirs

Environmental conditions

Human social behaviour





CURRENT EVENTS

SANTE G3

ASF: Mar 2007 to Apr 2007

- ▲ / ● Wild boar
- ◆ / ☆ Domestic pigs



Sources: ADNS
OIE-FAO



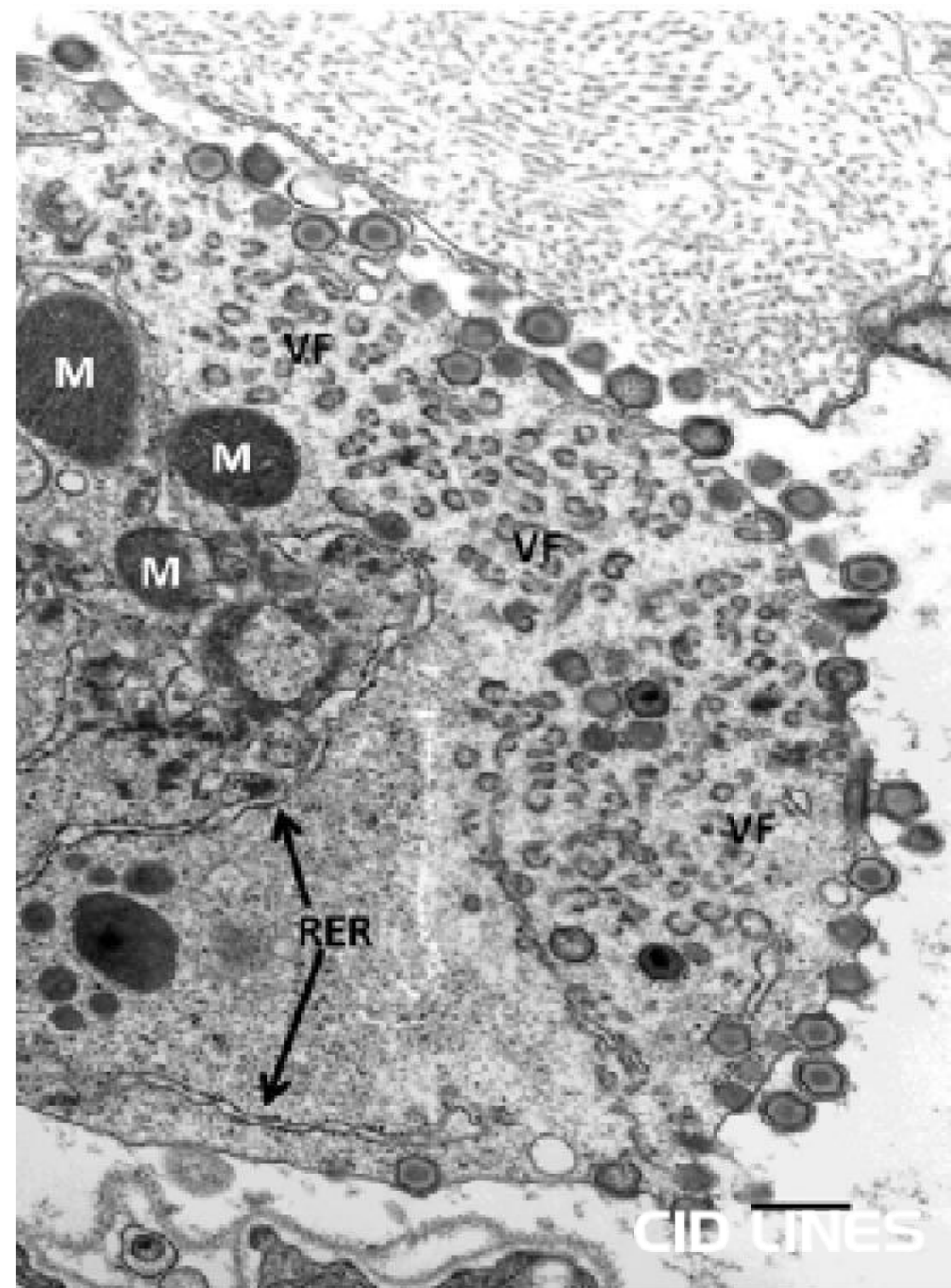
DISEASE DESCRIPTION

DISEASE

Large, enveloped, double-stranded DNA virus

Replicates in the cytoplasm of infected cells

Asfarviridae



SOURCE picture: African Swine fever in Tanzania. Lecture Prof. Dr. Gerald Misinzo, Sokoine University of Ghent, October 2018

DISEASE

WHY IS IT SO DIFFICULT TO FIGHT AGAINST ASF?

60 – 100 days in faeces (room T)

110 days in chilled meat

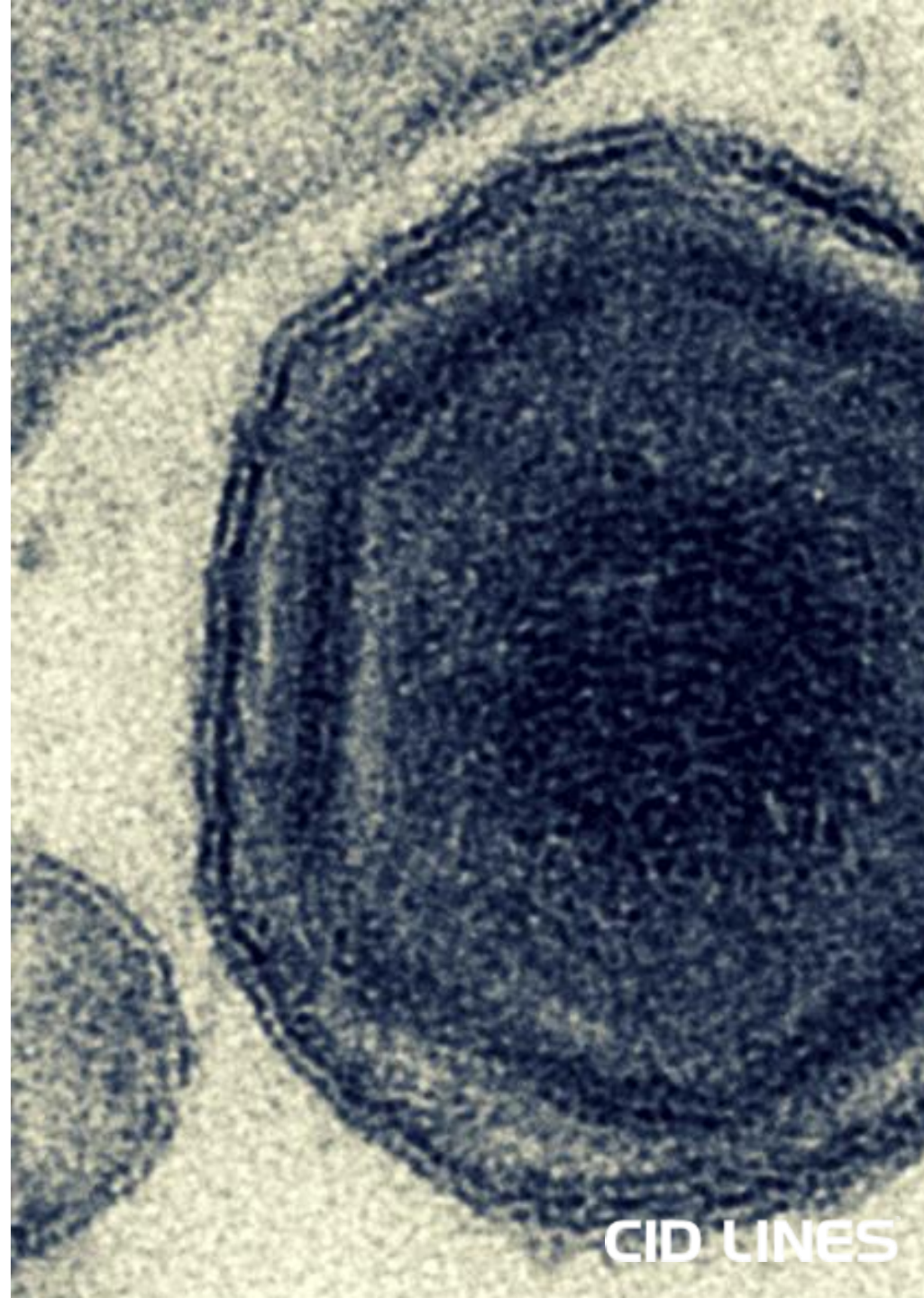
1 month in contaminated pig pens

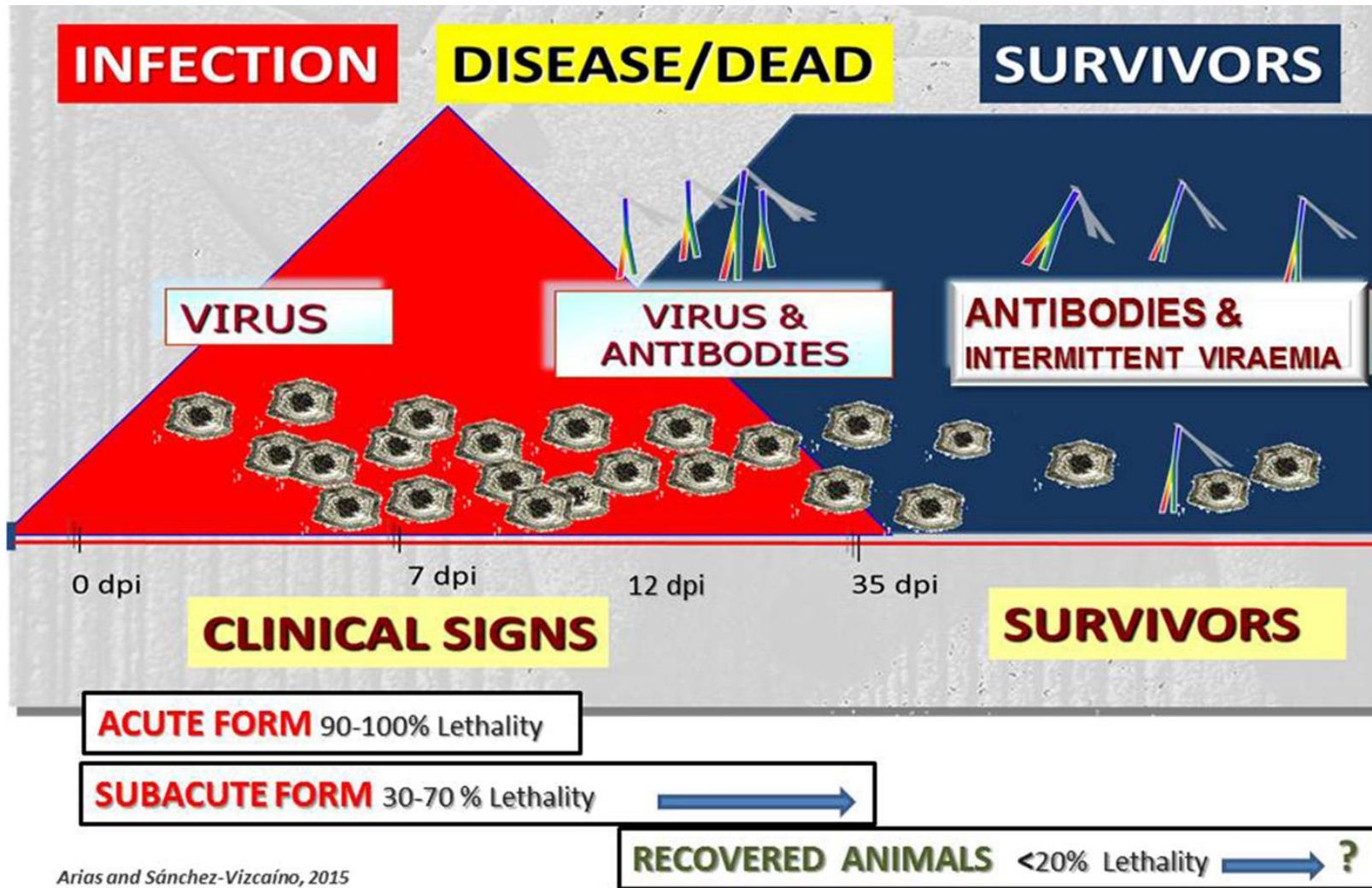
18 months in blood at 4°C

1000 days in frozen meat (parma ham)

Dixon et al., 2008. "African Swine Fever Virus". Animal Viruses: Molecular Biology, Caister Academic Press.
Muller, 1973, cited by Sánchez-Vizcaíno J. M., et al., 2009. Scientific review on African swine fever. EFSA Supporting Publications, 6(8), 5E.
McKercher P. D., et al., 1987. Survival of viruses in "Prosciutto di Parma" (Parma ham). Canadian Institute of Food Science and Technology Journal, 20(4), 267-272.

