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WG3 – Methods for evaluation of biosecurity and benefits of its implementation

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Specific objectives of WG3

- To evaluate the existing methods for quantification of biosecurity and/or the risk of disease introduction together with the economic and health benefits of the implementation of biosecurity measures (WG3).
- To evaluate the effectiveness of the different existing biosecurity improvement programs (WG3).



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Scoping review of methods used to assess biosecurity and its impacts

- Search published, peer reviewed literature
 - How is biosecurity assessed?
 - What impacts of biosecurity are studied?

The study includes:

- An assessment of biosecurity on farm

And/Or

- An evaluation of the impact of biosecurity implementation on farm



Not peer-reviewed journal
Language (not english)
Adoption or perceptions





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Scoping review of methods used to assess biosecurity and its impacts

Population:

“Production animal*” OR livestock OR fattening OR breeding OR farm OR herd) OR (pig OR swine OR poultry OR chicken OR broiler OR “layer hen*” OR “laying hen*” OR flock OR cattle OR dairy OR beef OR fish OR mussels OR mollusk)

Concept:

Biosecurity OR Bio-security

Context:

level OR assessment OR assess* OR evaluation OR benefit* OR consequence* OR impact OR cost* OR financial OR *economic))

Search performed 2022-11-24

Records identified from*:

Web of Science = 2685
CABI abstracts = 3151
Medline = 1720
Scopus = 2595
Total = 10 108

Records screened by title and abstract
(n = 3848)

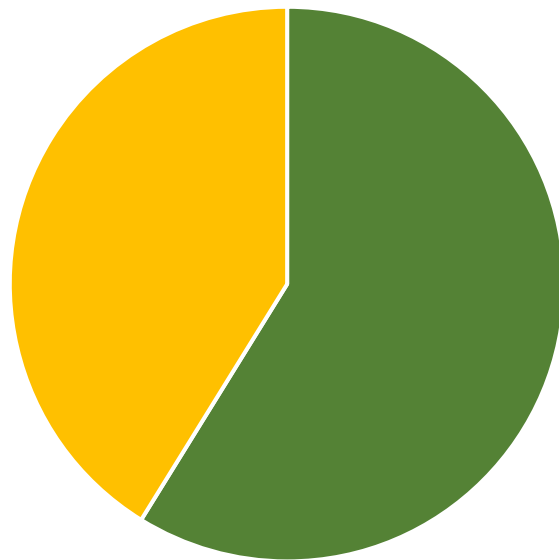
Studies included in review
(n = 662)



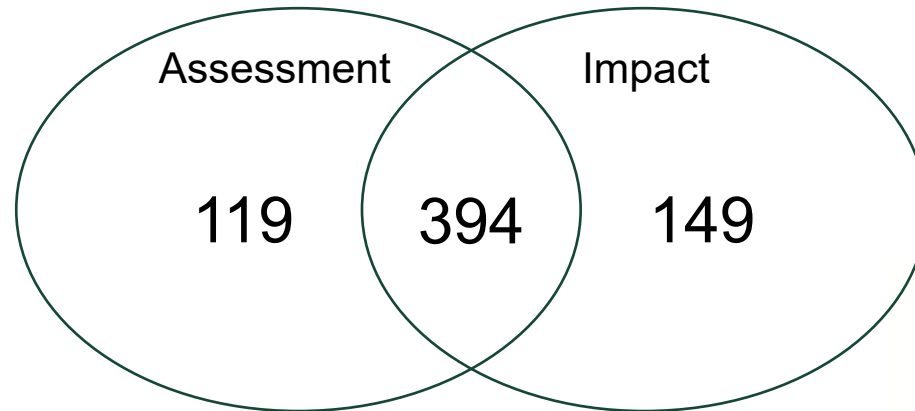
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Results from scoping review

Disease specific



■ Yes ■ No

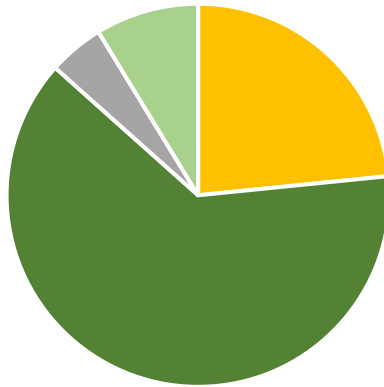




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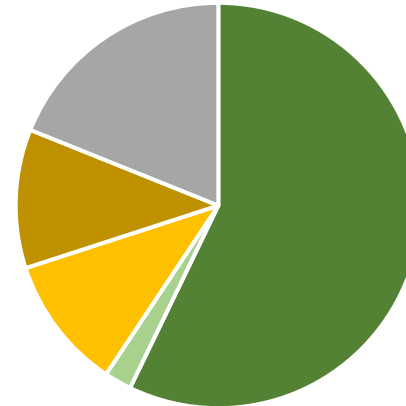
How is assessment of biosecurity performed?

