

Biocheck.Ugent the tool to measure and improve farm level biosecurity

Prof. Jeroen Dewulf

Bio-what ?

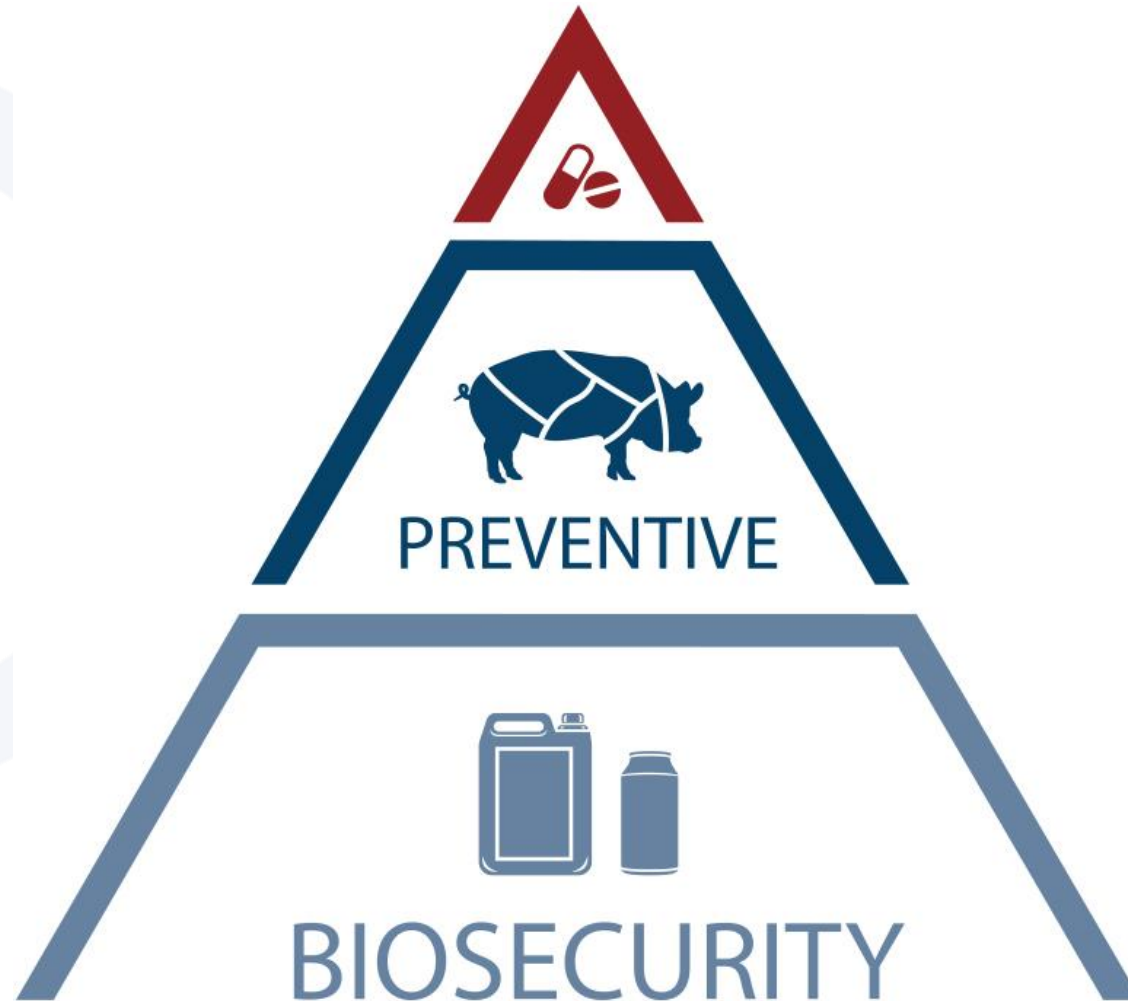
BIOSECURITY

=

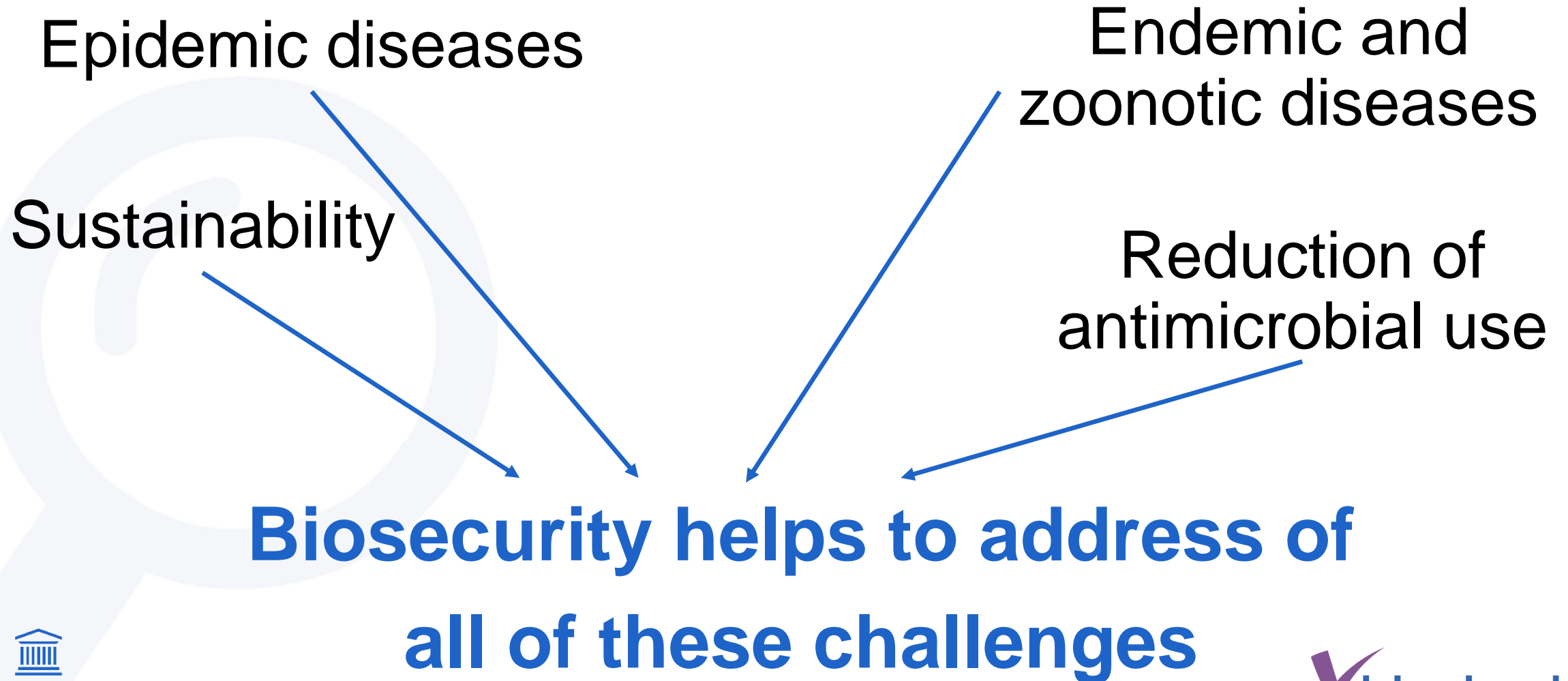
The application of a set of **management, behavioural** and **physical** measures designed to reduce the risk of **introduction, establishment** and **spread** of pathogenic agents **to, within and from** an animal population.



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



Is biosecurity important?



Is biosecurity important?

FAO Report Clears Path to Food Security, climate solutions for animal ag

PATHWAYS TOWARDS LOWER EMISSIONS

There will be a **20 percent increase in demand for animal-source foods by the year 2050** which will increase emissions from livestock production from present level of 6 gigatons to 9.1 gigatons of CO₂eq.



According to the FAO, **increasing productivity** has potential to reduce projected sector emissions by 20 percent by 2050.

Feed and nutrition improvements have a reduction potential of 12 percent.



Improved animal health have a reduction potential of 10 percent.

1. <https://openknowledge.fao.org/server/api/core/bitstreams/a06a30d3-6e9d-4e9c-b4b7-29a6cc307208/content>