Lecture of Brigitte Cay, Sciansano. October 2018





CLINICAL FORMS

FORM	LETHALITY	VIRULENCE
Peracute	90 – 100 %	HIGH
Acute		↕
Subacute	60 %	MODERATE
Chronic	2 – 10 %	LOW
Asymptomatic	(wild hogs)	



CLINICAL FORMS



SYMPTOMS

MORTALITY

FEVER

MELENA

VOMITING

OCULAR AND NASAL DISCHARGE

ABORTION



SYMPTOMS

TOTAL DISTURBANCE OF THE BLOOD SYSTEM OF THE PIG

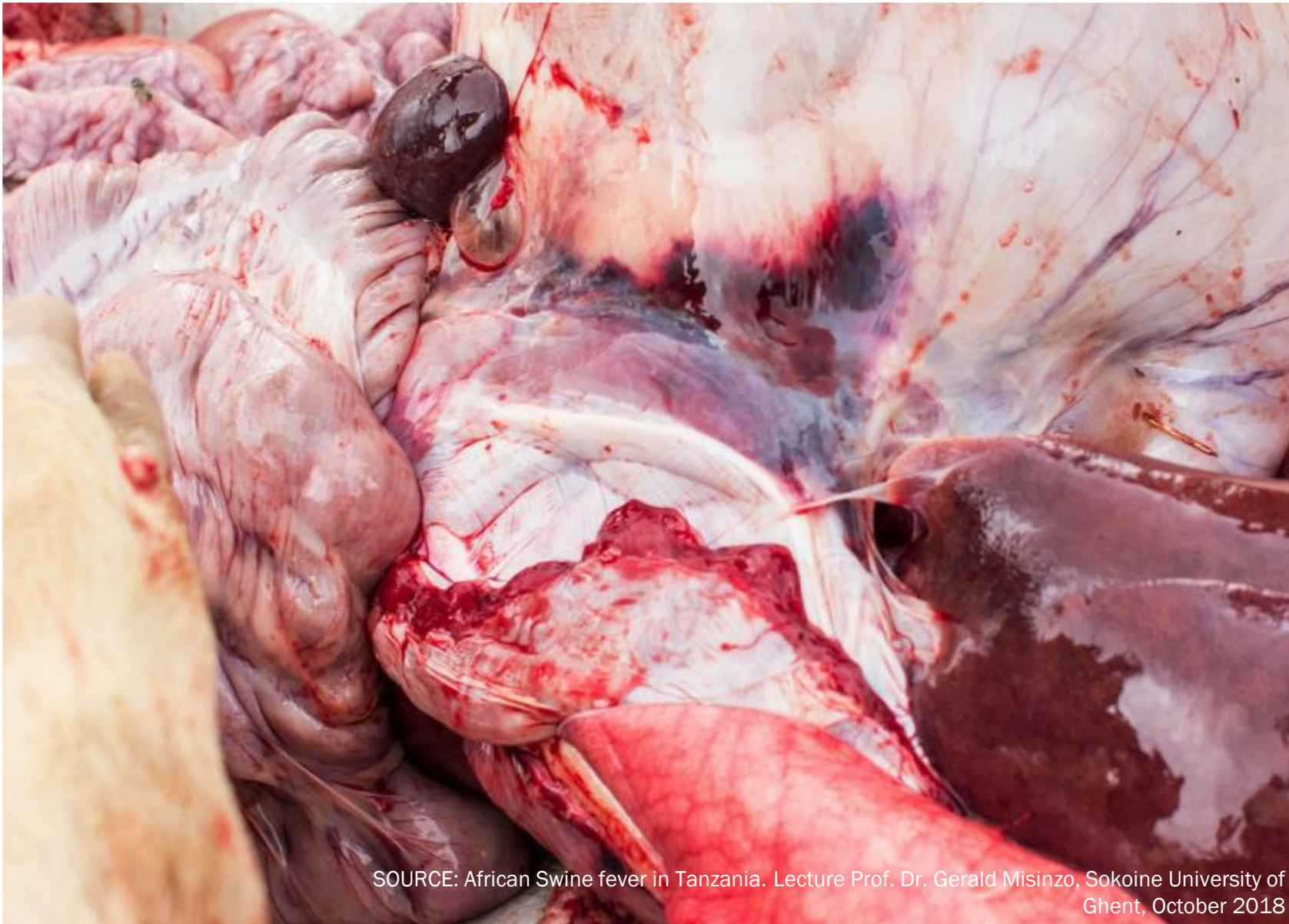
Cutaneous congestions on the abdomen, scrotum, inner legs and ears

Hemorrhages everywhere in the body

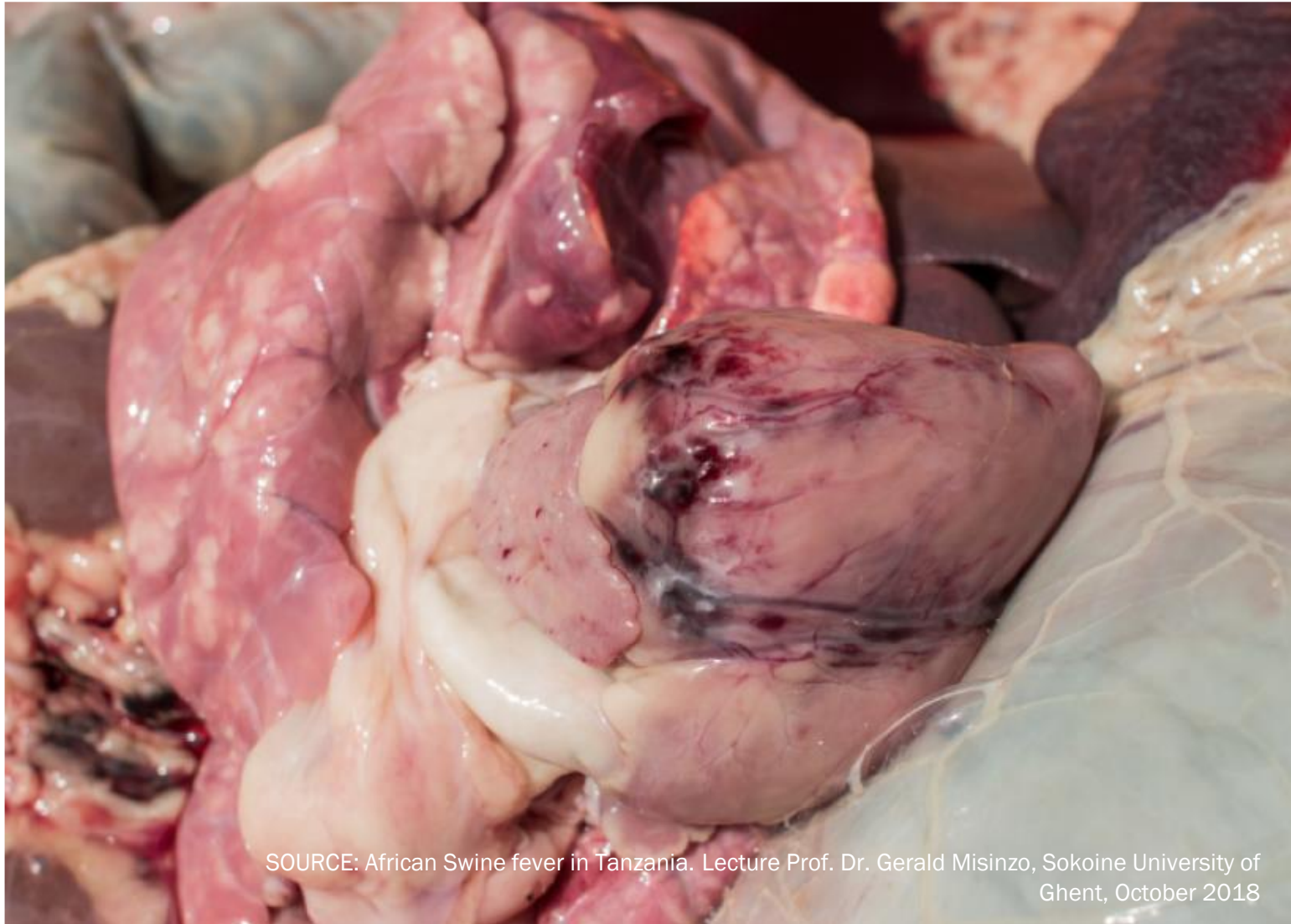




SOURCE: African Swine fever in Tanzania. Lecture Prof. Dr. Gerald Misinzo, Sokoine University of
Ghent, October 2018



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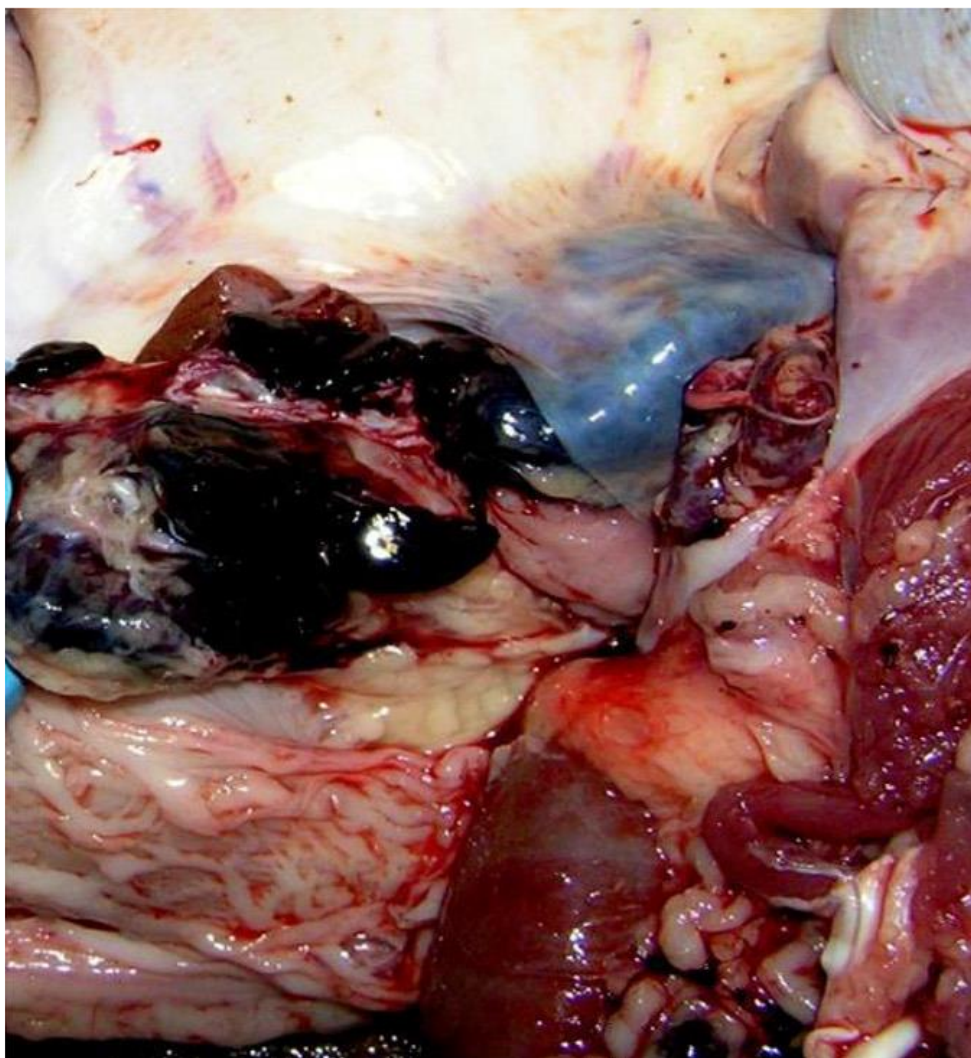
SOURCE: African Swine fever in Tanzania. Lecture Prof. Dr. Gerald Misinzo, Sokoine University of Ghent, October 2018



SOURCE: EURL, INIA-CISA, Valdeolmos, Madrid, Spain; Gallardo et al., 2015. African Swine fever: a global view of the current challenge, Porcine Health Management



SOURCE: EURL, INIA-CISA, Valdeolmos, Madrid, Spain; Gallardo et al., 2015. African Swine fever: a global view of the current challenge, Porcine Health Management



Gastrohepatic LN



Kidney LN

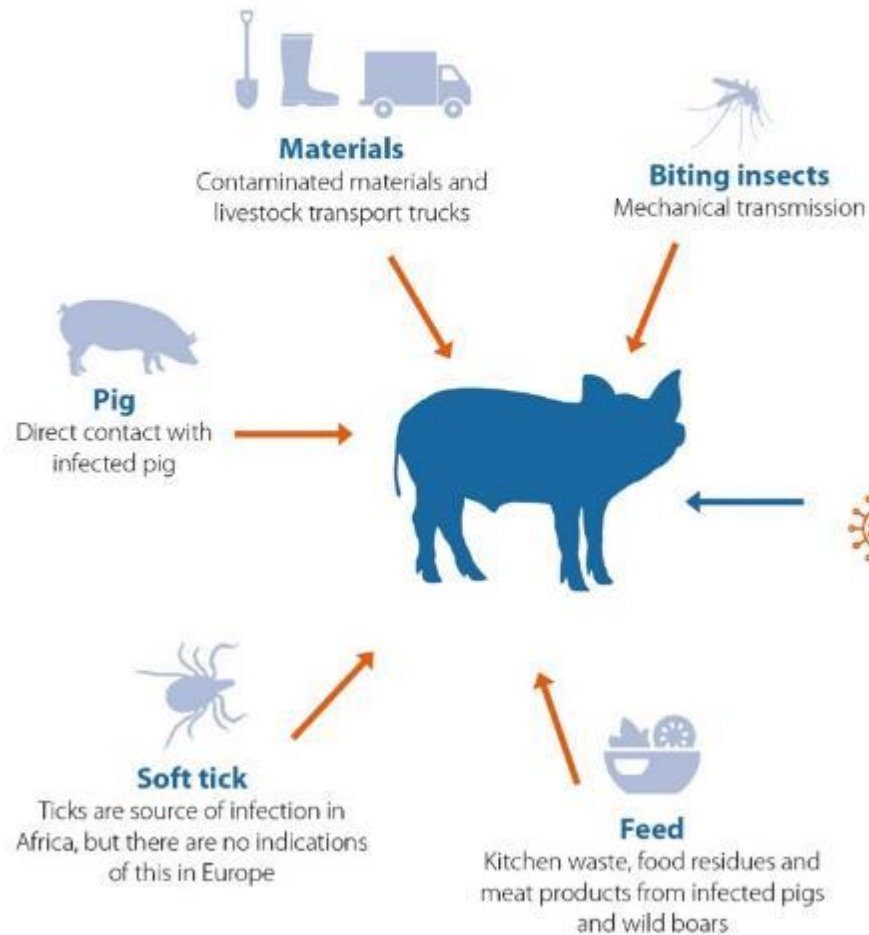
SOURCE: EURL, INIA-CISA, Valdeolmos, Madrid, Spain; Gallardo et al., 2015. African Swine fever: a global view of the current challenge, Porcine Health Management