How?



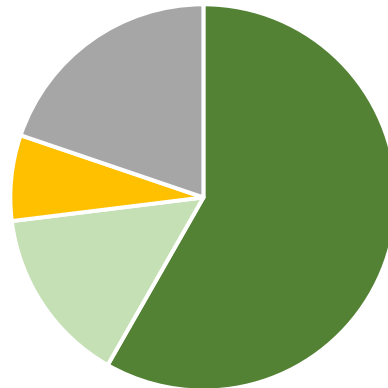
- Existing method
- Own method
- Uncertain
- Development

Contact with farmer



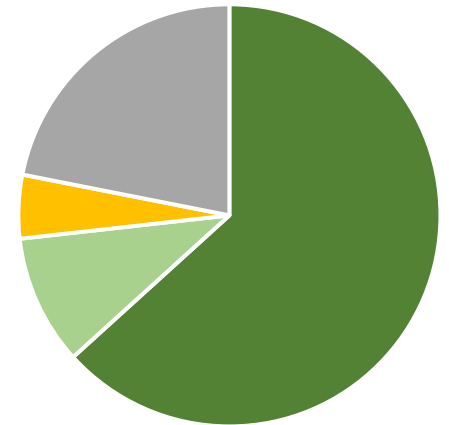
- Face to face
- Survey (online/postal)
- Uncertain
- Phone
- Mix

Where?



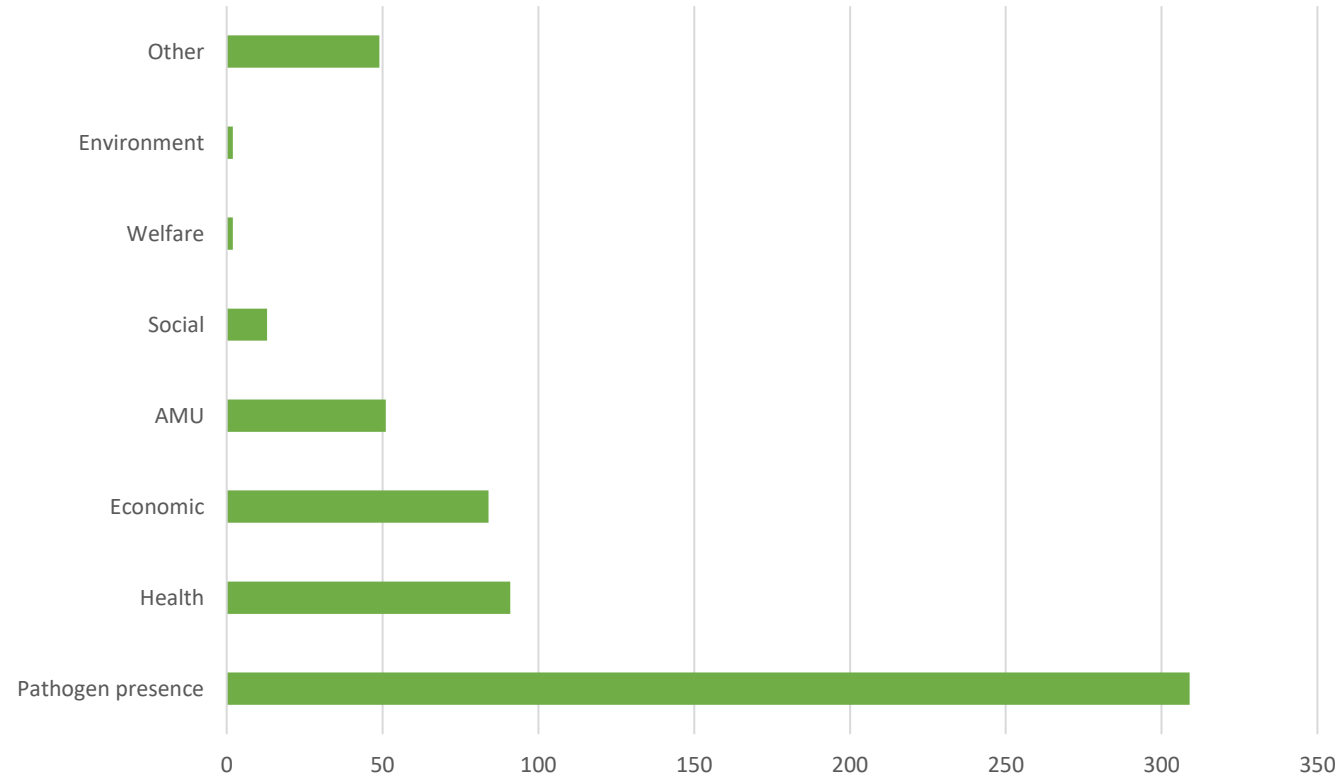
- Farm visit
- Remotely
- Remotely + farm visit
- Uncertain