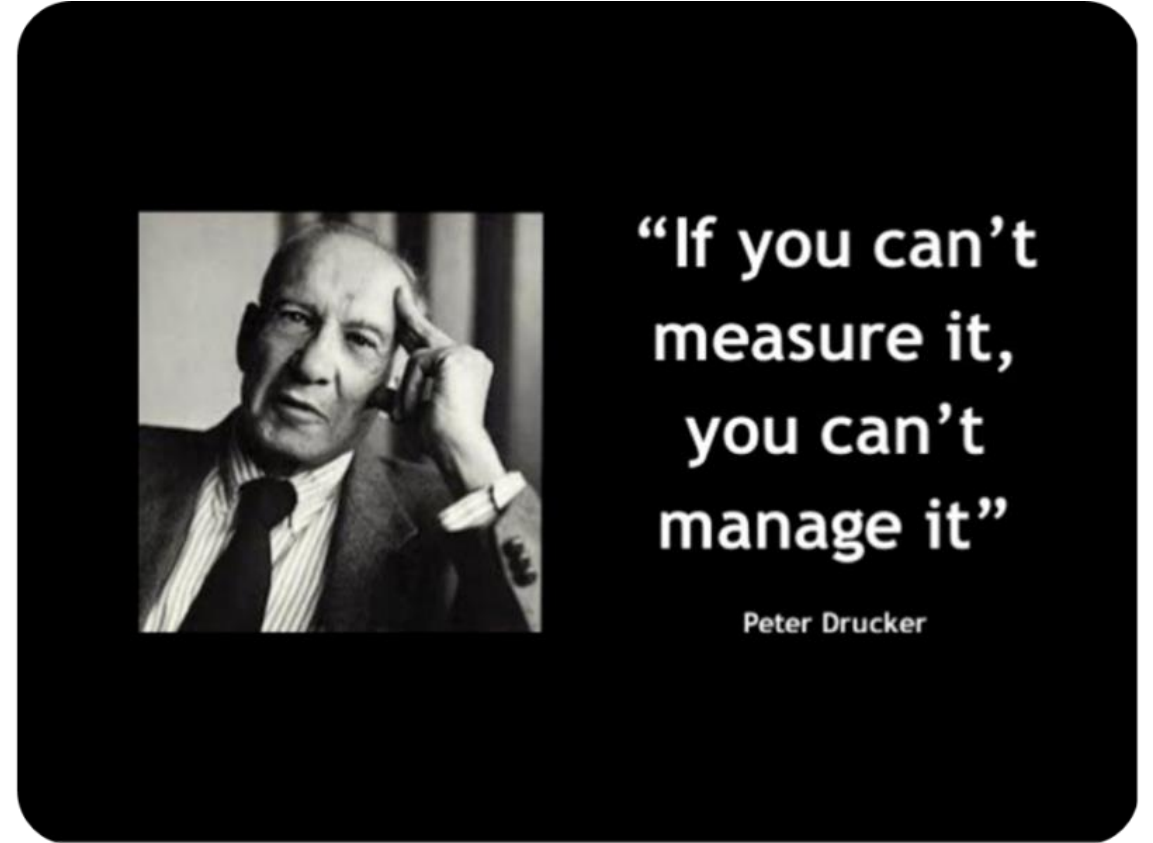
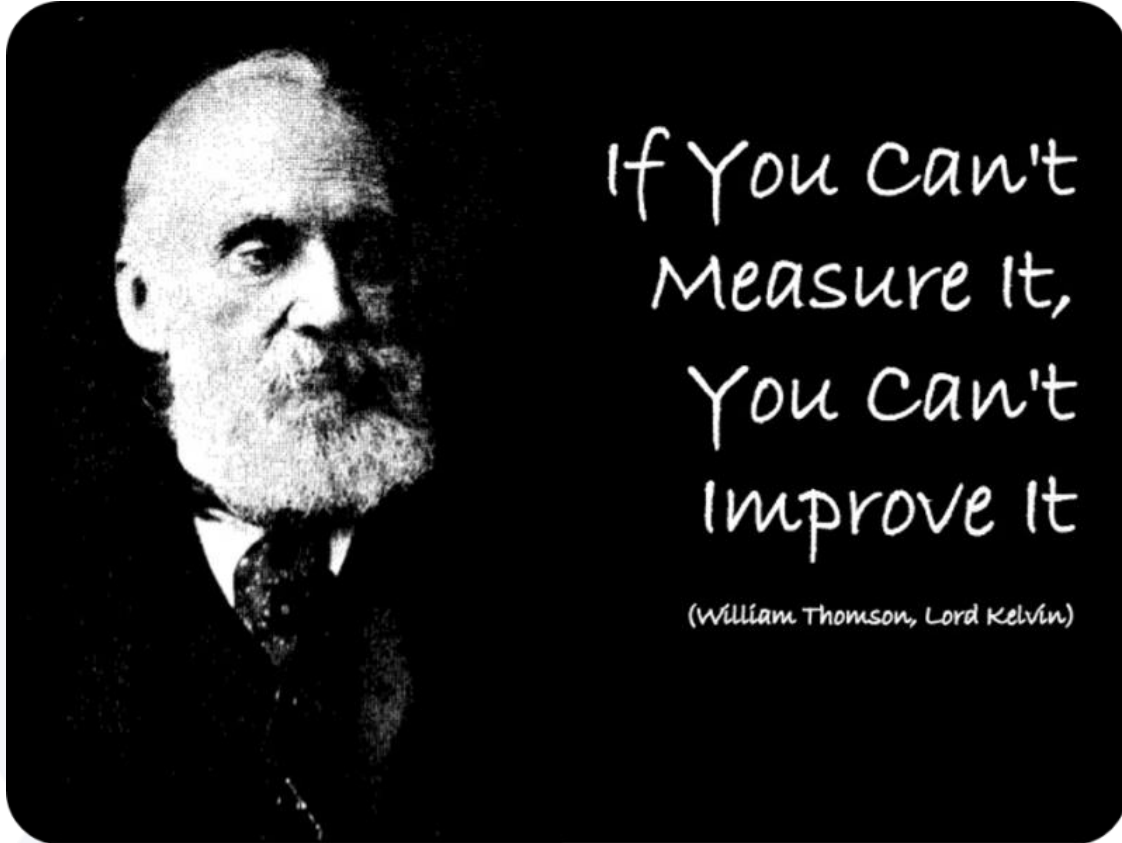
UCDAVIS
CLEAR Center

Biosecurity = diverse

- No protocol suitable for every herd
- Balance biosecurity – management
- Tool?

→ **Scoring System**







Keeping healthy animals healthy!

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

Quantify your biosecurity level right now!

BIOCHECK.UGENT

Platform to help increase biosecurity levels

Data-driven recommendations

With the goal to keeping healthy animals healthy

www.biocheckgent.com

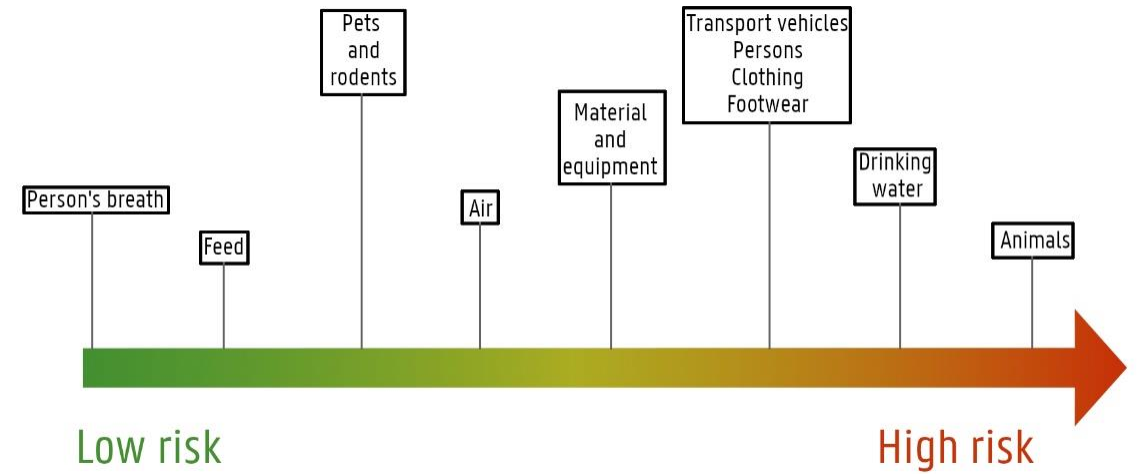


Risk based scoring system

Weighted scores

Based on scientific research

Risk for transmission: direct vs. indirect contact



BIOCHECK.UGENT



Pig

→ Pigs indoor Preferred

→ Pigs indoor Old version

→ Pigs outdoor

→ Pig backyard/small-scale



Cattle

→ Veal calves

→ Beef cattle

→ Dairy cattle

→ Dairy-source beef cattle production



Small ruminants

→ Small ruminants dairy

→ Small ruminants meat



Poultry

→ Free range broilers

→ Free range layers

→ Ducks

→ Backyard poultry

→ Laying hens

→ Broilers

→ Turkeys

→ Breeders



ID: 20388/691653/v/2_1/F

Entry date: 2019-03-10 13:22:08

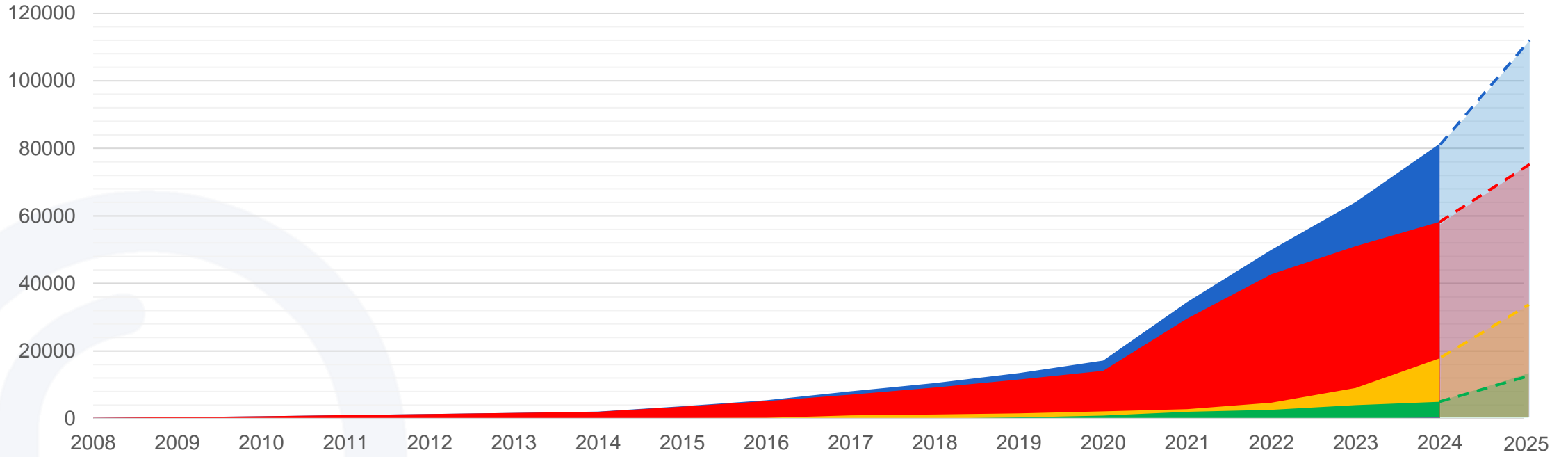
Identification:

PIG

Nr	Description	Score	Country average	Global average
<i>External biosecurity</i>				
A	<u>Purchase of animals and semen</u>	100 %	88 %	89 %
B	<u>Transport of animals, removal of manure and dead animals</u>	41 %	70 %	70 %
C	<u>Feed, water and equipment supply</u>	27 %	38 %	50 %
D	<u>Personnel and visitors</u>	41 %	64 %	68 %
E	<u>Vermin and bird control</u>	50 %	64 %	67 %
F	<u>Environment and region</u>	60 %	53 %	64 %
Subtotal External biosecurity:		57 %	66 %	70 %
<i>Internal biosecurity</i>				
A	<u>Disease management</u>	40 %	56 %	67 %
B	<u>Farrowing and suckling period</u>	64 %	59 %	56 %
C	<u>Nursery unit</u>	36 %	65 %	66 %
D	<u>Fattening unit</u>	N/A	72 %	67 %
E	<u>Measures between compartments and the use of equipment</u>	39 %	44 %	48 %
F	<u>Cleaning and disinfection</u>	20 %	48 %	59 %
Subtotal Internal biosecurity:		38 %	55 %	58 %
Total:		48 %	61 %	64 %

N/A = Not applicable

■ Cumulative ■ pigs ■ poultry ■ cattle ■ small ruminant



2002

Where it all started
"Epidemiology and control
of Classical Swine Fever"
PhD dissertation of
Jeroen Dewulf



First Key Paper

A survey on biosecurity and
management practices in
Belgian Pig herds



GHENT
UNIVERSITY

Development of an online
scoring system and the
results of the first 99
participating farms



Launch of Biocheck
for broiler
production



Launch of Biocheck
for cattle production



Updated
Biocheck.Ugent
Website

Launch of
Biocheck.Ugent
as a company

Explosive growth:
50000+ entries!