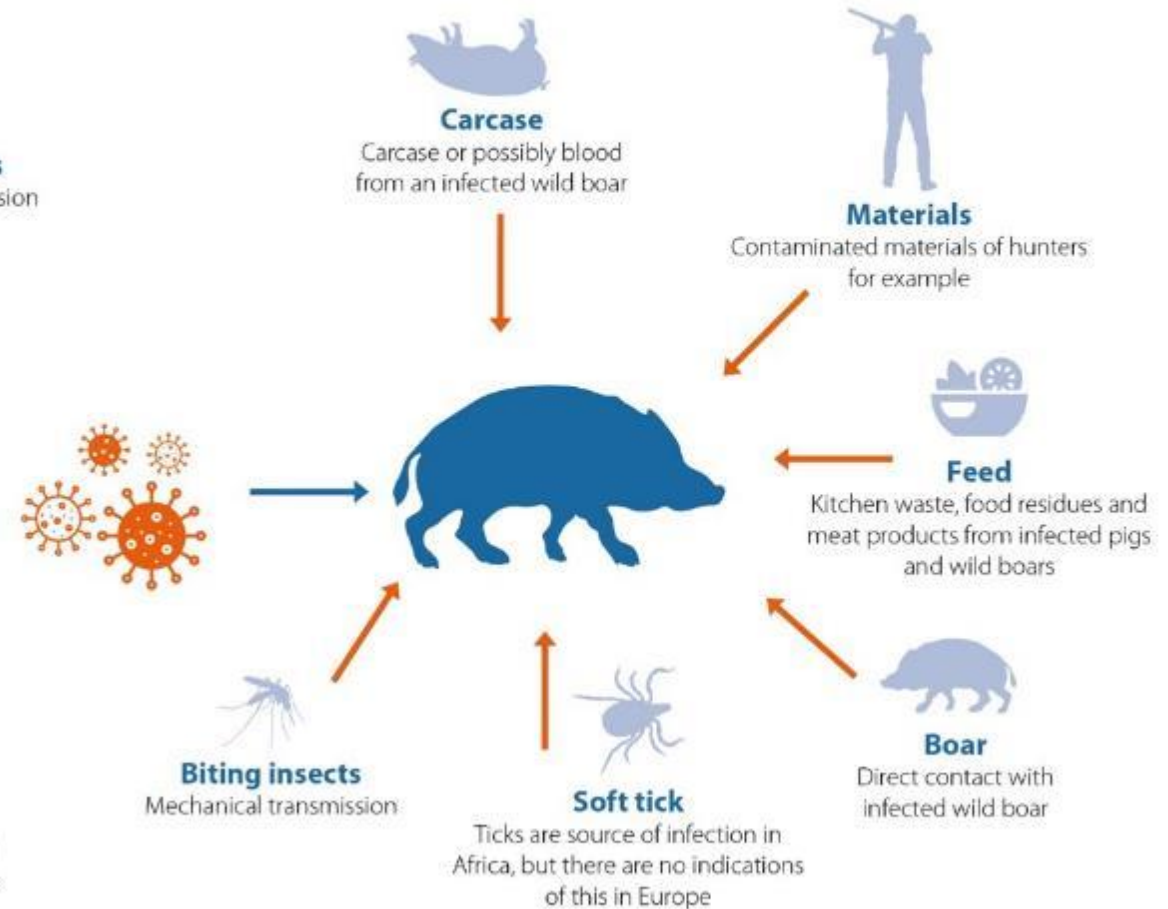
TRANSMISSION

CID LINES[®]

How do **pigs** become infected?



How do wild **boars** become infected?





PREVENTION AND CONTROL

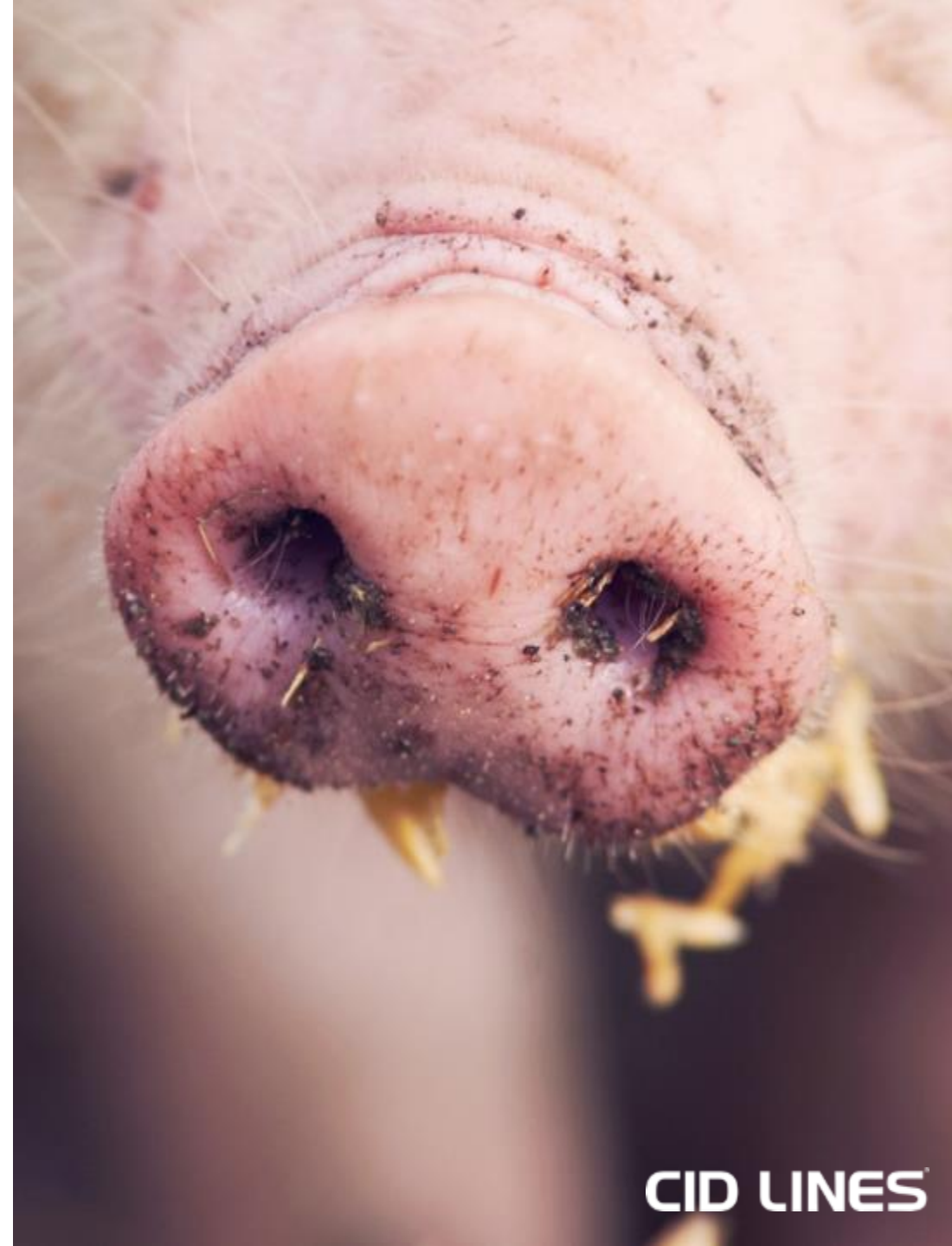
CID LINES[®]

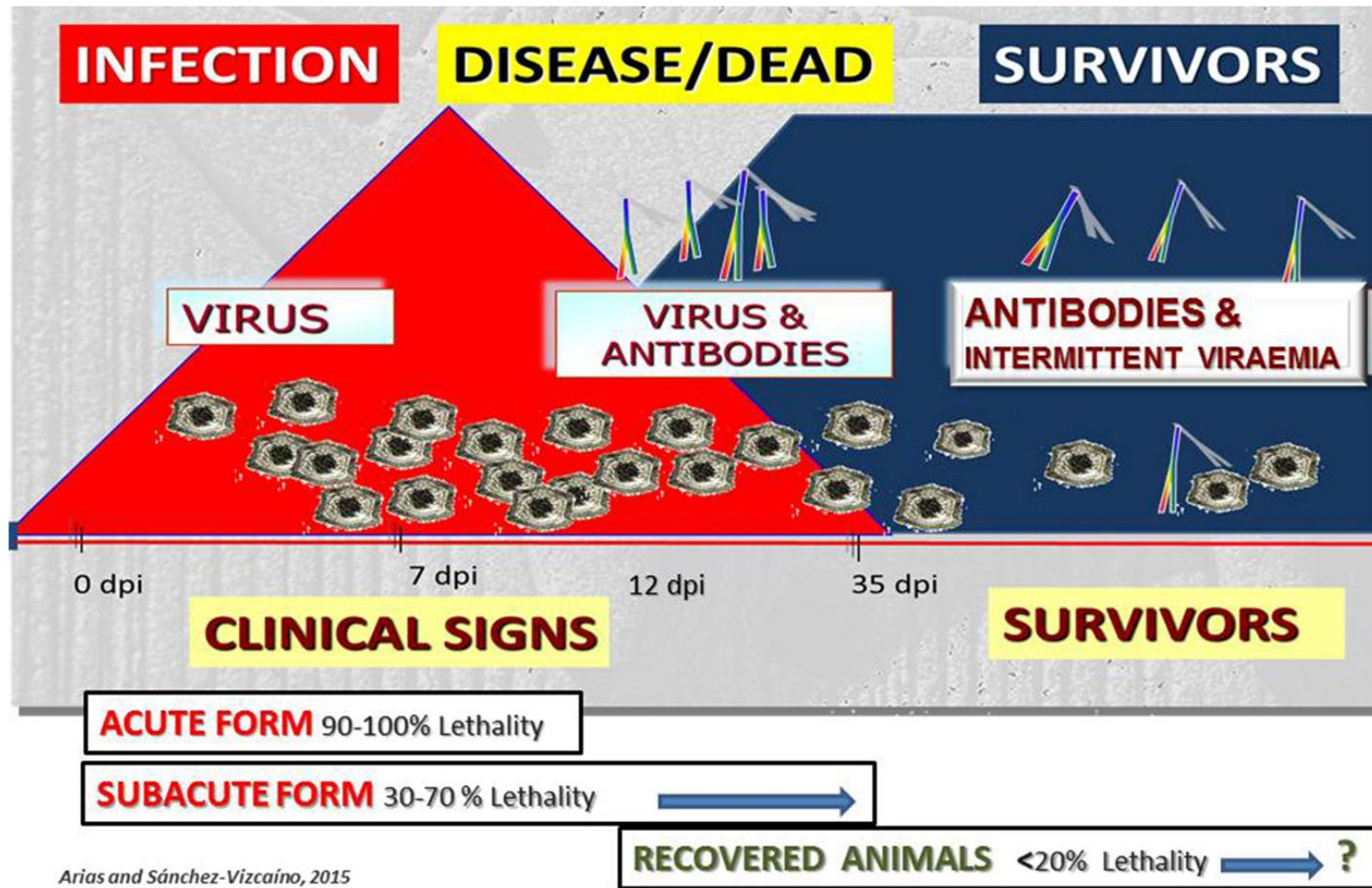
CONTROLLING THE DISEASE = CHALLENGE

Long **survival** in protein rich environment

Large amount of virus shed during infectious period

No vaccine available (yet)