Assessor



- External
- Internal
- Middle person
- Uncertain

Areas of impact investigated





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Which biosecurity assessment methods are used in practice and why?

- Structured questionnaire to gather information such as the animal species, main objectives, type of enforcement, how assessment was done, output generated and feedback of the result.
- Translated to 23 languages
- Shared by country focal points in 28 countries
- Identified and contacted stakeholders using biosecurity assessment programs.



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Methods to assess on-farm biosecurity in Europe and beyond

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Who had developed the identified biosecurity assessment programs?

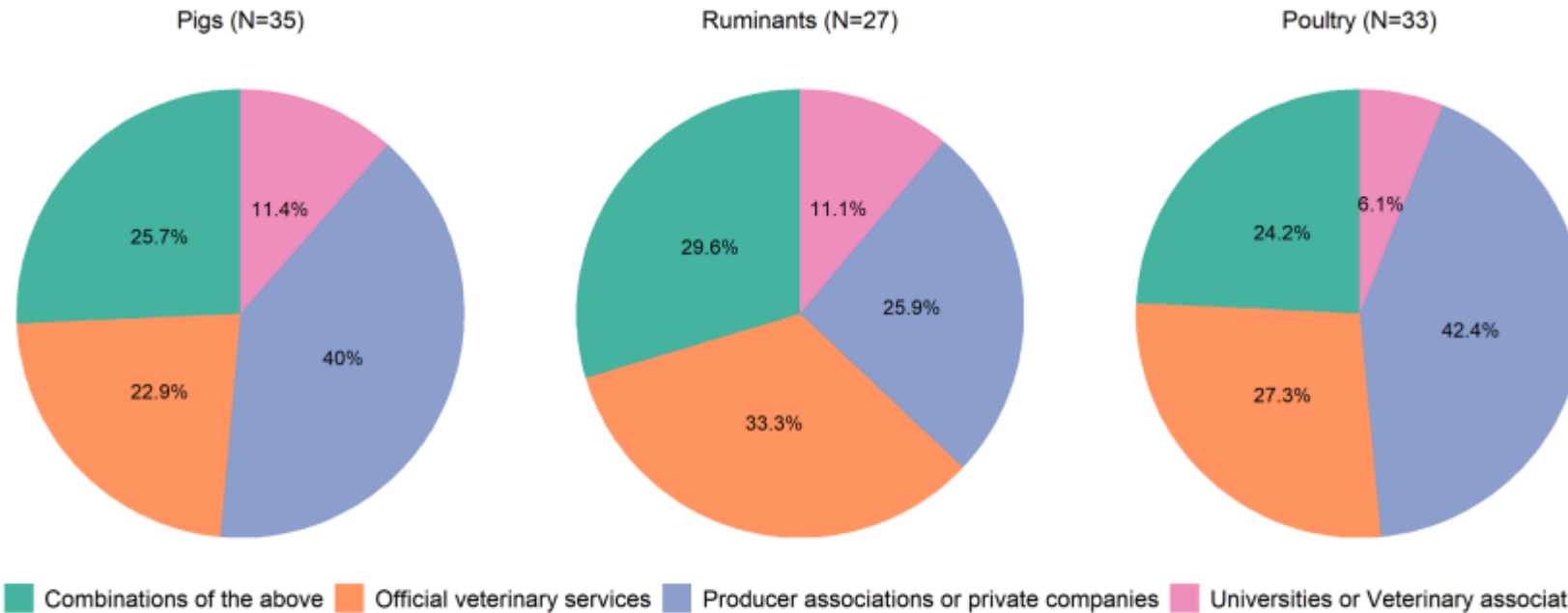


Fig. 1. Developers of the biosecurity assessment methods (BAMs) by animal production type in 28 countries reported between October and November 2023. The reported N represents the number of unique methods received for each type of animal production, with the percentage (%) calculated within each respective production type.