90000+ expected
submissions, launch of
biocheck for small
ruminants



WORLD LARGEST DATABASE ON BIOSECURITY

Worldwide usage of Biocheck.UGent

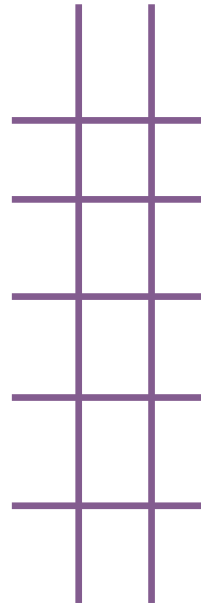
The Biocheck.UGent has already been used **95017** times to evaluate the biosecurity in farms worldwide.

→ Worldwide statistics



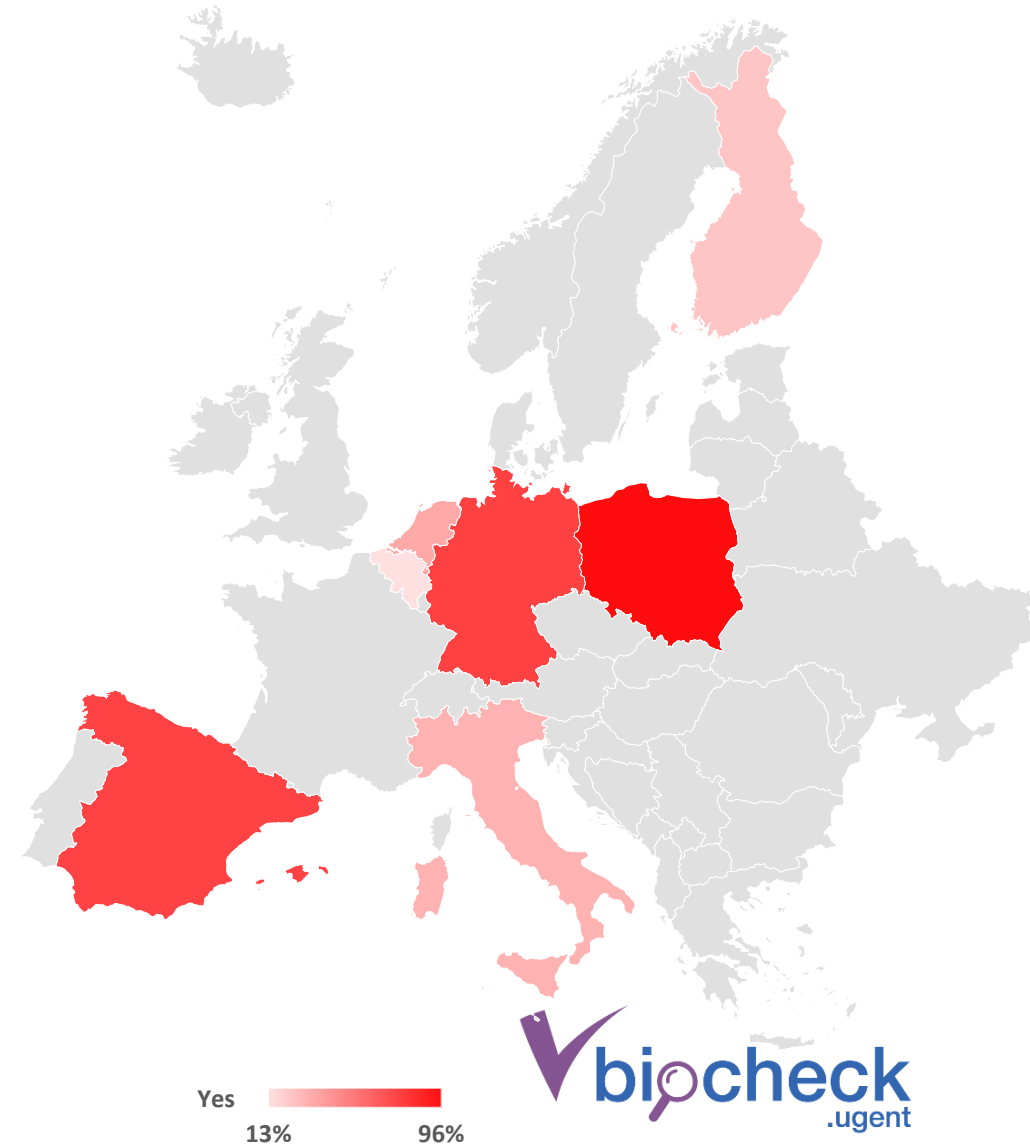
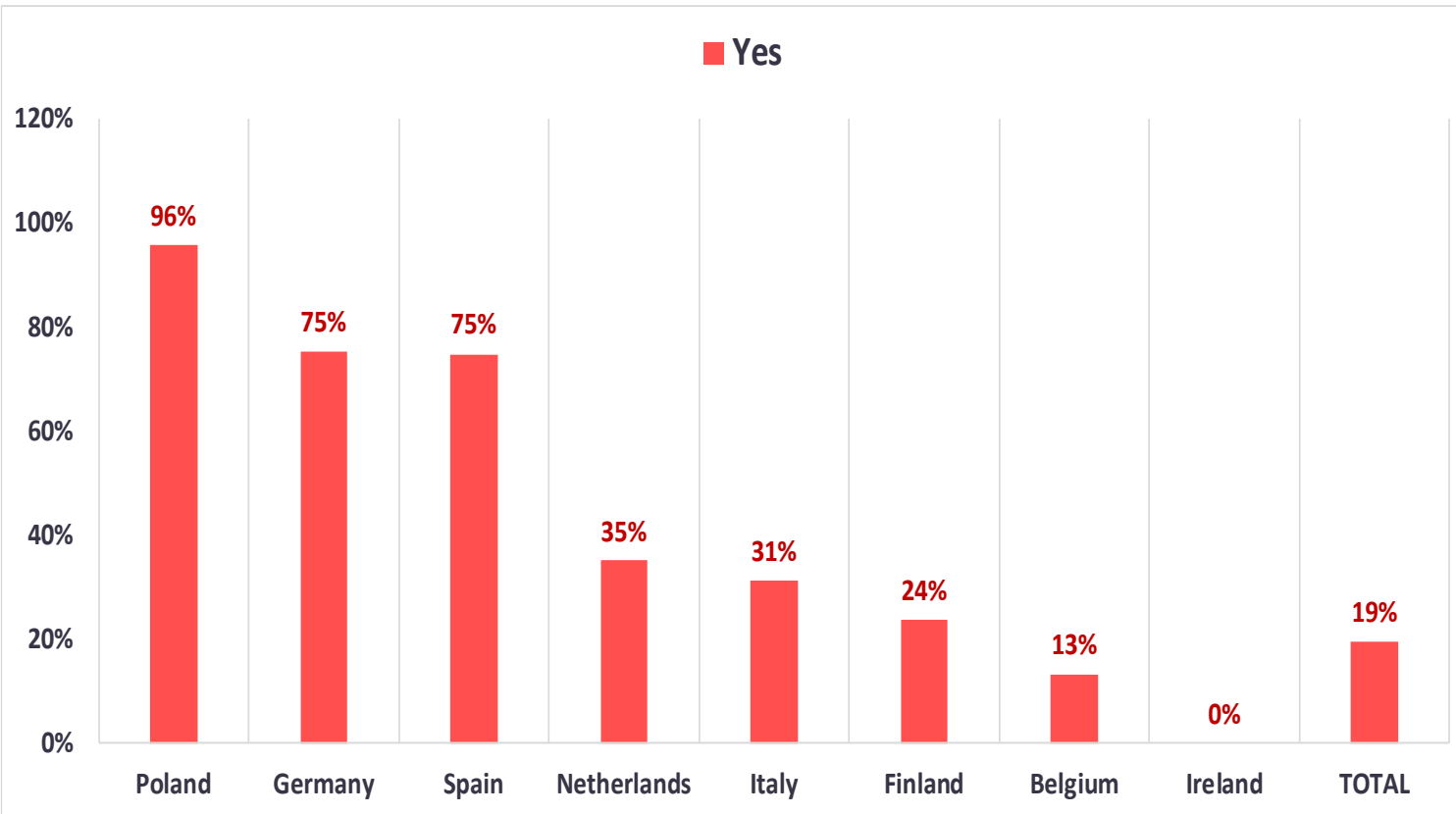
National implementation in

- Belgium (pig, poultry)
- Ireland (pig, poultry)
- Finland (cattle, pig)
- Italy (pig)
- Czech Republic (pig, poultry, cattle)
- Luxemburg (cattle, pig, poultry)
- UK (Pigs)
- Shotland (Pigs)
- ...