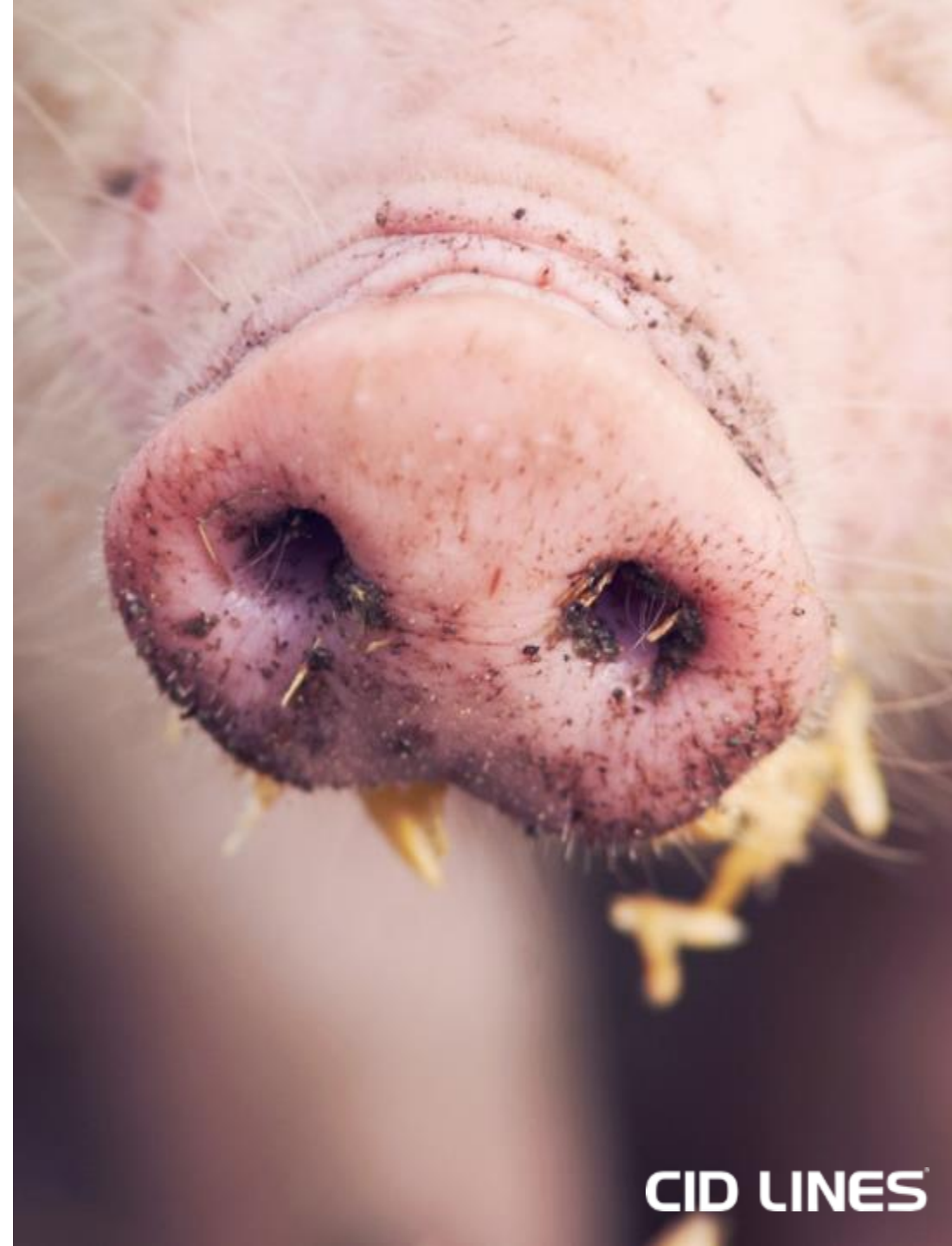
SOURCE: OIE WRL, UCM, Madrid, Spain and EURL, INIA-CISA, Valdeolmos, Madrid, Spain; Gallardo et al., 2015.
 African Swine fever: a global view of the current challenge, Porcine Health Management

PREVENTIVE ACTIONS

Education of veterinarians, pig farmers and hunters to recognize the symptoms of ASF => early detection!!!

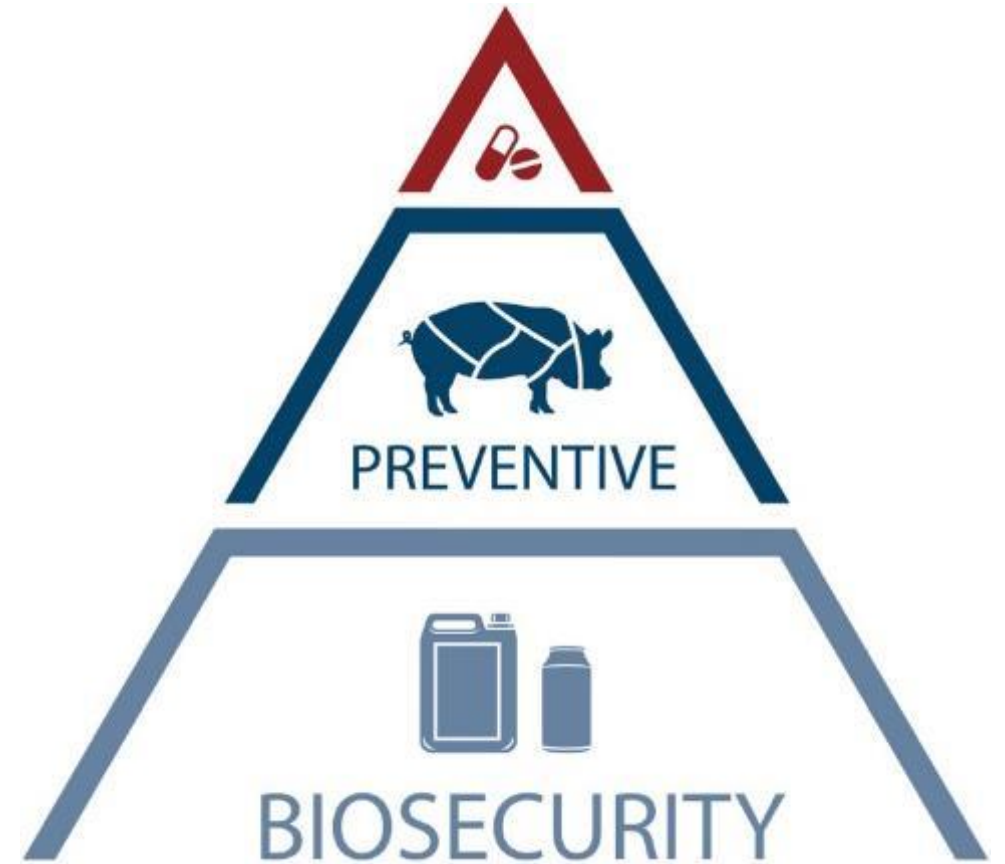
Biosecurity measures in pig farms and transport

Slaughtering affected/exposed animals

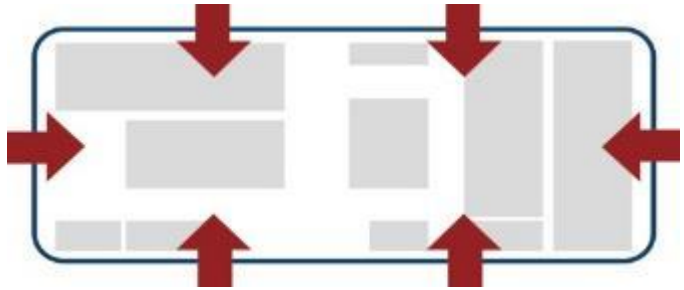
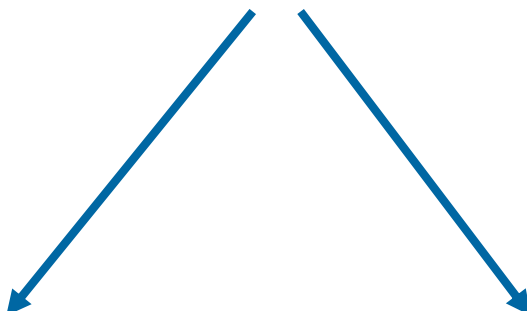


BIOSECURITY

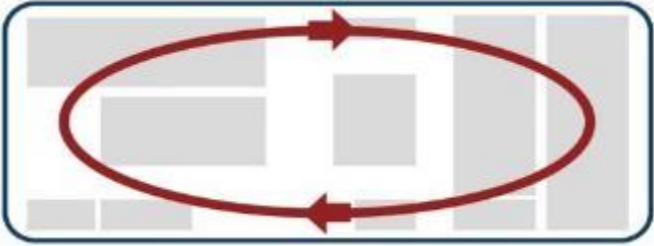
Biosecurity is **(should be)** the basis of any disease control program