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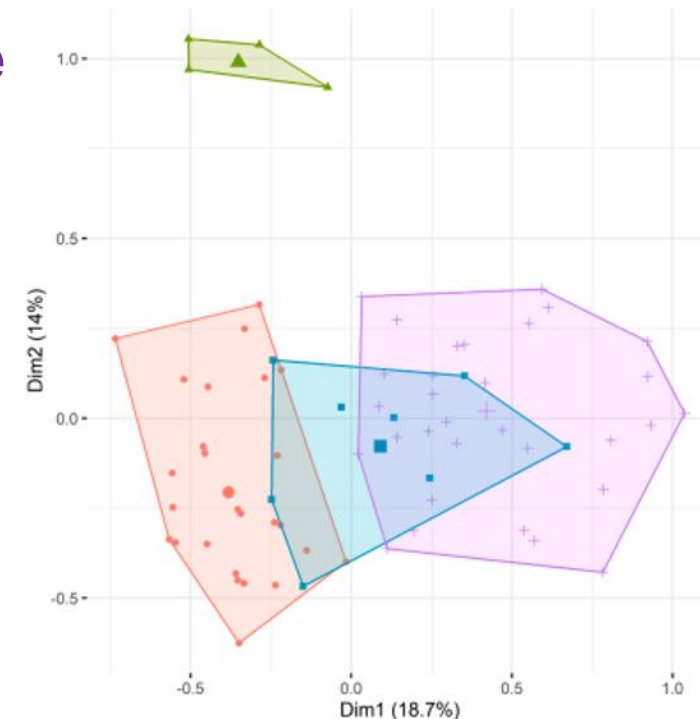
Four clusters of biosecurity assessment programs

Cluster 1: Voluntary Improvement-Oriented Assessments

Cluster 4: Legally Mandated Comprehensive Assessments

Cluster 3: Antibiotic Use Reduction and Disease Control

Cluster 2: Quality Assurance, certification and collection of additional data





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Developing an evaluation framework for biosecurity improvement programs

Coordinated by **Marco De Nardi** (Department of Veterinary Medical Sciences, University of Bologna)



1. **Padova** (Feb. 2024): Definition of objectives and main vision
2. **Tartu** (May 2024): Definition of key components and methods
3. **Uppsala** (June 2024) (STSM) by **Giulia Graziosi** (UniBo) at Swedish University of Agricultural Sciences (SLU): development of the **1st draft of the tool: Tool_00**
4. **Bologna, UniBo**: Overall revision of the tool > **updated version of the tool: Tool_01**
5. **Pilot testing >> final version of the tool: Tool_Final**





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Biosecurity improvement program and identification of the change it is introducing

Sphere of control -
What programs do, with whom, how they respond and react

Sphere of direct influence – changes programs promote and achieve

Sphere of indirect influence – intermediate changes the program influence

Sphere of interest – longer term changes the program contributes to

Identification of **indicators** that are **directly** linked to implementation of biosecurity

Identification of **indicators** that are **indirectly** linked to implementation of biosecurity

Long-term objective of the BIP

Characterisation of the program: what the program does, with whom, how they respond and react

- **Organisation & Communication**
- **Data & Accessibility**
- **Resources**
- **Awareness, Competency & Engagement**
- **Impact**

Organisation & Communication

Data & Accessibility

Resources

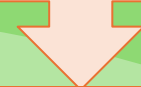
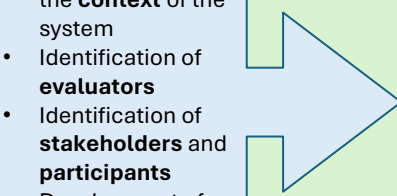
Awareness, Competency & Engagement

Impact

Benefit of biosecurity

Production
Welfare
Animal health

- Preliminary phase:**
- Identification of the **context** of the system
 - Identification of **evaluators**
 - Identification of **stakeholders** and **participants**
 - Development of the **evaluation plan**





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Pilot testing of framework



Norwegian
Veterinary Institute





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Still to do: Online workshop



Objective: Present results of WG3 and discuss challenges/solutions with users of biosecurity improvement programs.

- Target groups: Developers or organisations responsible of biosecurity improvement programs.
- 2-3 hours interactive event
- End of September



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Thank you for listening!

- Any questions?

**Thank you all WG3 participants
and
Cost Better WGs!**