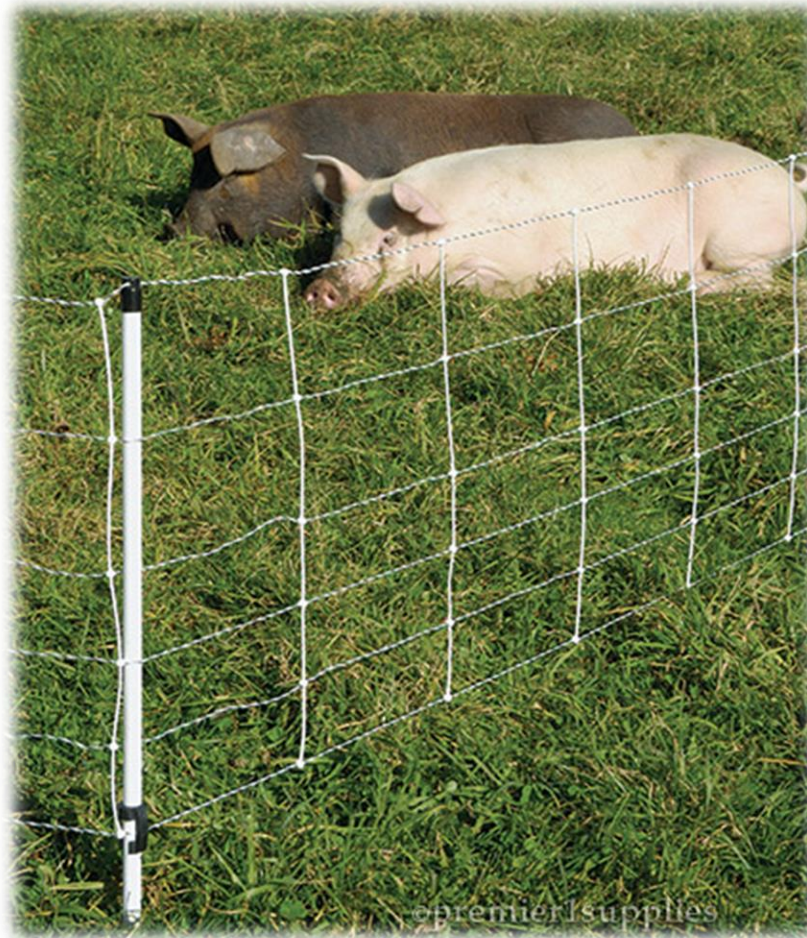


1. Have wild boars been spotted within a 10-kilometres radius (6.2 miles) of your farm?

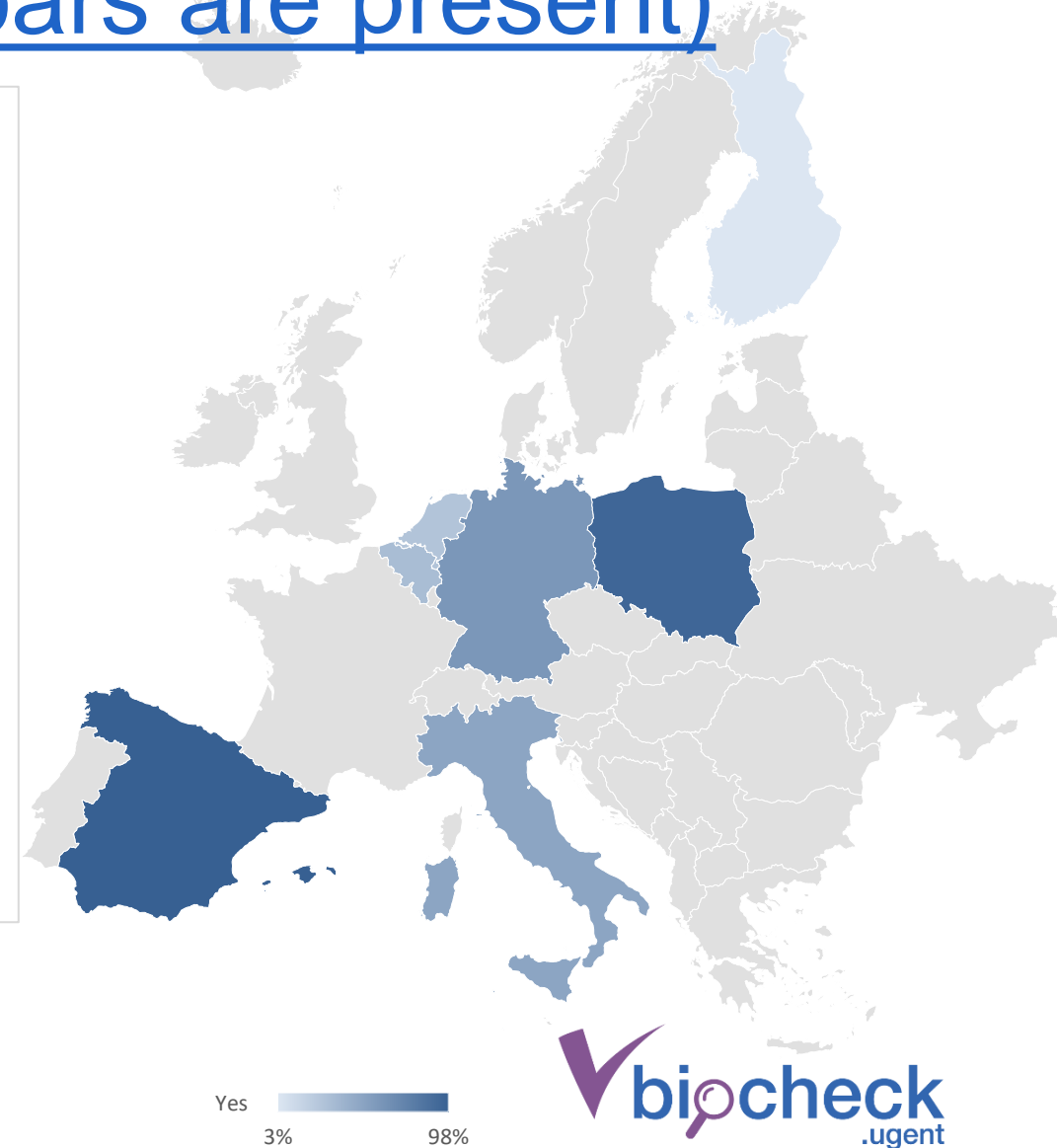
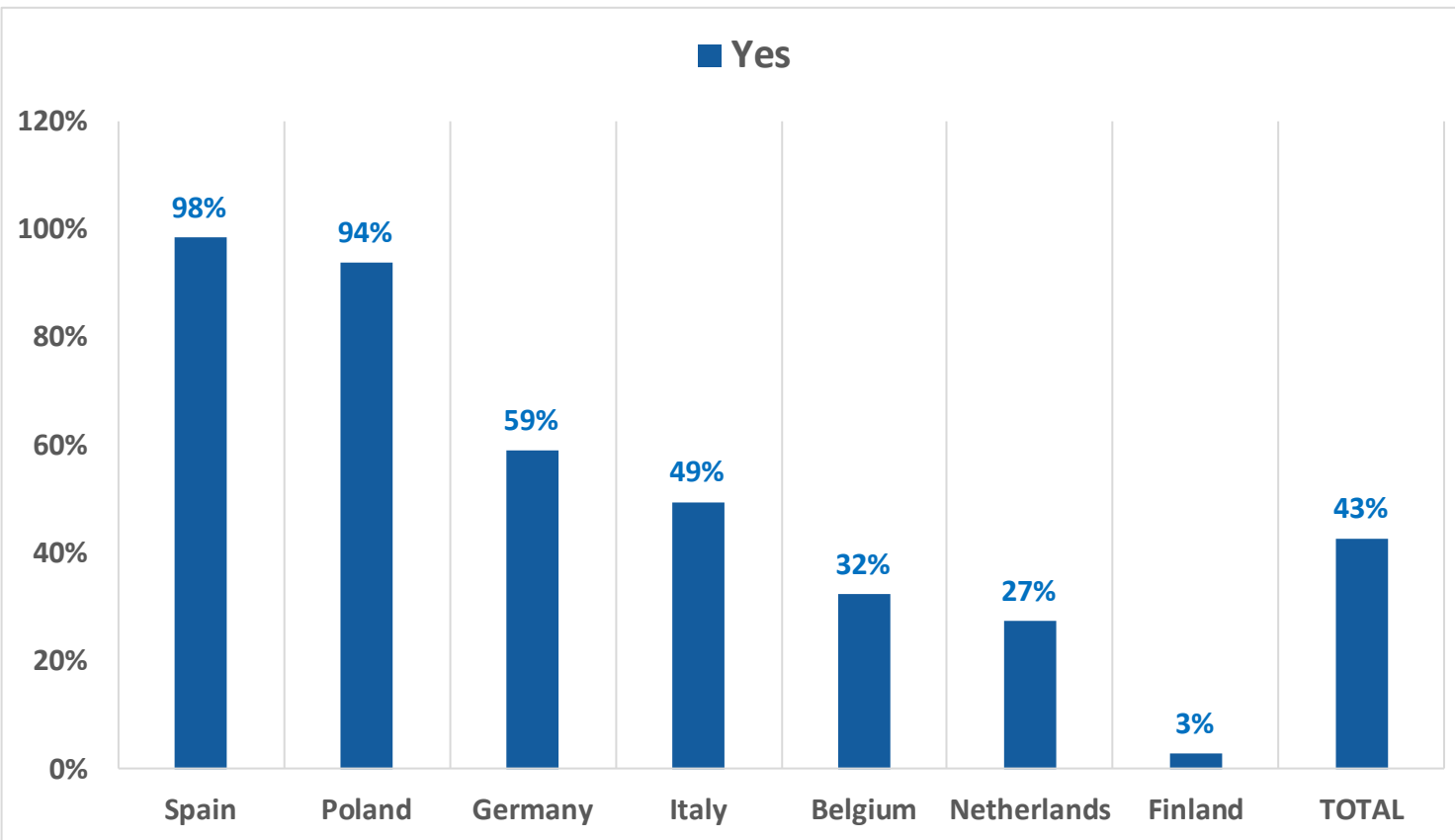
HAVE WILD BOARS BEEN SPOTTED WITHIN A 10-KILOMETRES RADIUS (6.2 MILES) OF YOUR FARM?