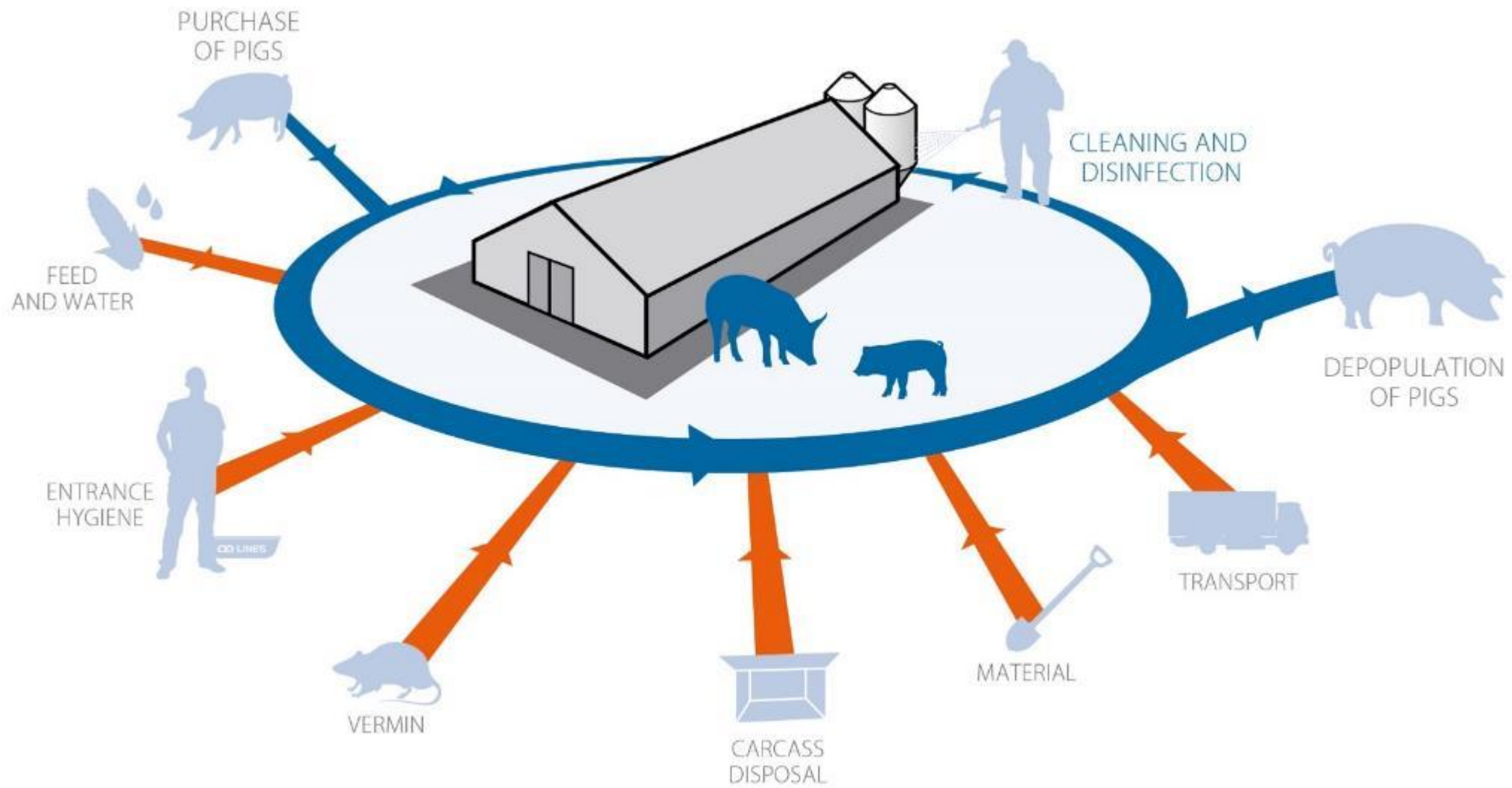
BIOSECURITY



EXTERNAL BIOSECURITY



INTERNAL BIOSECURITY



PURCHASE OF PIGS

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



PURCHASE OF PIGS

first delivered on your farm

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



PURCHASE OF PIGS

pigs come from **the same supplier**

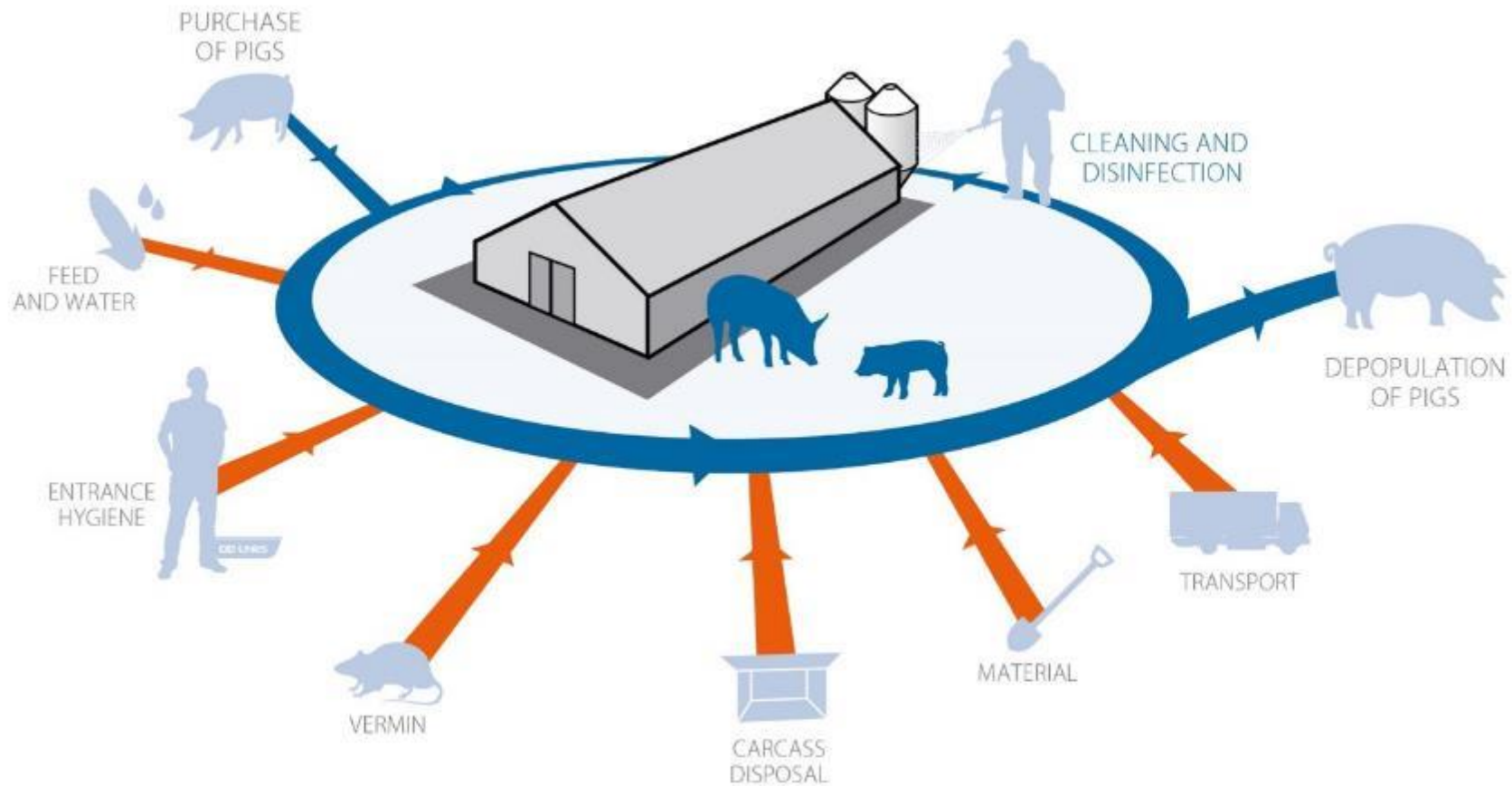
attention for **health status** of the supplier

as few deliveries as possible?



PURCHASE OF BREEDING PIGS







FEED AND WATER

Regular quality and safety checks
of the drinking water

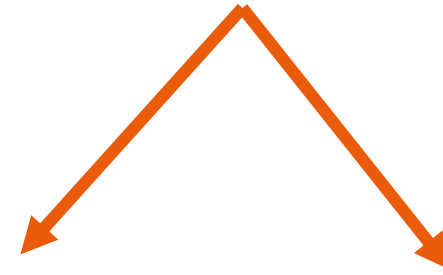
Source

Last nipple or last drinking cup



FEED AND WATER

DRINKING WATER HYGIENE



**Cleaning at
sanitary stop**

**Treatment during
production cycle**







APPLICATION – SANITARY STOP

PRODUCT	DOSAGE	CONTACT TIME
Cid 2000	2 %	4 tot 6 uur



APPLICATION – SANITARY STOP

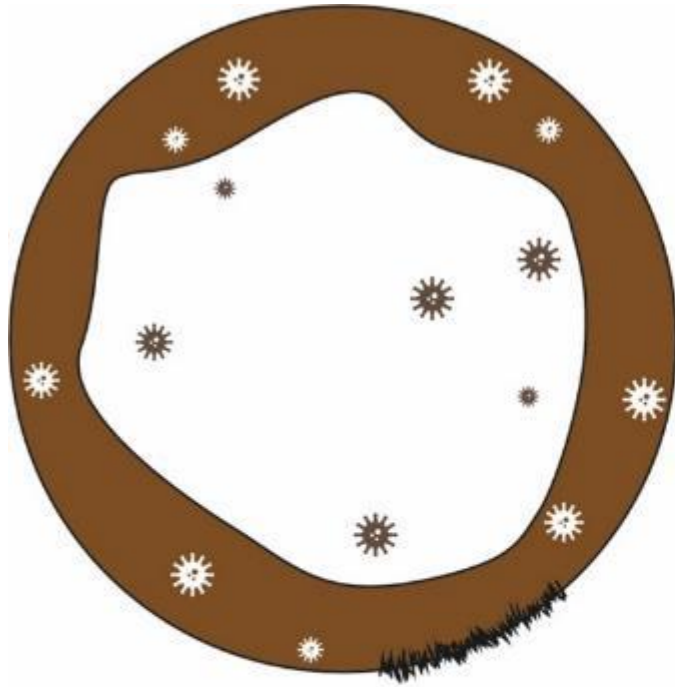
1	Empty the drinking water lines
2	Close all the lines off (except one)
3	Add CID 2000 2% until you're sure that the product is at the end of the line: <ul style="list-style-type: none">- reaction- smell- test strips
4	Trigger the nipples, so you can be sure that the product is also there
5	Close the line and let the product work for 4 – 6 hours
6	Repeat step 2 to 5 for all the drinking water lines
7	After 4 – 6 hours: flush and rinse with clean water



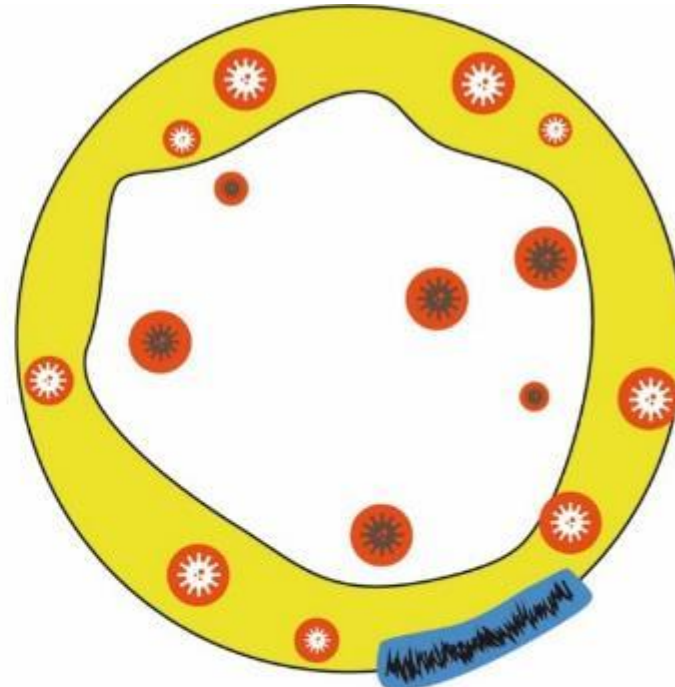
APPLICATION DURING THE PRODUCTION CYCLE




PRODUCT	DOSAGE	CONTACT TIME
CID 2000	100 – 500 ml / 1000 L	continue





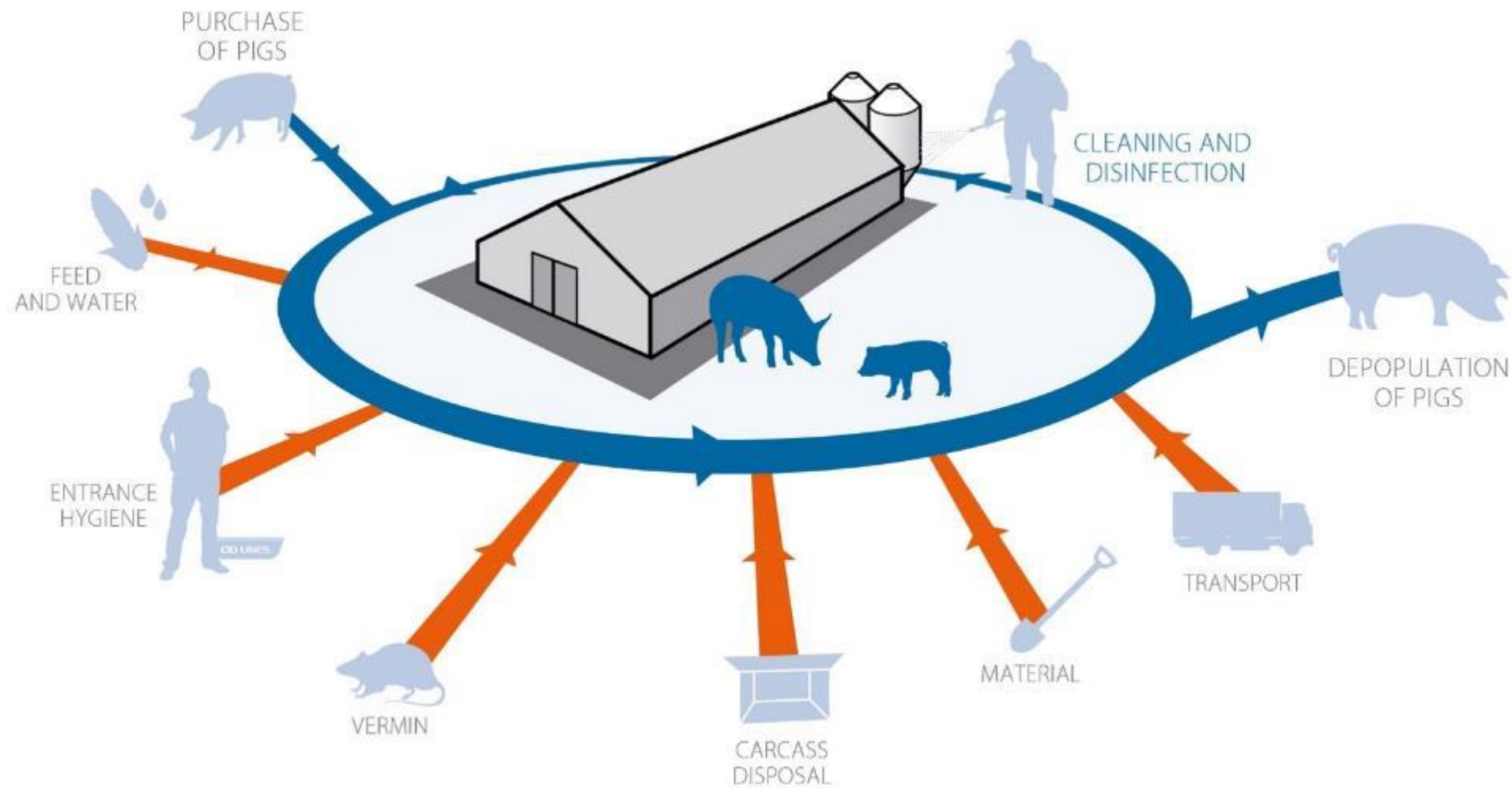
-  BACTERIA
-  BIOFILM
-  MINERAL DEPOSITS



-  H₂O₂
-  ACETIC ACID
-  PEK ACETIC ACID

Problems with Clostridium?

		<i>C. perfringens</i>	SSRC
H ₂ O ₂ Acetic acid Peracetic acid	250 ppm	99 %	+++
	500 ppm	99 %	+++
	1000 ppm	100 %	+++
H ₂ O ₂	250 ppm	56 %	+++
	500 ppm	56 %	+++
	1000 ppm	82 %	+++
ACS Complete	pH = 4	13 %	---



