



Thematic Area: Health and Welfare.

Priority: What practices can be implemented to promote biosecurity measures and prevent emergent diseases?

Need: Biosecurity/health prevention: how to implement it? How to improve the implementation of biosecurity on farms? How to access the right tools? What health protocols should be put in place? How to define and promote good health practices?

Solution EU Number: HE-11.

Content of the Solution:

A digital risk assessment tool that uses a standardized questionnaire to evaluate the likelihood of an infectious disease outbreak in equine facilities.

Key Contacts:

- University of Guelph.



Reasons for Implementing this Solution

Implementing the tool enables early identification of biosecurity risks before clinical confirmation is available. It helps equine operations respond faster, limit disease spread and comply with legal requirements for animal health management. By standardizing assessments, it also improves communication between farm staff and veterinary authorities.

Description of Solution Strategies

The Equine Biosecurity Risk Calculator is a standardized, digital decision-support tool designed to assess the biosecurity risk level on equine facilities. It is based on a structured questionnaire consisting of 40–45 targeted questions, covering various aspects of animal health management, operational procedures, and animal movements.

You can access it in the additionalz information below.

The goal is to detect potential disease outbreaks at the earliest possible stage and initiate control measures immediately, even before veterinary examination or lab testing takes place.

The tool can be implemented as a web-based platform or a mobile application, and is intended for use by farm managers, stable personnel, or trained staff. The questionnaire addresses key risk areas such as:

- Animal movements (arrivals, departures, events).
- Clinical signs in animals (fever, respiratory issues, neurological symptoms).
- Contact with external personnel (veterinarians, farriers, visitors).
- Hygiene and disinfection practices.
- Availability of quarantine and isolation facilities.



Technical Sheet for Solution Implementation

Biosecurity Risk Calculator

Functionality:

1. **Data Collection:** Users complete a guided questionnaire through an intuitive interface.
2. **Risk Evaluation:** Responses are analyzed using a rule-based scoring system.
3. **Risk Categorization:** A visual risk classification (e.g., traffic light system: Green – low risk, Yellow – moderate risk, Red – high risk) is provided.
4. **Recommendations:** Automated actionable guidance is displayed depending on the risk level (e.g., initiate quarantine, contact a veterinarian, enhance hygiene measures).
5. **Optional Alerting:** For high-risk scores, the system can optionally notify responsible veterinary authorities or the farm's designated vet.

Solution Objectives:

- Enable early detection of infectious diseases in equine environments.
- Reduce the spread of pathogens within and between farms.
- Increase reaction speed in suspected cases.
- Provide a standardized decision-making process for operators and regulators.
- Support compliance with EU Animal Health Law (AHL) and related regulations.

Technical Requirements:

- Device with a web browser (tablet, PC, or smartphone).
- Internet connection (for web version) or offline functionality (for app version).
- Secure data storage compliant with GDPR regulations.
- Optional API integration for data transmission to authorities.

Implementation Steps

1. Legal and Regulatory Review

- Review relevant national and EU legislation regarding animal health, disease notification, and biosecurity.
- Specifically consider the **EU Animal Health Law** (Regulation (EU) 2016/429) and accompanying guidelines, e.g.: List of Animal Health Diseases; Regulation (EU) 2018/1629.

2. Staff Engagement and Training

- Inform all relevant personnel (farm managers, grooms, veterinarians) about the tool, its purpose, and expected benefits in outbreak prevention and early risk management.
- Assign responsibilities: Clearly define who will use the tool, when, and how frequently.
- Provide training through live demonstrations, walkthroughs, or guides (written/video).
- Ensure that the team understands the tool's logic and knows how to interpret results.
- Promote a culture of biosecurity awareness and cooperation across all staff levels.



Technical Sheet for Solution Implementation

Biosecurity Risk Calculator

3. Access and Setup

- Access the calculator through the official online platform (e.g., TheHorsePortal.ca).
- Optionally install a shortcut on mobile devices or tablets used on the farm.
- Ensure availability of internet or offline access if needed.

4. Initial Assessment (Baseline Evaluation)

- Conduct a first full risk assessment using the questionnaire.
- Review the result (risk category) and corresponding recommendations.
- Use the result to identify critical gaps in current biosecurity practices.