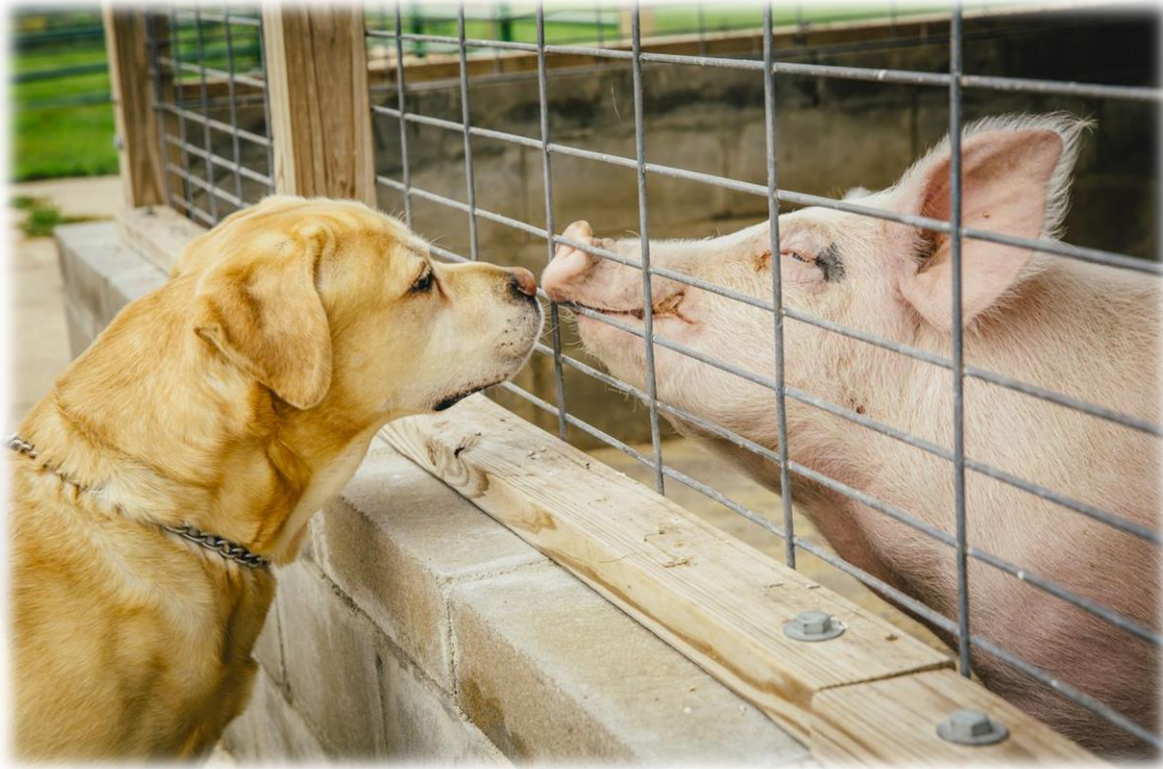


2. IS THE FARM ENCLOSED BY FENCES, WIRE, ...?



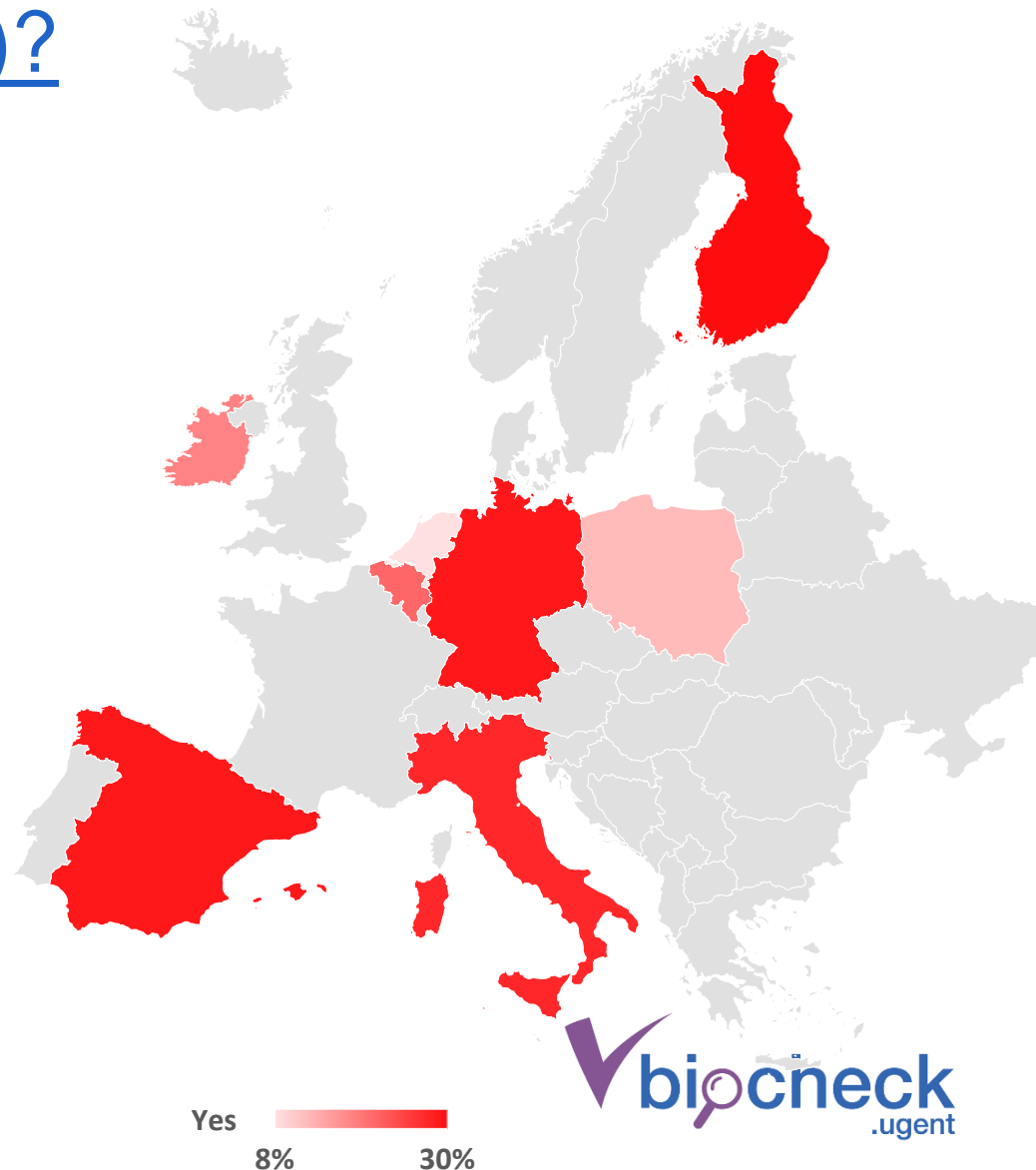
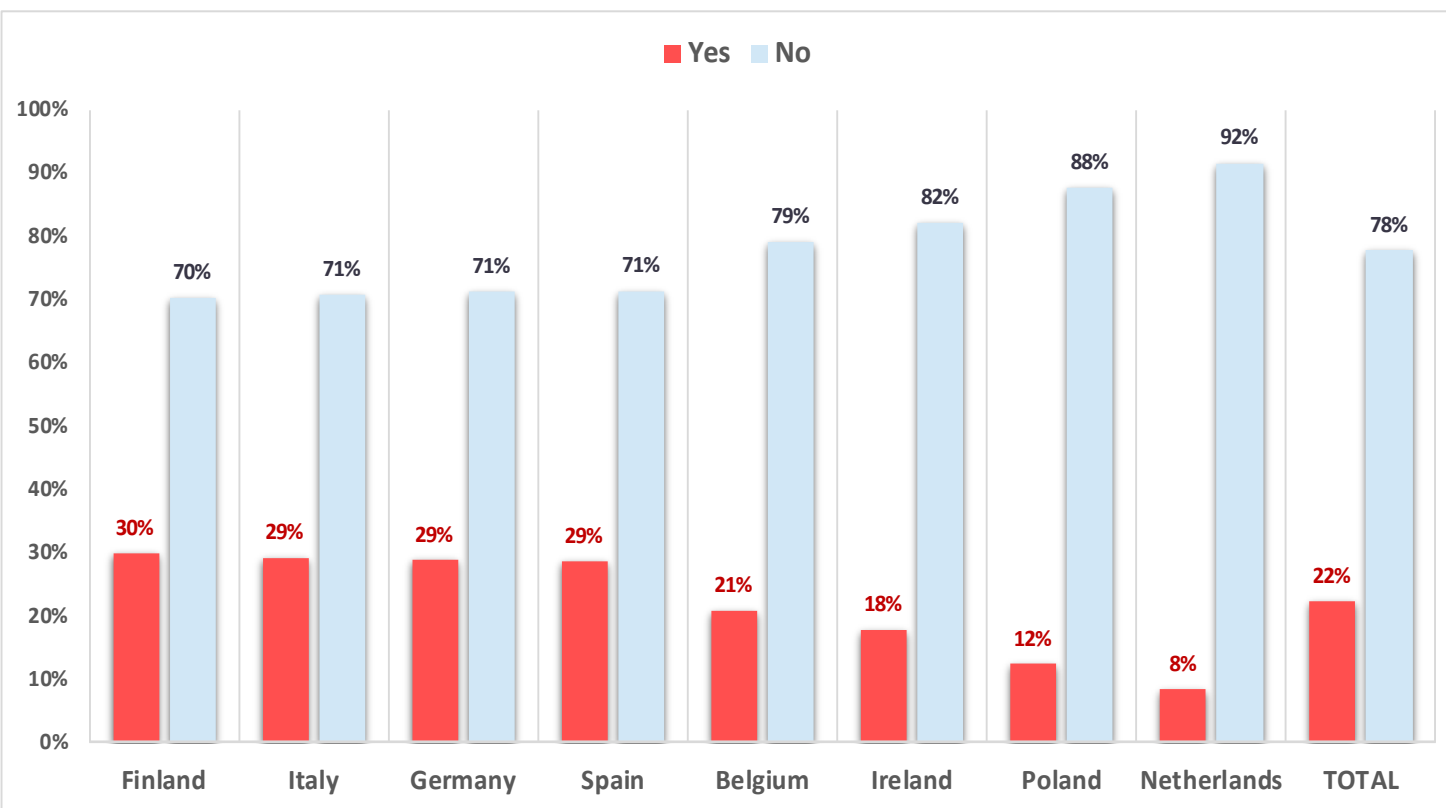
2. IS THE FARM ENCLOSED BY FENCES, WIRE, ...? (only answered if wild boars are present)





DO PETS HAVE ACCESS
TO THE STABLES
(INCLUDING THE
STORAGE FOR FEED AND
BEDDING MATERIAL)?