ENTRANCE HYGIENE

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

check-in for visitors

farm specific **clothing and shoes**

hand hygiene



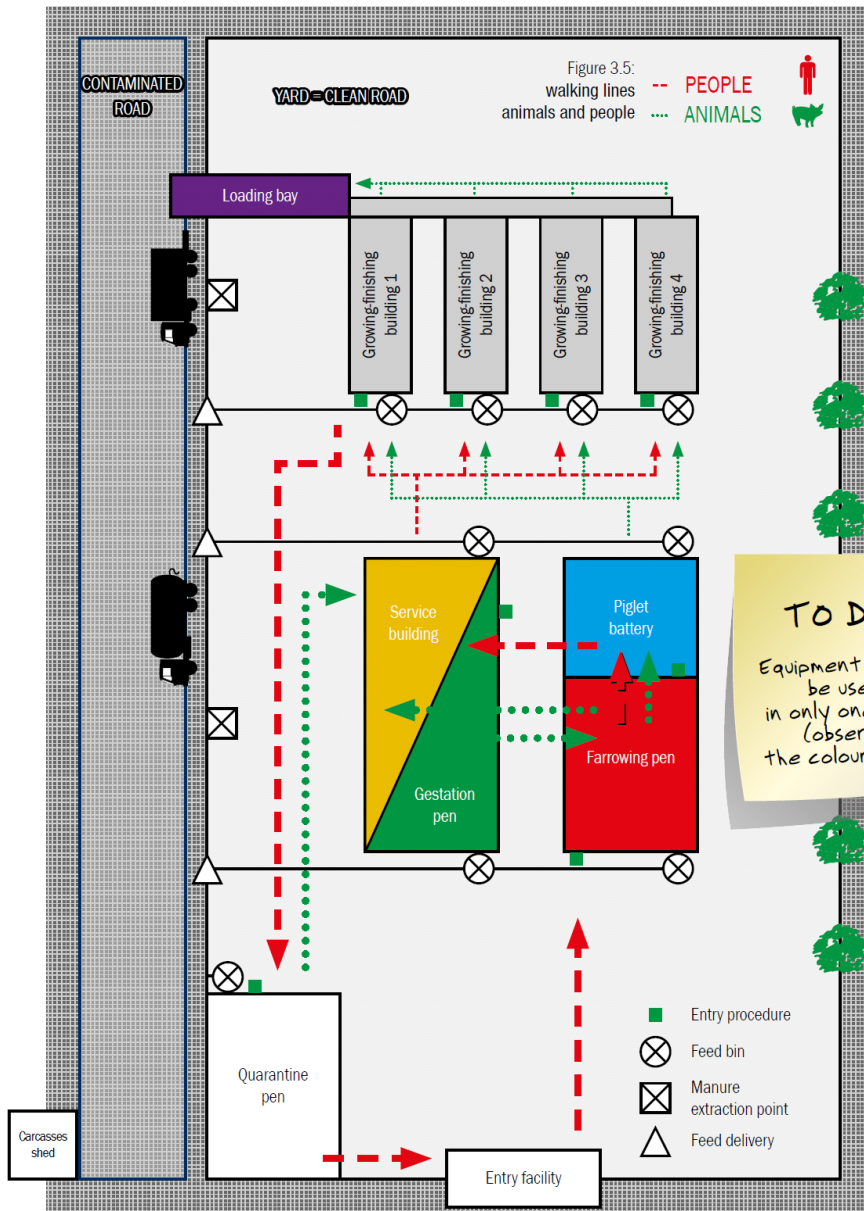
ENTRANCE HYGIENE

hygiene lock with footbath or booth washer

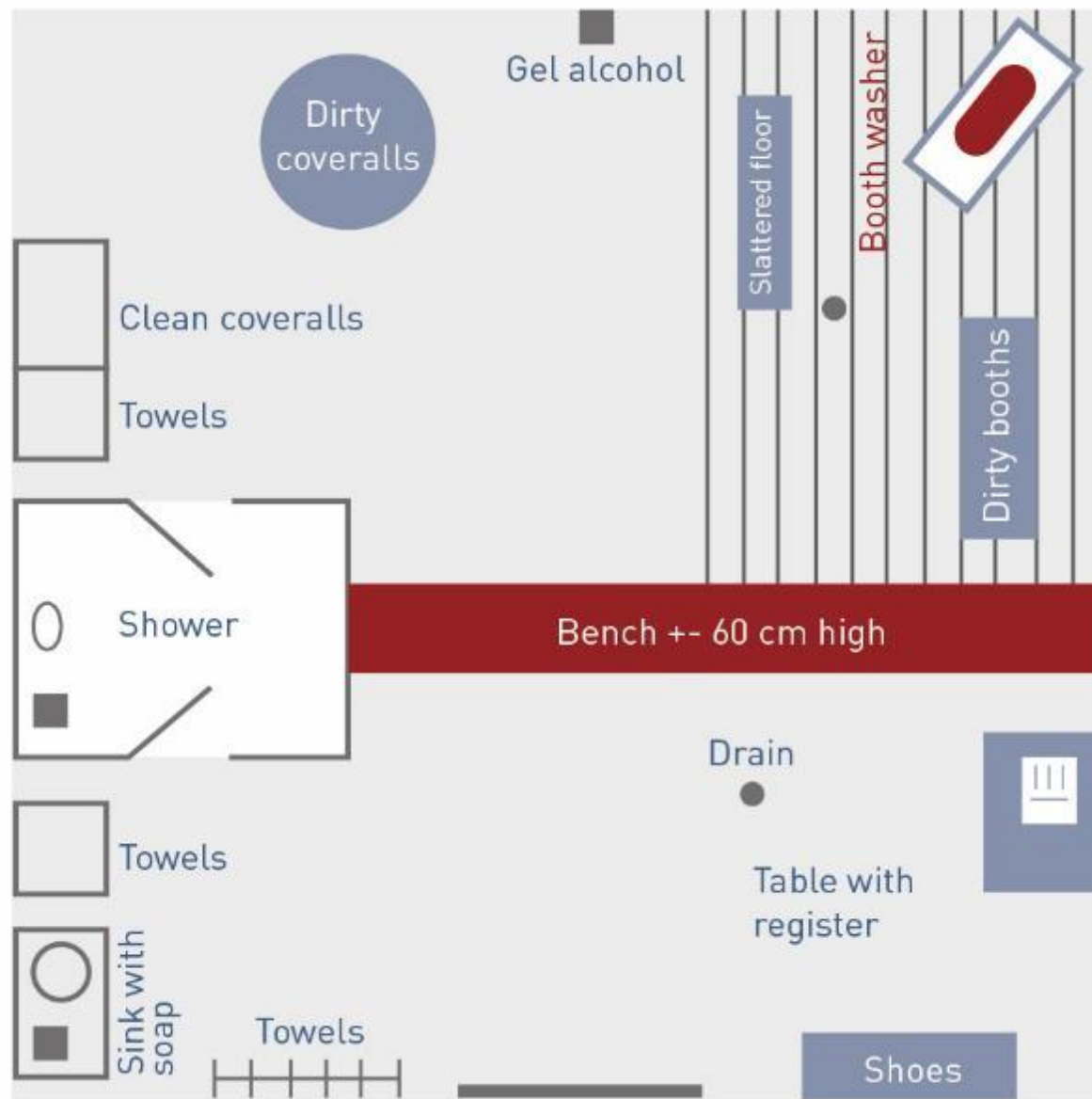
employees should **not work at pig farms**

no hunting allowed for **staff** and **other visitors**

















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BOOT HYGIENE

STEP 1



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

STEP 2



Rinse with water

STEP 3



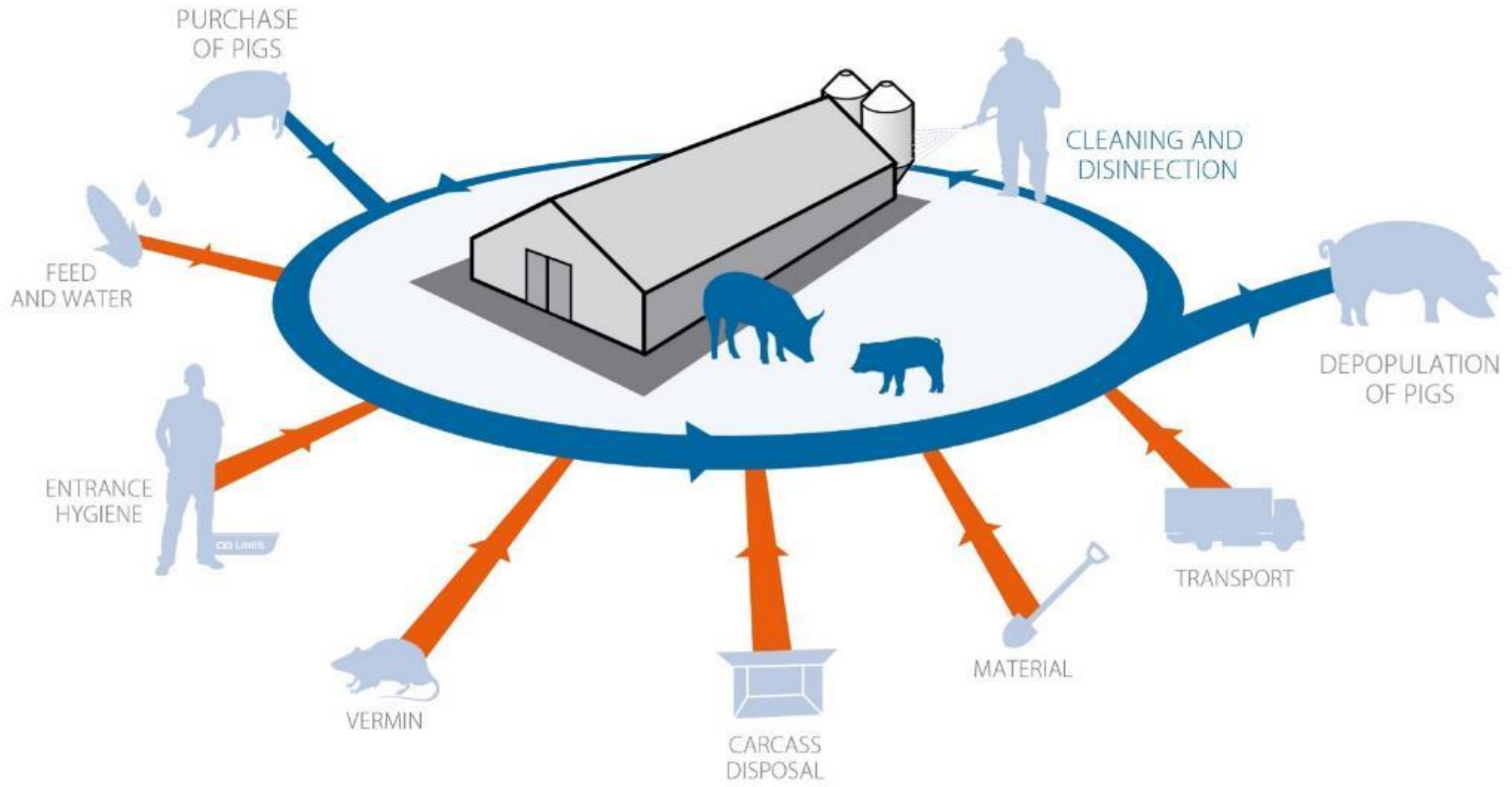
Disinfect

STEP 4



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





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VERMIN

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' farming - no pet pigs





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WILD BOAR

no **outdoor farming** allowed

hunting allowed but with strict guidelines and procedures

strict segregation including **stock proof fencing**

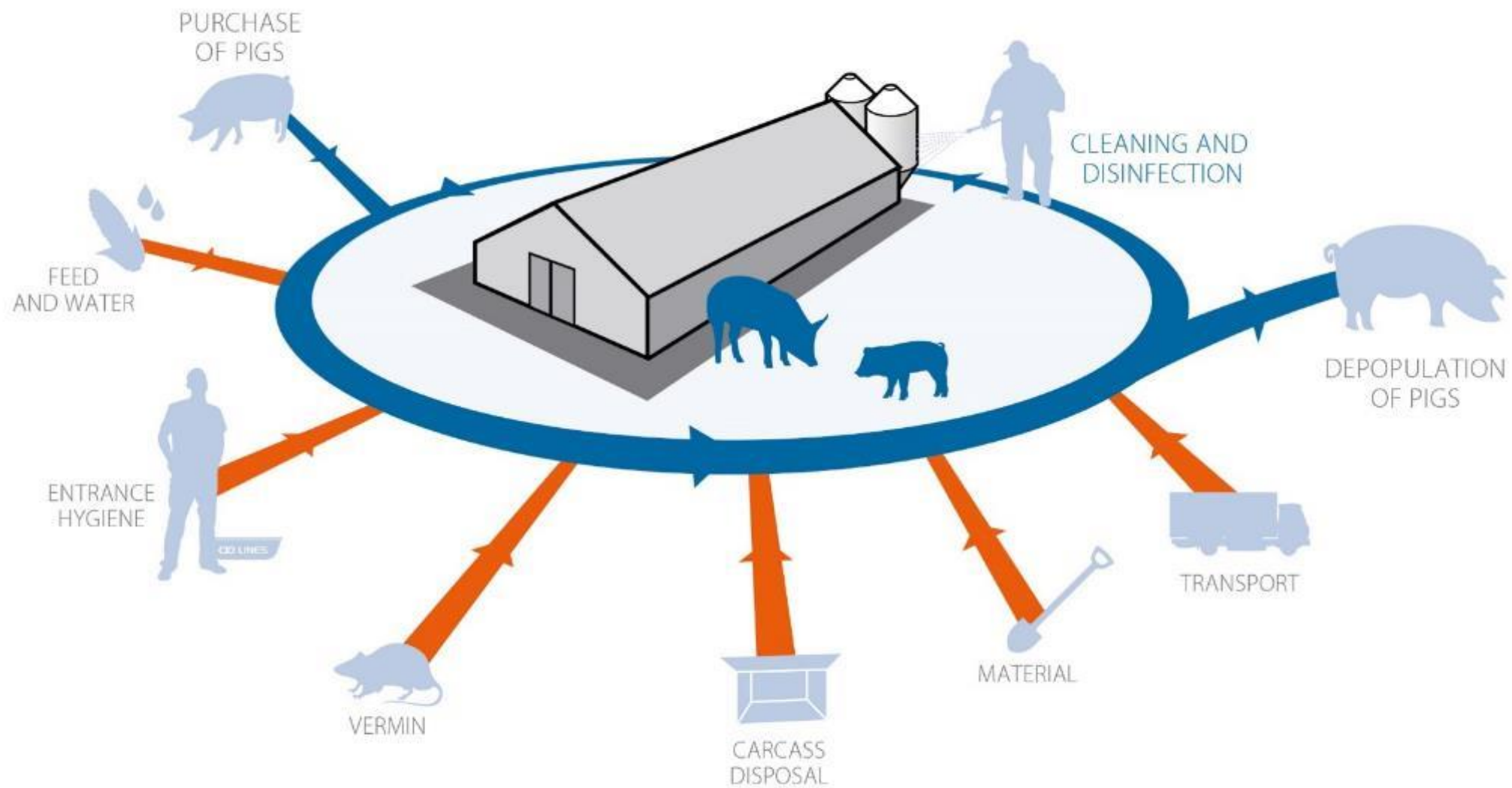
standard **diagnostic analyses** for wild boars

buffer zones to reduce the density of wild boars and provide that they cross borders

preventive slaughtering of pigs in high risk zones







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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