5. Integration into Daily Protocols

- Integrate the risk calculator into routine operations:
 - Use before new animal arrivals or after external visits.
 - Repeat periodically (e.g. monthly or quarterly).
 - Apply it during outbreaks in the region or suspected cases on site.

6. Follow-up and Documentation

- Document each assessment result and any actions taken.
- Store results in a secure and organized manner (digital or printed log).
- Communicate with the farm's veterinarian in case of moderate or high risk.

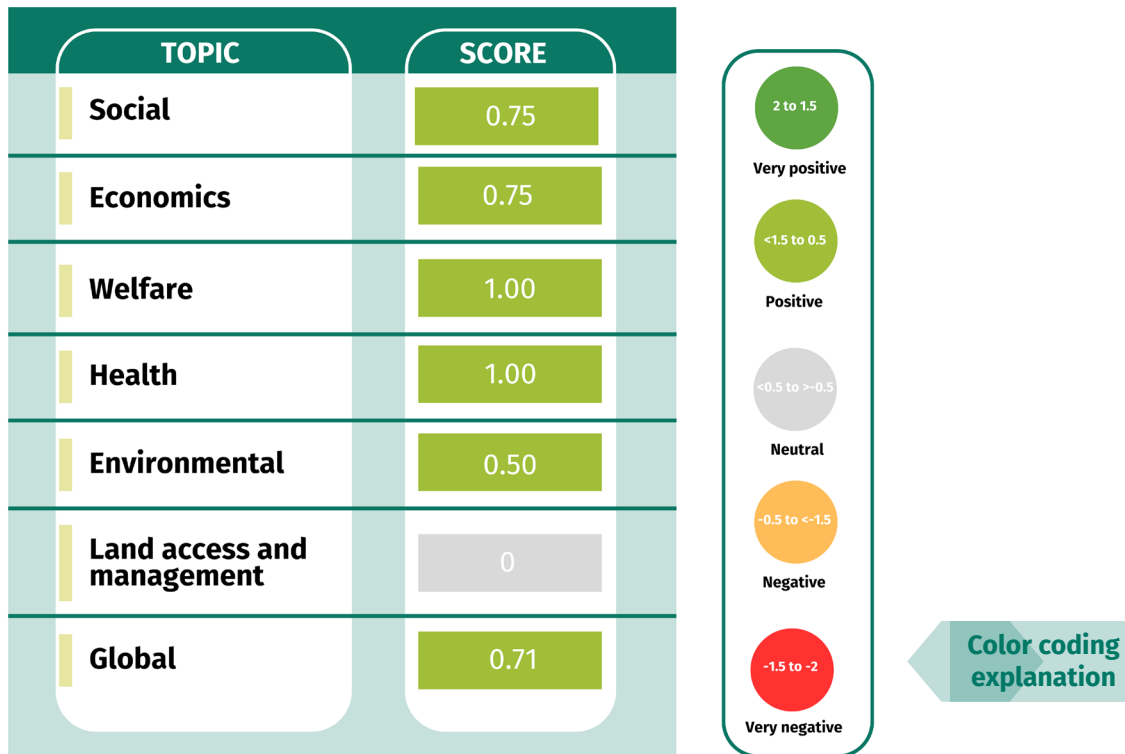
7. Alert Management and Response Protocol

- Establish a clear response plan for high-risk alerts, including:
 - Quarantine procedures.
 - Contacting a veterinarian.
 - Restricting animal and human traffic.
 - Informing local authorities if required.

8. Review and Update Procedures

- Regularly evaluate the effectiveness of the tool.
- Adjust internal processes based on experience and evolving guidelines.
- Stay updated with updates from the tool provider or new regulations.

How Will this Solution Impact the Performance of your Farm ?



Socioeconomics: This solution will support the social performance of the farm because it demonstrates a proactive commitment to animal health and biosecurity, enhances the farm’s public image, and fosters trust by showing responsibility in preventing infectious disease outbreaks.

This solution will support the economic performance of the farm because it helps avoid costly disease outbreaks, is easy to implement with minimal resources, and contributes to long-term savings by reducing the need for curative treatments—aligning with the principle that prevention is always cost-effective.



Health & Welfare: This solution will positively impact the farm’s health performance by helping maintain low levels of pain, mortality, and drug use through the protection of vulnerable horses from potential infectious disease transmission. By maintaining high health standards, indirectly translates to equine welfare (positive emotional state) being kept on the optimal level by preventing advanced stages of illness. However, it has to be noted that frequent use by unexperiences operators may lead to misinterpretation of the results, which can proved unnecessary managment of animals.