3. DO PETS HAVE ACCESS TO THE STABLES (INCLUDING THE STORAGE FOR FEED AND BEDDING MATERIAL)?

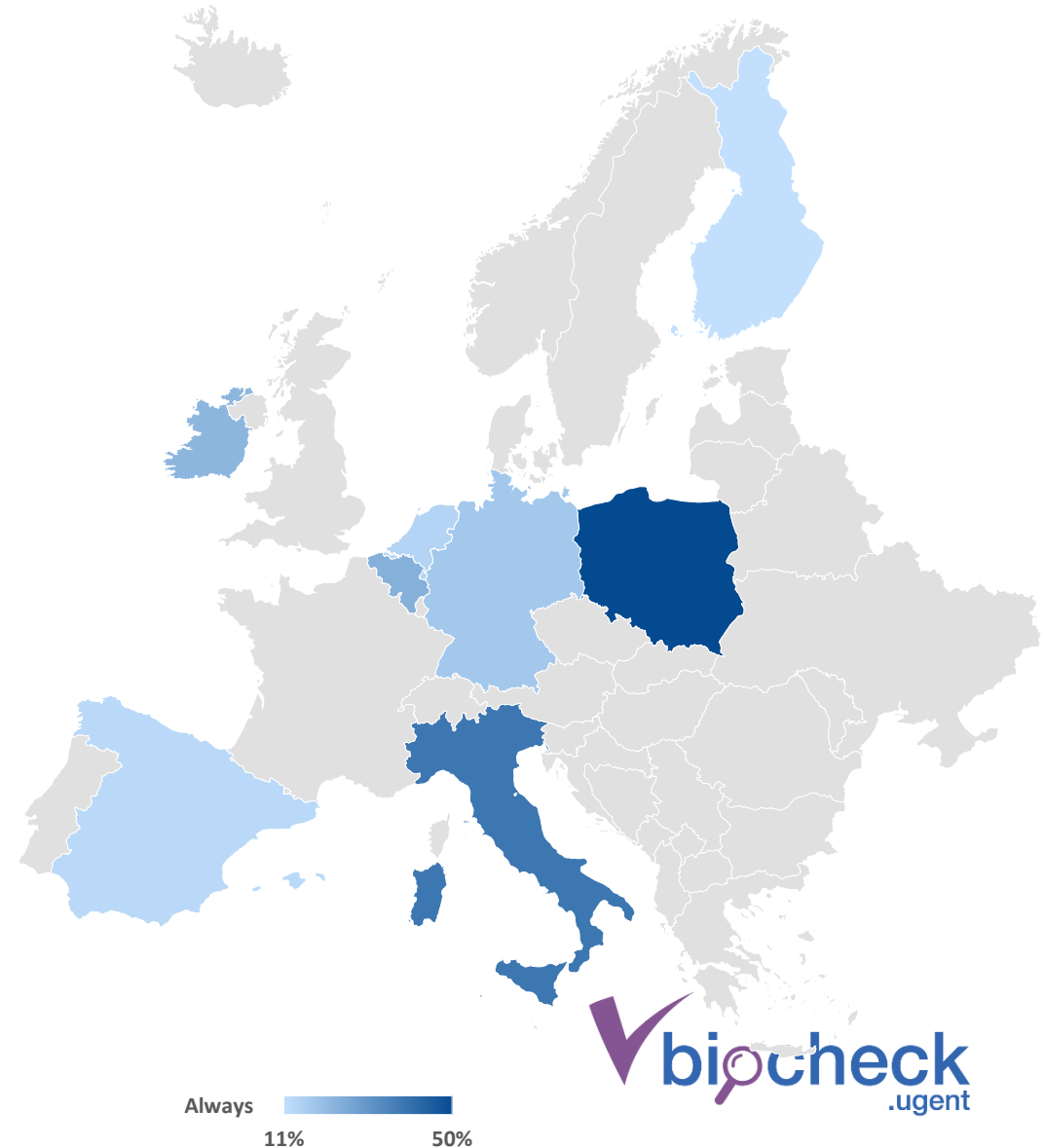
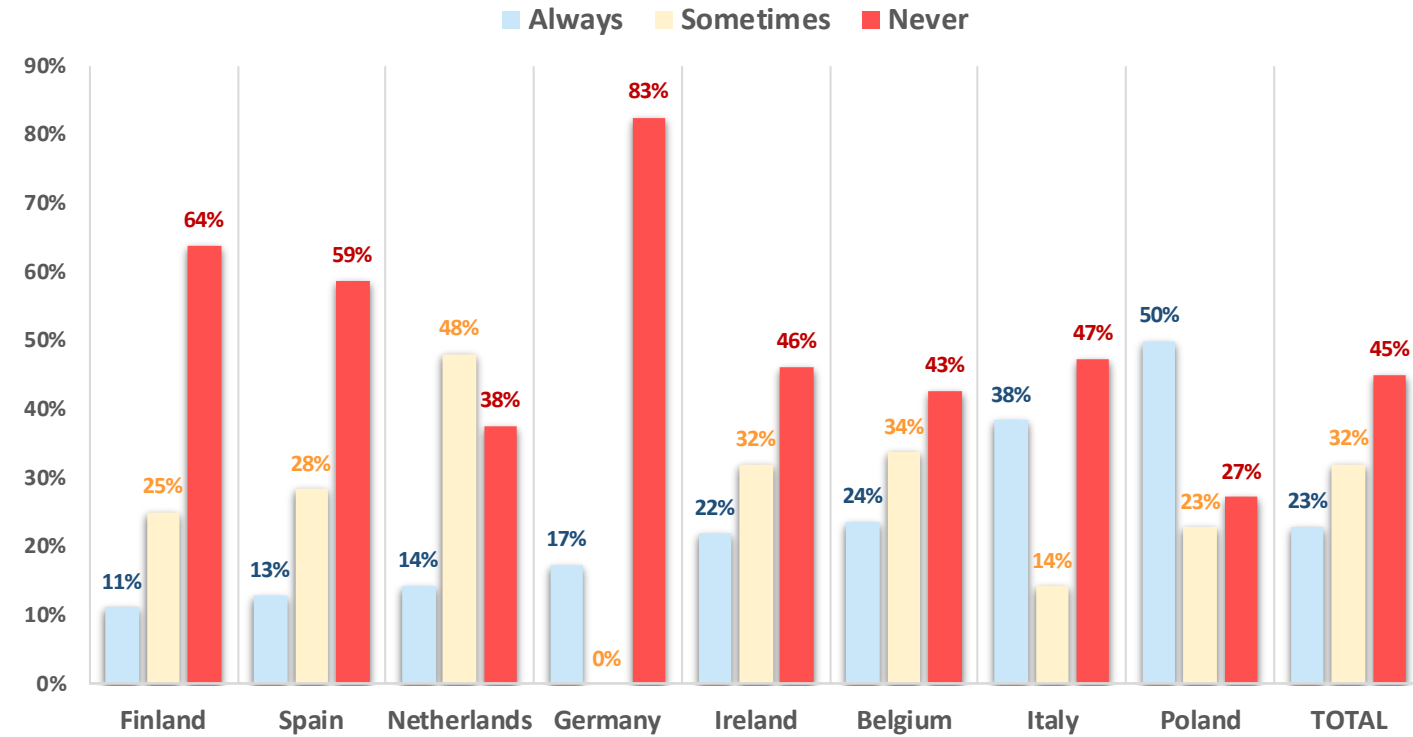




**ARE HANDS WASHED
AND/OR DISINFECTED
BETWEEN DIFFERENT
COMPARTMENTS/UNITS?**

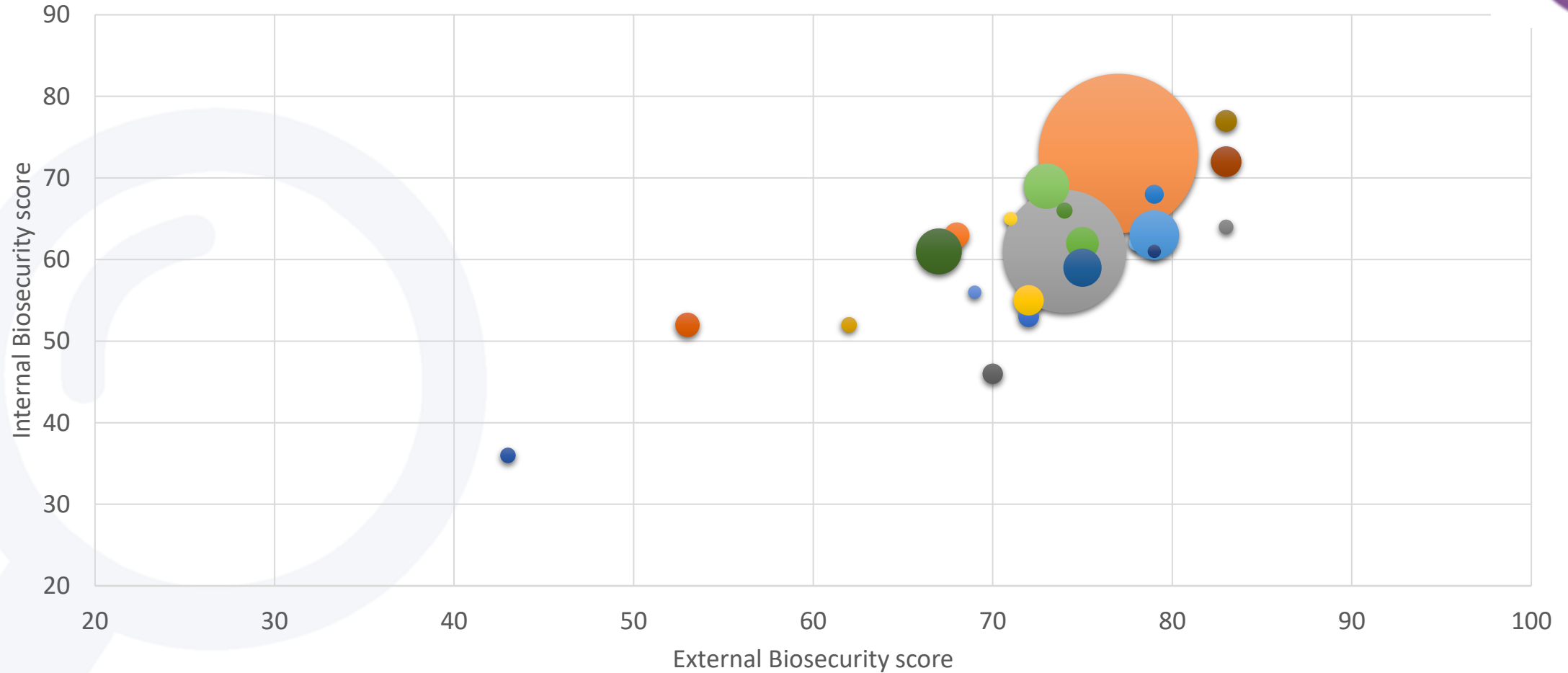


Are hands washed and/or disinfected between different compartments/units?