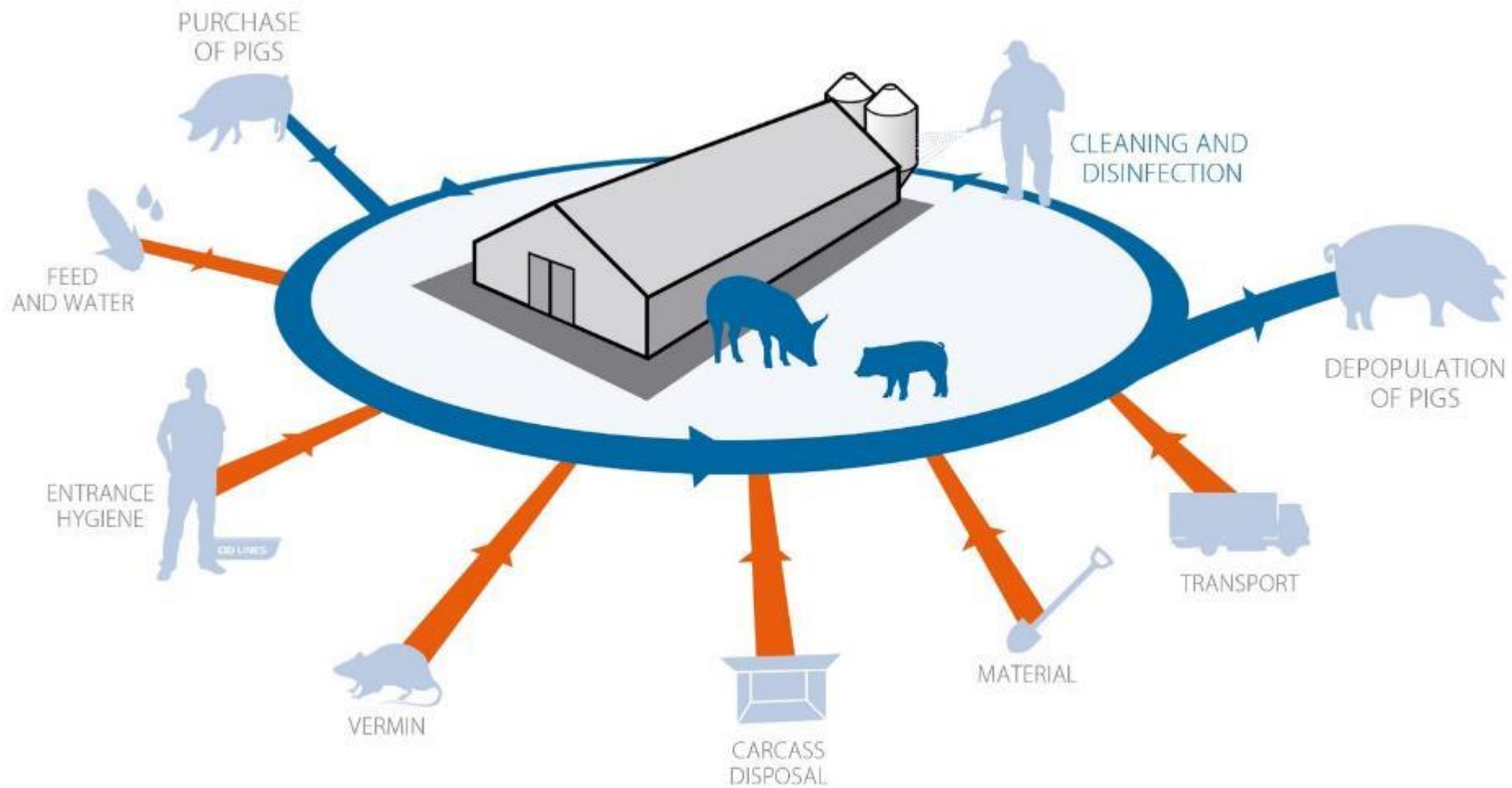


Disinfecting



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MATERIAL



Farm specific material

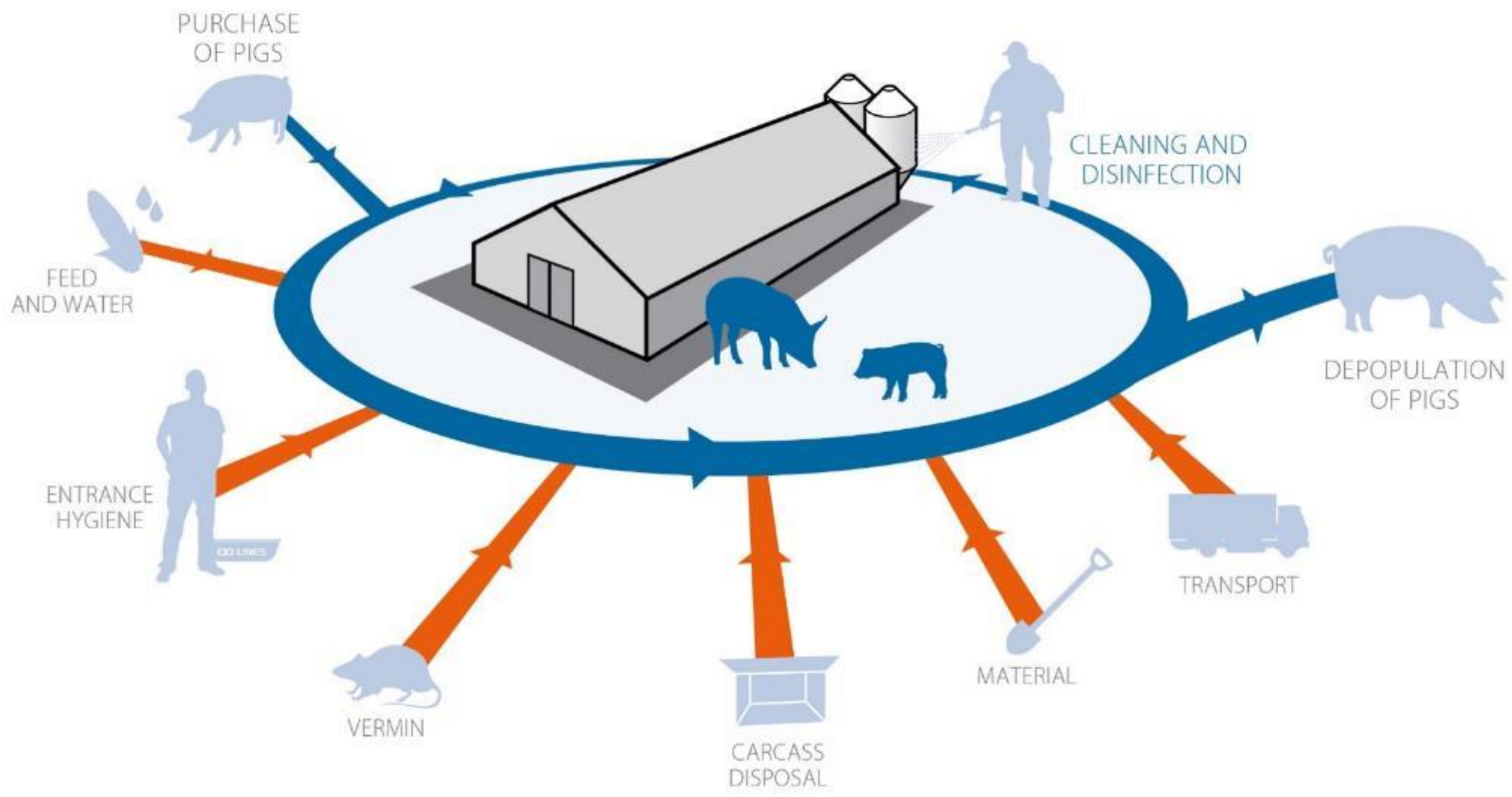
Preventive measures for new material supply at the farm (disinfection before entering)

Cleaning and disinfection protocol



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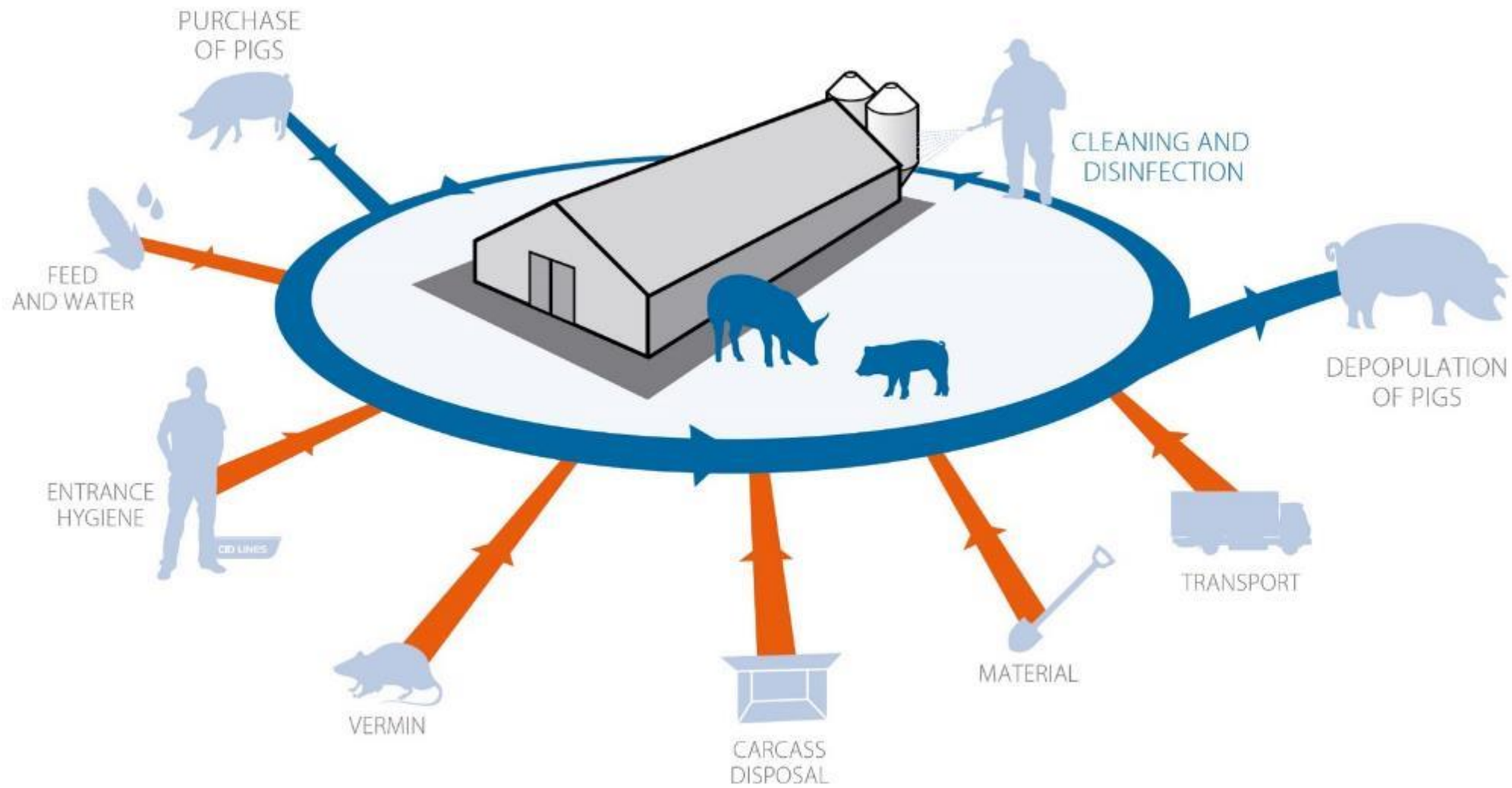
CID LINES