How Will this Solution Impact the Performance of your Farm ?



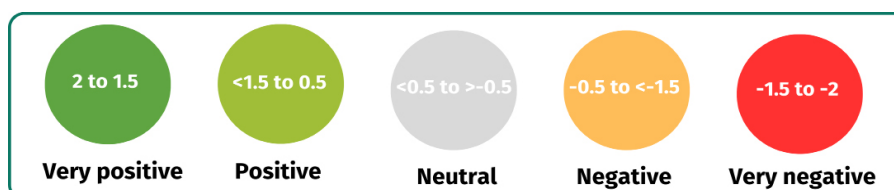
Environmental Sustainability: This solution will support on the environmental performance of the farm because hygiene measures regarding water control and grey water management would be very beneficial for the environment.

This solution will not have impact on the land access or management performance of your farm.

So globally, this solution will support the performance of the farm.

How Will this Solution Impact the Resilience of your Farm?

| TOPIC | SCORE |
|----------------------------|-------|
| Social | 0.46 |
| Economics | 0.25 |
| Welfare | 0.38 |
| Health | 0.50 |
| Environmental | 0.28 |
| Land access and management | 0.08 |
| Global | 0.34 |



How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: This solution will not impact social performance of the farm facing external challenges assessed because while the digital risk assessment tool strengthens internal management and outbreak preparedness, it does not directly influence social aspects such as workforce wellbeing, public engagement, or stakeholder relationships under inflation, pandemics, or other external pressures.

This solution will not impact economic performance of the farm facing external challenges assessed because although it enhances awareness and preparedness against outbreaks, it does not itself prevent disease or reduce costs directly, and its use remains informational, with limited direct financial return or influence on external cost fluctuations (e.g., inflation, supply disruptions).



Health & Welfare: When the farm faces external challenges, its health performance will be supported by this solution, as it reduces pain, mortality, and the need for medication through the prevention of infectious disease transmission. As a result, the farm becomes more resilient to external pressures.

However, this solution may not directly enhance the welfare performance of the farm when faced with external challenges such the inflation, pandemic, climate change and so on. Frequent controls of farm biosecurity may not necessarily translate into improved living conditions. However, it should be noted that frequent use of this solution by inexperienced operators may lead to misinterpretation of the results, potentially triggering unnecessary management actions.

In fact, slight negative impacts on welfare may arise if horses need to be kept in separate groups to prevent disease spread, potentially limiting their social interactions.



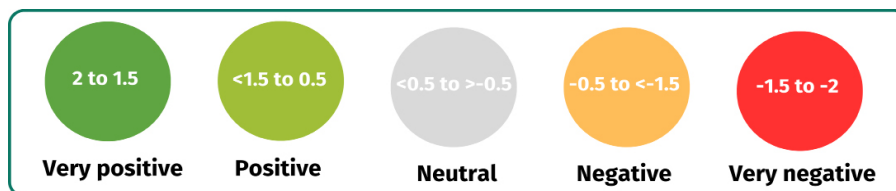
Environmental Sustainability: This solution will not impact environmental performance of the farm facing external challenges assessed because it does not directly influence mitigation or climate change mitigation and adoption, halting biodiversity or water management as a part of farm recovery.

This solution will not impact land access or management performance of the farm facing external challenges assessed because it does not have direct effect on recovery of the farm.

So this solution will support Health resilience of the farm facing the external challenges assessed but globally it will not support the global resilience of the farm (regarding all aspects of performance).

How Can this Solution Help your Farm Cope with Specific External Challenges to Become More Resilient?

| CHALLENGES | SCORE |
|-------------------------------------|-------|
| Inflation | 0.63 |
| Pandemic | 0.46 |
| High welfare standards | 0 |
| High infectious diseases | 0.58 |
| Extreme weather event | 0.29 |
| Loss or limited access to grassland | 0.08 |



Inflation & Social Crises: This solution will support the global performance of the farm facing inflation because it enhances preparedness by enabling early detection of potential outbreaks, helping avoid major health and financial losses, promoting proactive biosecurity management, and encouraging the review of risk factors like water management—all of which contribute to long-term resilience despite rising costs.