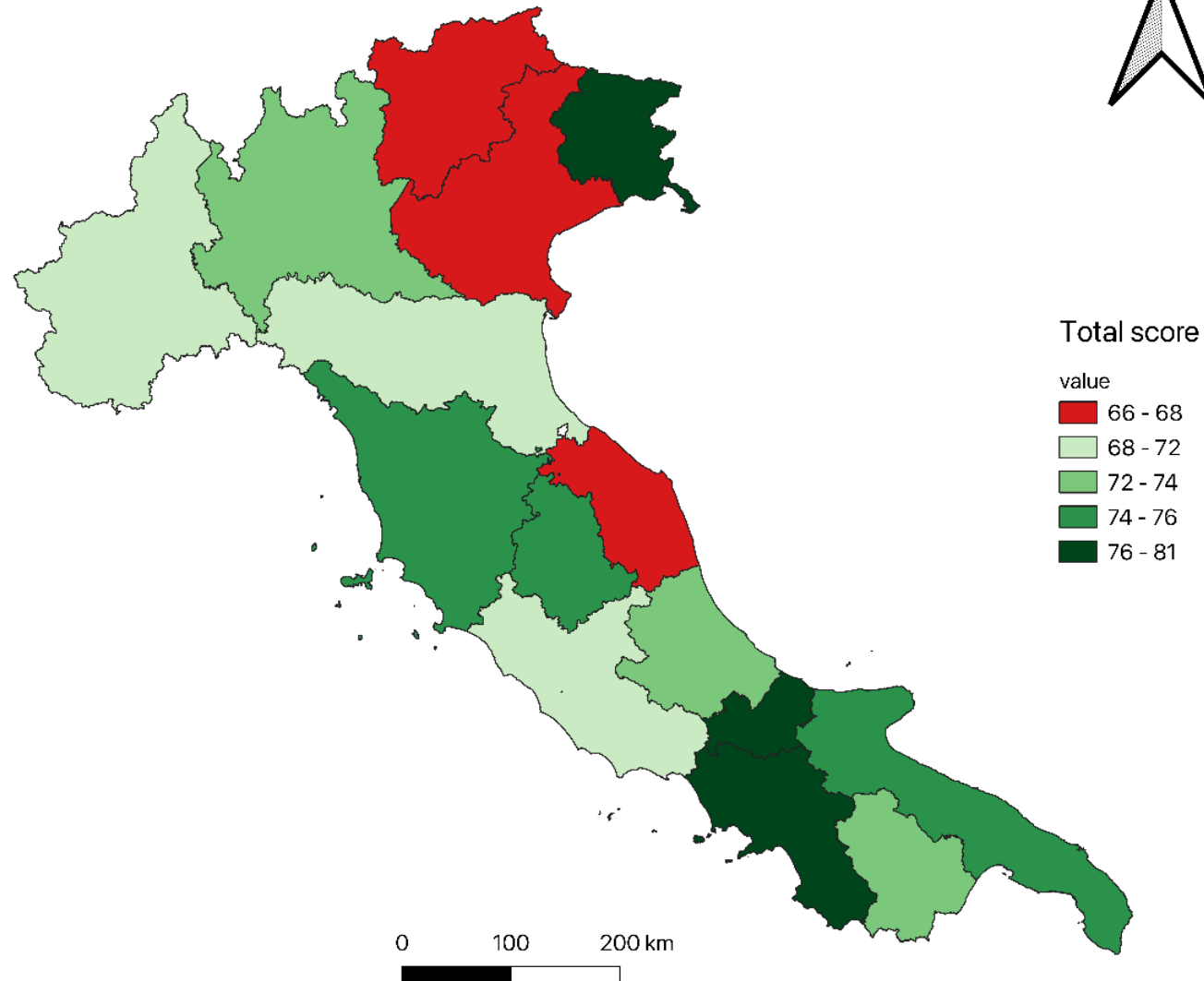
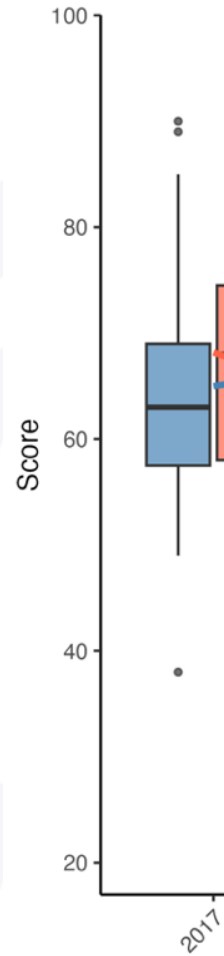




Biosurity scores in pig farms across the world



BIOCHECK.UGENT: ITALY (CLASSYFARM)



Biosecurity in small scale pig farms in three Balkan countries: a pilot study

Evelien Biebaut¹, Nele Caekebeke², Marina Štukelj³, Miroslav Kjosevski⁴, Branko Angjelovski⁴, Branislav Kureljušić⁵, Jasna Prodanov-Radulović⁶, Jeroen Dewulf¹

¹Department of Internal medicine, Reproduction and Population medicine, Faculty of Veterinary Medicine, Ghent University, Belgium; ²Biocheck.Gent BV; ³Veterinary faculty, University of Ljubljana; ⁴Faculty of Veterinary Medicine, University of Skopje; ⁵Institute of Veterinary Medicine of Serbia; ⁶Scientific Veterinary Institute "Novi Sad"



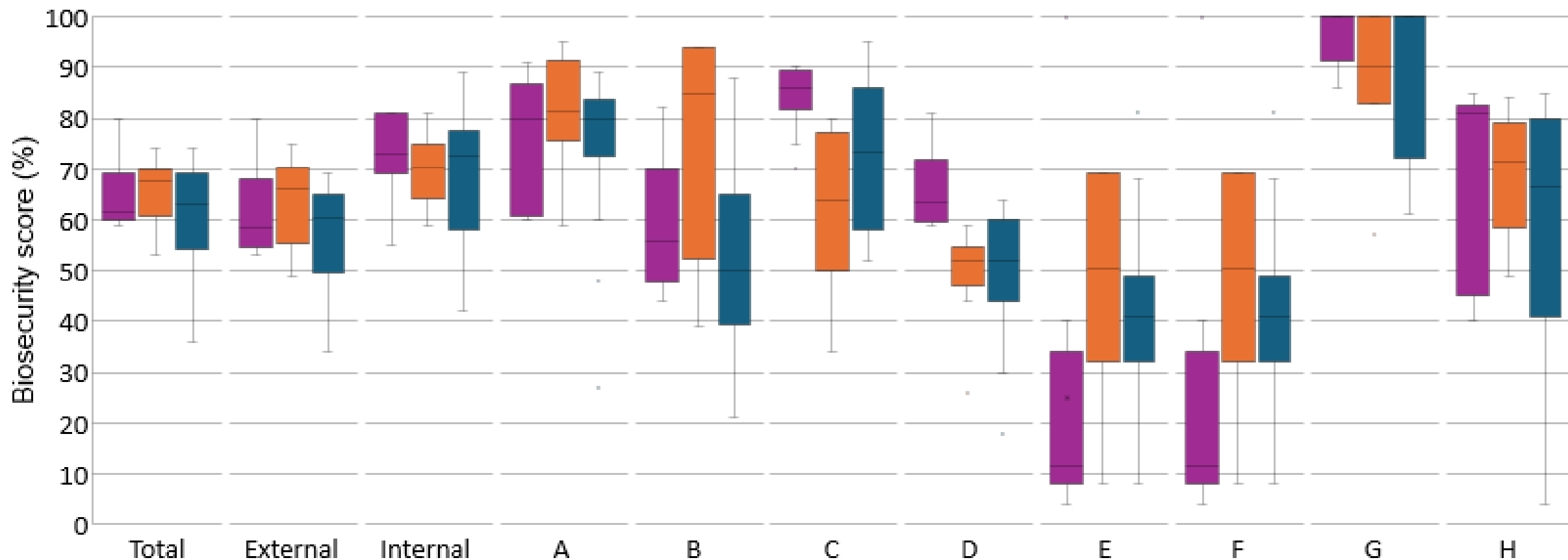
Background

- 🔄 Small scale pig farms contribute to disease transmission
- ⊕ Improving biosecurity on small scale pig farms enhances animal and farmer health
- 📈 To highlight areas for improvement, the biosecurity on small scale pig farms should be assessed

Materials & Methods

- ❖ Newly developed Biocheck.UGent survey
 - Backyard / small scale pig farm-specific
 - Risk-based scoring system
 - Biosecurity score on 100 (total & subcategories)
 - Freely available online
- ❖ Pilot tested on 40 small scale pig farms in Slovenia (n=10), North-Macedonia (n=10) and Serbia (n=20)





Letter indicates the biosecurity subcategory. A: Location and housing – B: Entrance of new pigs – C: Transport of pigs, removal of deadstock and manure – D: Feed, water, equipment supply and pest control – E: Visitors and worker – F: Disease management – G: Animal handling – H: Cleaning and disinfection

■ Slovenia
 ■ North-Macedonia
 ■ Serbia

Statistics for Pig backyard/small-scale - Worldwide



External biosecurity

A. Location and housing	73%
B. Entrance of new pigs	59%
C. Transport of pigs, removal of deadstock and manure	73%
D. Feed, water, equipment supply and pest control	55%
E. Visitors and workers	41%