BREAK THE ROUTES OF TRANSMISSION

Prevent emerging disease outbreaks

African Swine Fever, Avian Influenza, Foot & Mouth Disease



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DEPOPULATION OF PIGS

no access for the driver to the stables

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

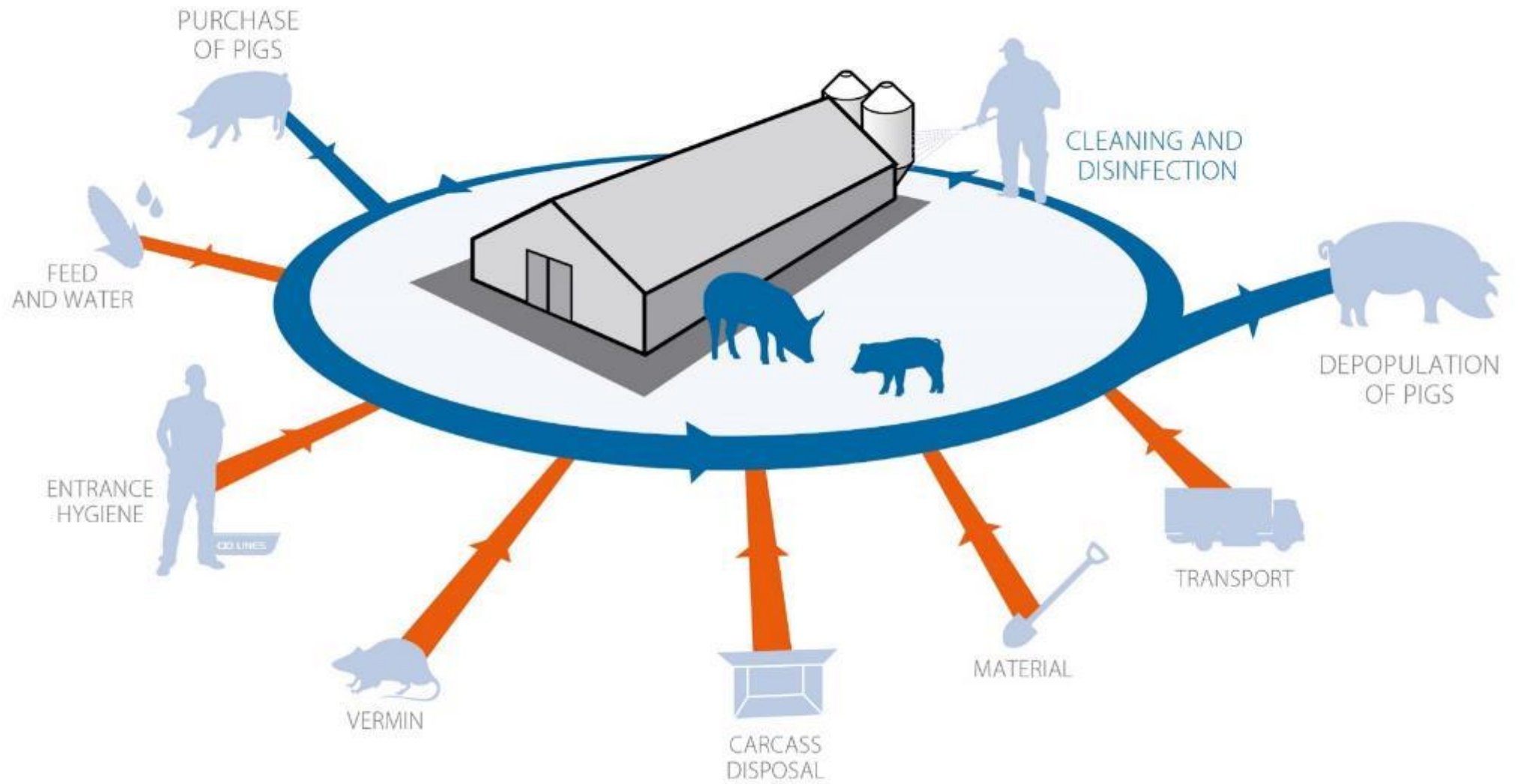
transport vehicle **cleaned and disinfected**

loading from a **separate loading area**

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







IN



OUT



CLEANING AND DISINFECTION

Contact time:
30 – 60 minutes

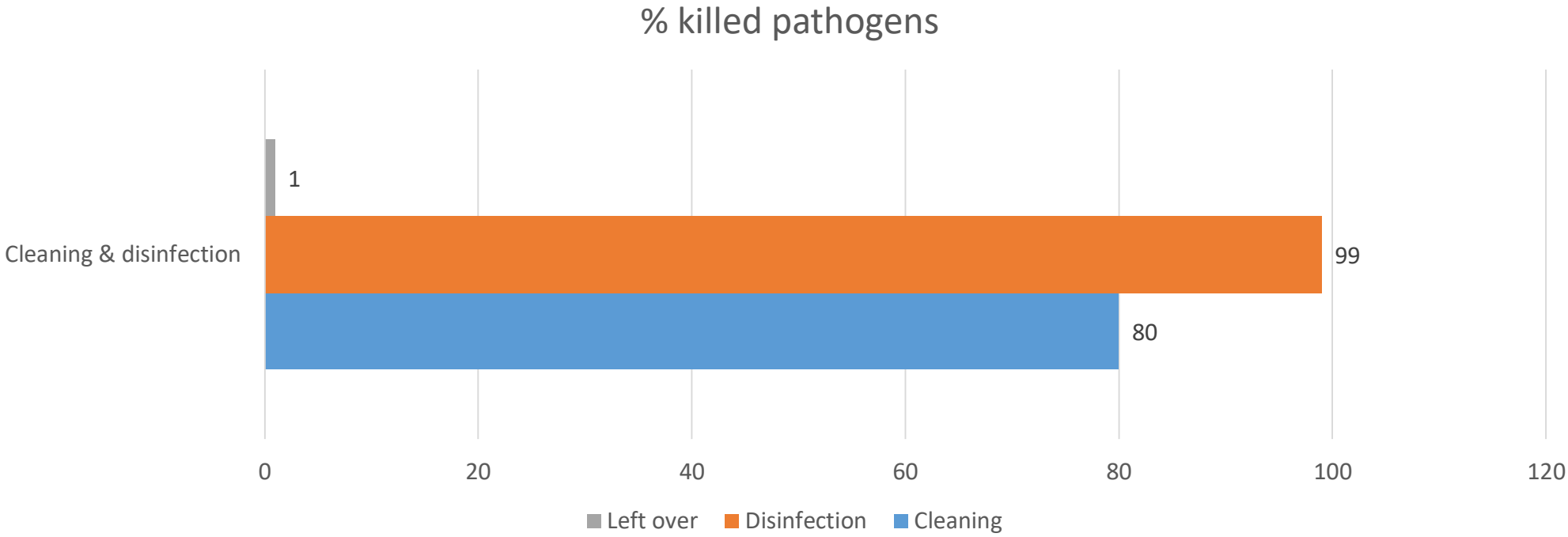


Let it dry!

Let it dry!



CLEANING AND DISINFECTION



KENOSAN

Sticky and long-lasting foam

Extreme dirt penetrating capacity

Very economical in use

Non corrosive



Organic » MANURE = ACID pH

Fat

Protein

ALKALINE CLEANER

Inorganic » INORGANIC = ALKALINE pH

Minerals: Ca – Mg - Fe

ACID CLEANER



VIROCID

Virocid 0,25 % has been proven to kill ASF by the European Union Reference Laboratory for African Swine fever in Madrid

Tested for more than **90 other pathogens**



VIROCID

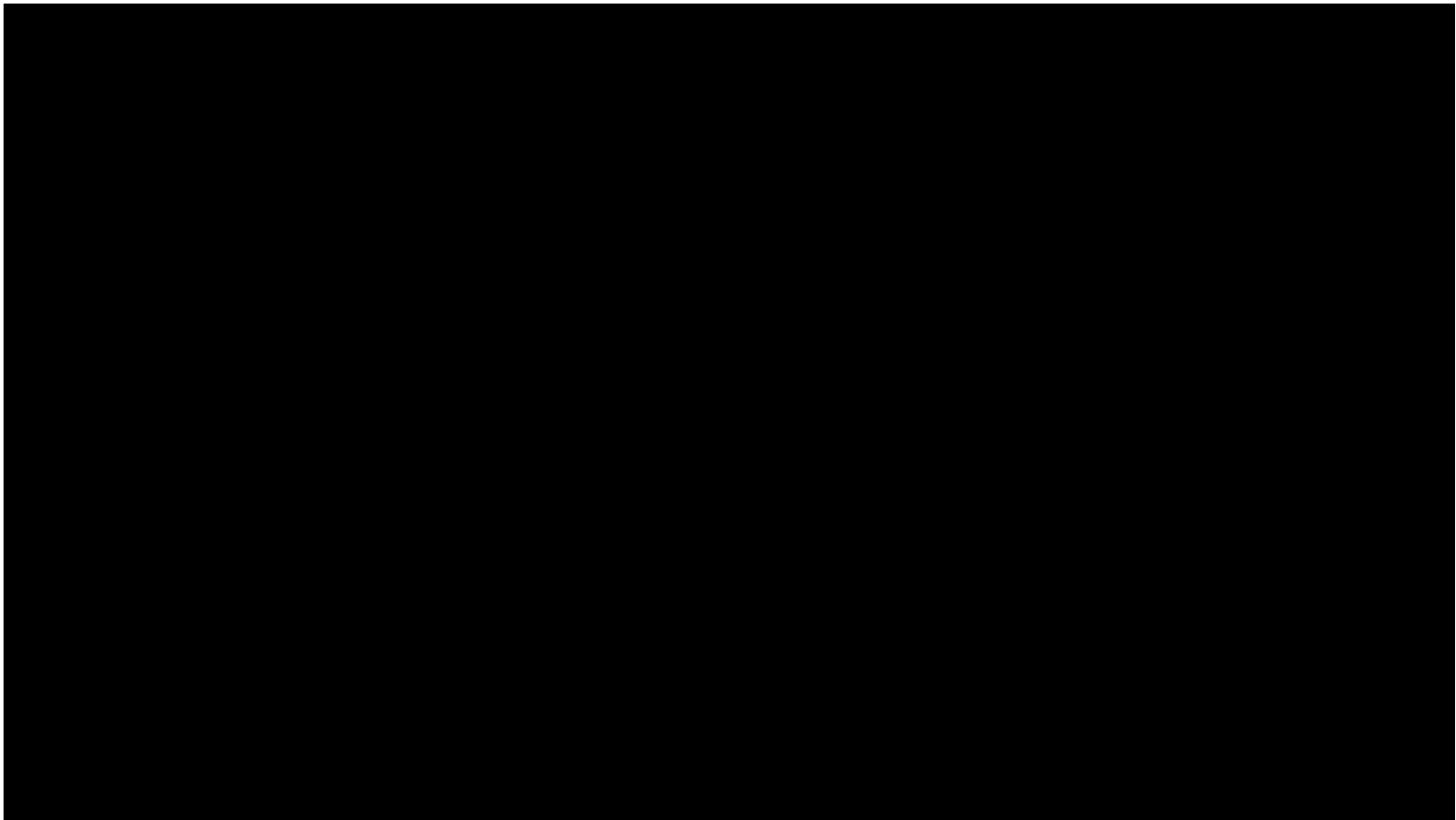
Efficient at low concentration

Safe for Material: GLP certified, VDA class A, Cirlam Corrosivity tested

Safe for User: Ready to use solution proven to be harmless for people (skin, breath, eye)

Safe for Environment: Comply with EU regulation of biodegradability.





BIOCHECK.UGent, prevention is better than cure!

Welkom!

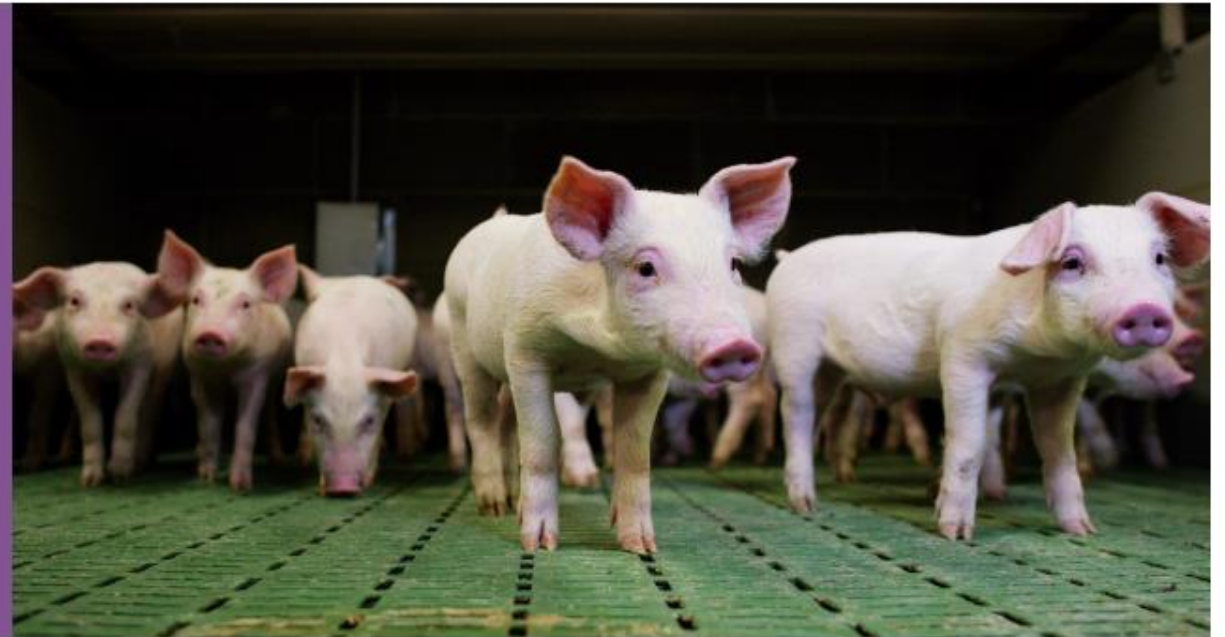
Biocheck.UGent is a risk-based scoring system to evaluate the quality of your on-farm biosecurity in an scientific and independent way.

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



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CONCLUSION

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ASF is a very complex disease

ASF is a global threat

Real challenge to battle against ASF

Early detection + biosecurity are the basis for the ASF control program