This solution will not impact the global performance of the farm facing pandemics because although it helps users understand how outbreaks work and supports better planning, its time-consuming nature and limited effect on immediate operational challenges (such as staff shortages or animal care disruptions) reduce its practical influence during such crises.

How Can this Solution Help your Farm Cope with Specific External Challenges to Become More Resilient?



Welfare & Diseases: This solution will support the global performance of the farm across both socio-economic and health dimensions when facing infectious disease challenges. It contributes to the prevention of veterinary costs, which is particularly beneficial during periods of inflation. Mostly, it enhances animal health and welfare by reducing pain, mortality, disease incidence, and the need for curative medication, while also decreasing the risk of disease transmission.

However, this solution remains neutral in terms of the farm's global performance when adapting to compulsory high welfare standards, likely because it does not directly contribute to improving the living conditions of the horses or their emotional state.



Climate Change & Access to Land: This solution will not impact the global performance of the farm facing abnormally high temperatures and/or drought because it is preventive measure. However, the tool would consider horse temperature input. It would help to record general horse health during drought or high temperature. Droughts can affect horses and humans alike, but assessing the farms risk would benefit all.

This solution will not impact the global performance of the farm facing loss or limited access to agricultural land because it not relevant tool for that. However, it can have a small positive effect on social outreach and profitability due to better planning.

So this solution can particularly help the farm to be more resilient in case of inflation or high infectious diseases.

Cost-Benefit Analysis

Costs

Socioeconomics:

- Initial time investment for training and integration into routine farm procedures.

Health & Welfare:

- Unnecessary isolation or restricted movement of healthy animals due to false-positive risk alerts (may cause stress or social disruption in herd settings).
- Variation in handler interpretation of questionnaire inputs could lead to inconsistent decisions affecting animal routines.

Environmental Sustainability:

- None directly; possible slight increase in energy or material use due to proactive hygiene measures.



Benefits

- Early outbreak detection helps prevent large-scale economic losses due to quarantines or cancelled events.
- Reduces treatment and containment costs by enabling faster interventions.
- Strengthens trust in professional farm management, improving public and client confidence.
- Early detection enables quicker treatment and reduces animal suffering.
- Prevents disease transmission between animals on the same or neighboring farms.
- Supports a preventive health management approach rather than reactive treatment.
- Can help to reduce the need for mass medication.
- Reduces stress caused by unmanaged or late-stage illness.
- Promotes routine monitoring, increasing awareness of subclinical symptoms.
- Reduces the need for intensive chemical disinfection or waste disposal associated with larger outbreaks.
- Prevents environmental contamination through early isolation of sick animals.
- Encourages more efficient use of veterinary resources and targeted intervention.

Cost-Benefit Analysis

Costs

Cooperation between farms:

- No effect.



Benefits

- Creates a shared risk language and assessment standard between facilities.
- Encourages transparent communication in the case of regional outbreaks.
- Supports collective prevention strategies (e.g. movement restrictions or shared quarantine zones).

Additional Resources

Online Tools

- University of Guelph – The Horse Portal
- Biosecurity Risk Calculator Tool <https://thehorseportal.ca/biosecurity-risk-calculator-tool>

Websites

- European Centre for Disease Prevention and Control: <https://www.ecdc.europa.eu/en/publications-data/ecdc-geoportal>
- ADIS (EU Animal Disease Information System): https://food.ec.europa.eu/animals/animal-diseases/animal-disease-information-system-adis/unveiling-adis_en
- WOA (World Organisation for Animal Health): <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>



Technical Sheet for Solution Implementation

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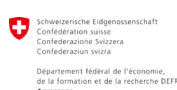
Additional Resources

Publications

- Hedberg Alm Y, Tydén E, Martin F, Lernå J, Halvarsson P. Farm size and biosecurity measures associated with *Strongylus vulgaris* infection in horses. *Equine Vet J.* 2025; 57(3): 703–711. <https://doi.org/10.1111/evj.14212>
- Rendle, D., Bowen, M., Cavalleri, J., De Brauwere, N., Grondahl, G., van Maanen, K. et al. (2025) Strangles vaccination: A current European perspective. *Equine Veterinary Education*, 37, 90–97. Available from: <https://doi.org/10.1111/eve.14032>