Subtotal external biosecurity

60%

Internal biosecurity

F. Disease management	61%
G. Animal handling	87%
H. Cleaning and disinfection	58%

Subtotal internal biosecurity

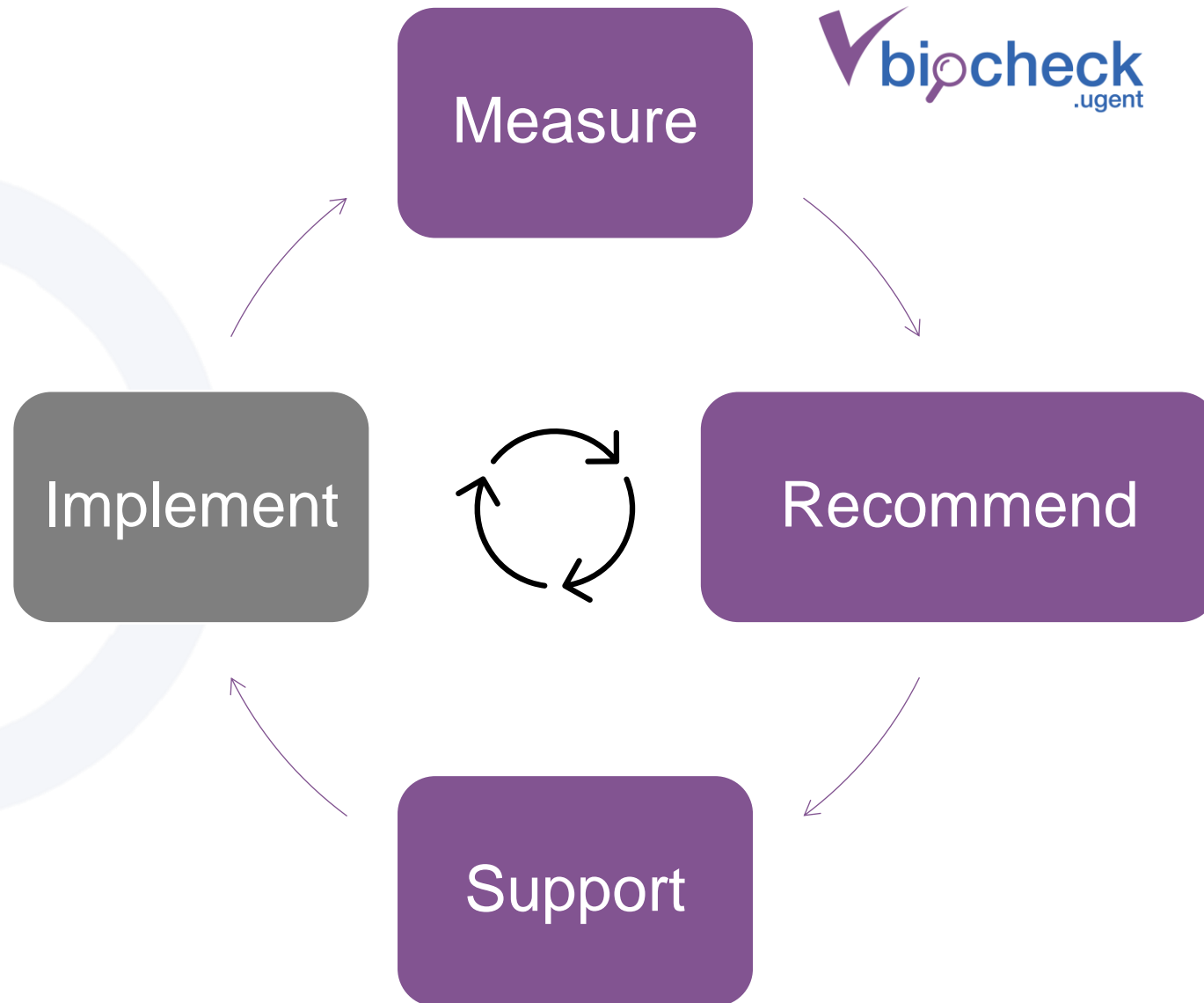
66%

Total

62%

number of completed surveys: 94

CYCLE OF IMPROVEMENT



BIOCHECK IS A DECISION SUPPORT SYSTEM

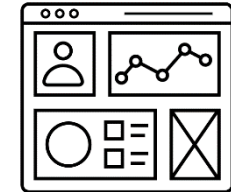
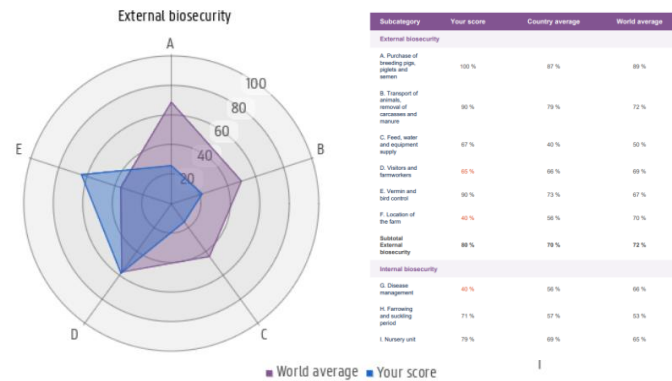
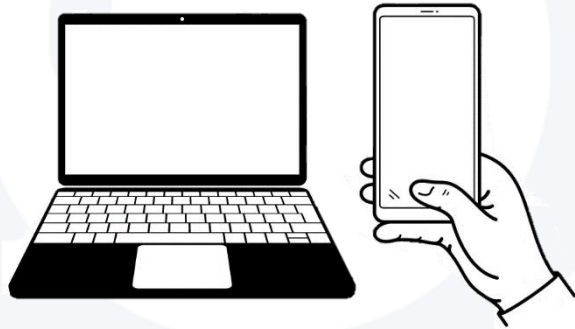
User input



Comparative scoring



Feedback & coaching



Personalized dashboards



Visualize progress

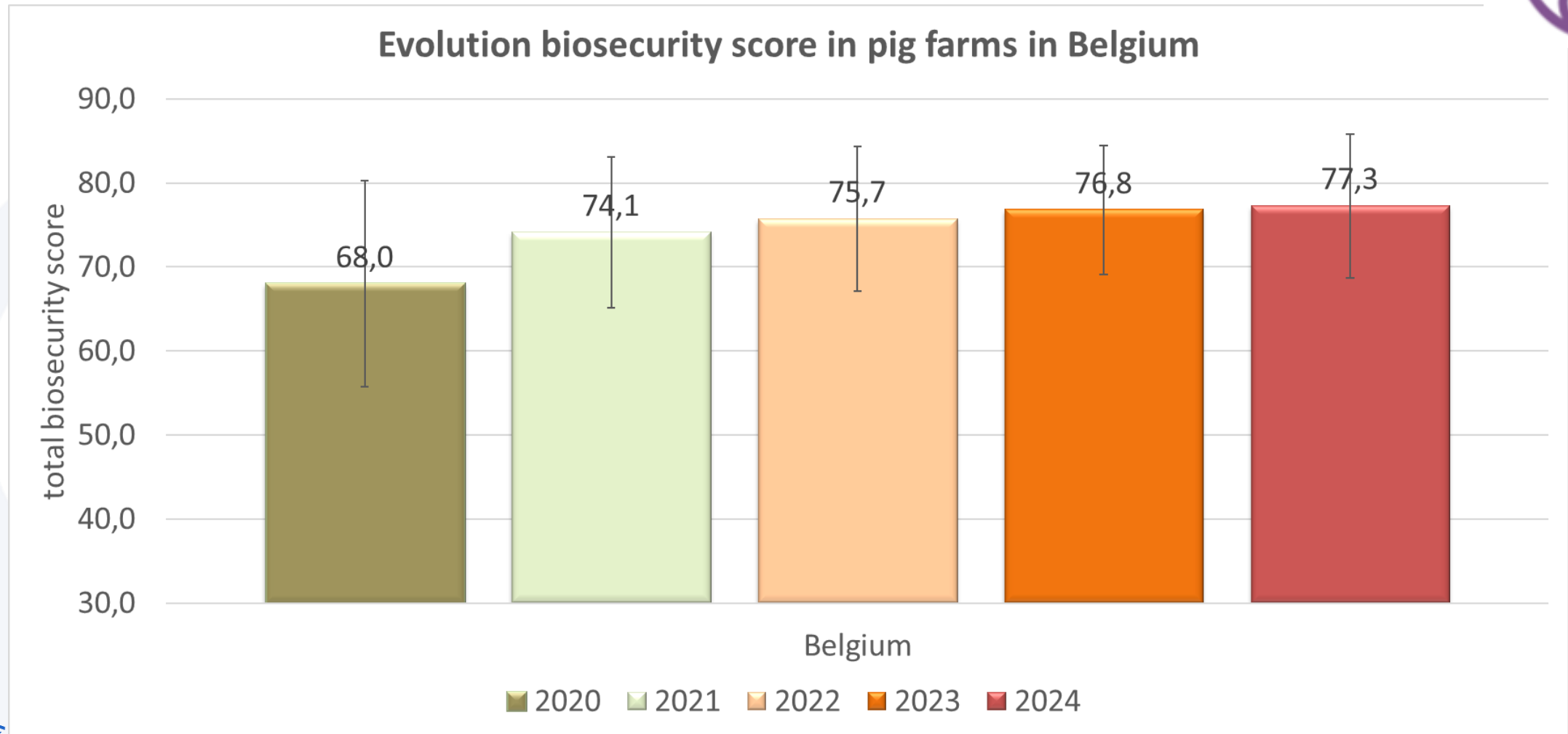
INDIVIDUAL RECOMMENDATIONS FOR INDIVIDUAL FARMS

Every farm is unique and requires a tailored approach

Based on the survey input, Biocheck.UGent helps designing individual action plans for specific farms



MEASURABLE INCREASE IN BIOSECURITY SCORE





World
Animal
Biosecurity
Association

June 5th & 6th
2025

FIRST CONFERENCE ON ANIMAL BIOSECURITY

[HOME](#)[COMMITTEE](#)[PROGRAM](#)[ABSTRACTS](#)[REGISTRATION](#)[GENERAL INFORMATION](#)[ACCESS](#)

Home

Dear all,

On behalf of the organising committee, I welcome you to our first conference on Animal Biosecurity that will be held the 5th and 6th of June 2025 at the campus of the Autonomous University of Barcelona, in Spain. It will be a very special conference as it will join the end of four great years of hard work in the BETTER COST Action (<https://better-biosecurity.eu/>) and the beginning of the World Animal Biosecurity Association (WABA). This will provide an excellent opportunity to continue working together and to expand our collaborations. The conference will be a mixture of keynote speakers, short communications, and posters covering hot topics such as socioeconomics, the role of new technologies in improving biosecurity, regional biosecurity or future needs in research and education, among others.

Important dates

Opening date: 5th of June of 2025







De app installeren



• NIEUWE PODCASTAFLEVERING

#3 Exploring technical tools to ensure biosecurity

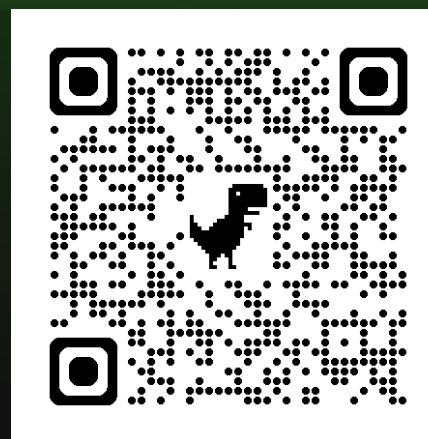
BIOSECURE Podcast

1 mrt · 29 min. 20 sec



Beschrijving van aflevering

In this episode, we had **Carlos Piñeiro** CEO of **Animal Data Analytics (ADA)** as our guest. Together, we explore the technical tools that play a crucial role in ensuring biosecurity



Scan me!

Jeroen Dewulf

Full Professor

FACULTY OF VETERINARY MEDICINE
GHENT UNIVERSITY

E Jeroen.dewulf@ugent.be

T +32 9 264 75 43

www.ugent.be



Prof_vet_epi_ugent



Ghent University



@jkdewulf



jkdewulf