Further Information

- **Alberta Veterinary Medical Association and Alberta Equestrian Federation**
 - “Equine Biosecurity Principles and Best Practices” https://www1.agric.gov.ab.ca/%24Department/deptdocs.nsf/all/cpv13683/%24FILE/equine_biosecurity_principles_and_best_practices_guide.pdf
- **British Equestrian**
 - Biosecurity: <https://www.britishequestrian.org.uk/equine/health-biosecurity/biosecurity>
 - Advice notes for equine gathering: <https://www.britishequestrian.org.uk/equine/health-biosecurity/advice-notes-for-equine-gatherings>
- **California Department of Food and Agriculture Biosecurity**
 - “Toolkit for Equine Events”: <https://inside.fei.org/system/files/Annex%2011%20-%20FEI%20Biosecurity%20Toolkit%20for%20Equine%20Events.pdf>
- **EU (European Union)**
 - Listing and categorisation of animal diseases and list of species: https://food.ec.europa.eu/system/files/2021-07/ah_ahl_btsf_training_20210621_1-3.pdf
- **Horse Venue Biosecurity Workbook**
 - https://www.farmbiosecurity.com.au/wp-content/uploads/dlm_uploads/2024/11/Horse-Venue-Biosecurity-Workbook_112024.pdf



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the European Union

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Ideas to Ideas to Animate a Workshop about the Solution

- Ask a **veterinary supplier, horse health consultancy, or biosecurity-focused agritech company** to sponsor the event (e.g. providing tablets, test accounts, or printed materials).
- Partner with a **model equine facility** (riding school, breeding farm, training center) to host the workshop.
- Complete the required tasks and let the participants take part in these demonstration tasks so that they can get to know the system, e. g.
 - Prepare a **guided run-through of the Calculator** where participants complete mock assessments based on real or fictional scenarios.
 - Involve a **regional veterinarian or animal health officer** for Q&A and validation of the tool.
 - Use **group-based case challenges** to let participants analyze different farm profiles and recommend biosecurity actions.

Proposed structure for the workshop on this tool in equine stables

1. Introduction to the Equine Biosecurity Risk Calculator

- What is the Risk Calculator?
- Key components: online/offline questionnaire, scoring system, risk color code, action guidance.
- Existing versions: e.g. Guelph Horse Portal tool.

2. Benefits of Using the Calculator in Horse Stables

- **Improved Animal Welfare:** Earlier detection of clinical signs, reduced suffering.
- **Proactive Disease Management:** Prevents large outbreaks before they spread.
- **Operational Readiness:** Fast decision-making even before vet arrives.
- **Compliance:** Helps fulfill EU Animal Health Law documentation expectations.

3. Practical Applications on Horse Farms

- Can be used regularly or in response to changes (new horse, event return, vet visit).
- Suitable for farms of any size, from riding schools to breeding operations.
- Helps structure communication between staff and external vets.

4. How to Choose and Use the right Approach

- Evaluate the farm's **movement patterns**, staff routines, and risk points.
- Assess technical readiness (tablet, phone, PC use; internet access).
- Choose between **web-based** or potential offline/customized versions.

5. Hands-On Demonstration

- Walk through the questionnaire live with participants (projected or in small groups).
- Provide **fictional farm profiles** and let groups evaluate and interpret the risk level.
- Discuss interpretation of results and follow-up steps.



Technical Sheet for Solution Implementation

Biosecurity Risk Calculator

Annex

6. Maintenance and Troubleshooting

- How to keep the system updated (e.g., account access, app versions).
- What to do in case of inconsistent results or staff misuse.
- Ensuring data is stored securely and used responsibly.

7. Case Studies and Real-World Examples

- Present case examples: e.g. a breeding farm using the tool to manage new arrivals.
- Invite a stable manager or vet who has used the tool.
- Share challenges and workarounds for real farm environments.

8. Cost Analysis and Return on Investment (ROI)

- No hardware investment needed (if using free online version).
- Time spent on assessment is offset by **lower disease impact**.
- Avoiding one outbreak can **save thousands** in vet bills, labor, lost income.

9. Q&A Session

- Open discussion of practical barriers (e.g. staff tech skills, skepticism).
- Address doubts about reliability, false alerts, or integration in routines.

10. Wrap-Up and Resources

- Recap key points: early detection, simplicity, adaptability.
- Provide links to the Guelph tool or custom tools (if any available).
- Suggest follow-up actions: creating a biosecurity routine, involving local vet.
- If sponsored, share discount codes or trial versions of partner solutions.