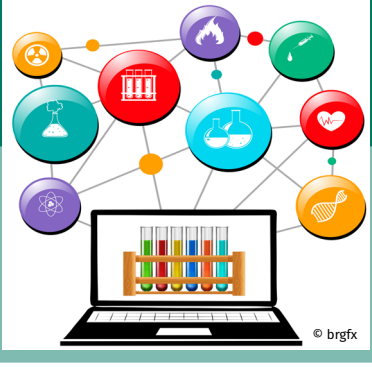
Technical Sheet for Solution Implementation

Chemical Risk Analysis



Thematic Area: Socio-economic performance.

Priority: How to improve working conditions.

Need: How to improve safety at work?

Solution EU Number: WC-7.

Content of the Solution: Identifying and preventing risks that result from the usage of chemicals such as disinfectants or veterinary drugs, by implementing measures and guidance how to handle those chemicals.

Key Contacts:
Producer, Safety consultant, Safety warnings on the product, safety authorities.

Case Study:

- Pesticide Exposure, Safety Issues, and Risk Assessment Indicators by Christos A. Damalas and Ilias G. Eleftherohorinos.
- Montforts, M.H.M.M. 2005. Validation of the EU Environmental Risk Assessment for Veterinary Medicines. Thesis, Leiden University.

Reasons for Implementing this Solution

Effective chemical risk management in equine farms protects staff from health risks, ensures animal safety, prevents environmental contamination, and complies with regulations. Proper practices reduce property damage, enhance safety, and strengthen trust through a commitment to sustainability.

Description of Solution Strategies

To minimize chemical risks, chemicals should be stored safely, clearly labeled and checked regularly. Staff must be trained in safe handling and equipped with the appropriate protective equipment (PPE). Good ventilation is important to ensure air quality. Emergency plans for spills and accidents should be in place, as well as responsible handling of chemical disposal. Regular inspections ensure the safety and functionality of all measures.

Examples of chemical risks on a horse farm:

- Medications & Treatments: Dewormers, Antibiotics, Anti-inflammatories.
- Cleaners & Disinfectants (Chlorhexidine, Iodine solutions, ammonia-based or phenol-containing agents).
- Pesticides & pest control (fly sprays with pyrethroids, rat poisons with anticoagulants).
- Care products (tar-based hoof hardeners, formaldehyde-containing products).
- Operating materials & machine care.
    - Fuels & lubricants (petrol, diesel, hydraulic oil).
    - Paints & wood preservatives (solvent-based paints).

To be able to limit those risks, please look the implementation steps below.

** Some of the information included in this section has been extracted from «Declic Travail» tool developed at the Institut L'Elevage (IDELE, France).*

Chemical Risk Analysis

Implementation Steps

1. Inventory & Risk Assessment:

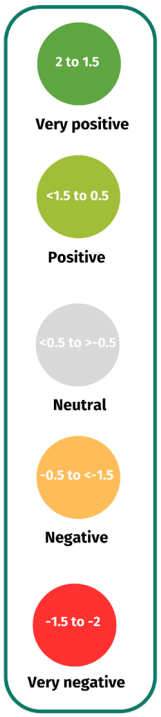
   A. Create a complete list of all chemicals.
   B. Identify places: where is each chemical on the farm?
   C. Assess toxicity level of each chemical (read the sheets or use e.g. SEIRICH for formal risk assessment).
   D. Assess the exposure level to each chemical thanks to the duration of exposure (less than 40 hours per year, between 40hours and 120hours or more than 120 hours) and the procedure of implementation (respiratory or manual direct contact, indirect contact or no direct contact).
   E. Merge the toxicity level to the exposure level to obtain the potential chemical risk.
   F. Associate a mitigation measure (if possible) to prevent the potential chemical risk to obtain the final risk.

2. Product Selection: Choose products that are as environmentally and health-friendly as possible to minimize the risk to humans, animals and the environment.
3. Safe Storage & Waste Management: Store chemicals safely, label containers and segregate incompatible products. Ensure correct recycling and safe disposal of waste.
4. PPE, Equipment & Compliance: Provide and maintain appropriate personal protective equipment and application equipment. Act in accordance with training guidelines and use chemicals only for their intended purpose.
   Tips: Joint equipment purchase investment, shared work tools (standard sprayers, etc.).
5. Training, Emergency Preparedness & Inspections: Conduct regular training on chemical safety, emergency response and safe handling of chemicals. Develop an emergency response plan and conduct regular inspections of storage areas, equipment and work areas.
6. Continuous Improvement: Regularly review and update the risk management plan and safety procedures.

Chemical Risk Analysis

How Will this Solution Impact the Performance of your Farm ?

TOPIC	SCORE
Social	2.00
Economics	0.50
Welfare	0.50
Health	2.00
Environmental	1.33
Pasture	1.00
Global	1.25



Color coding explanation

Socioeconomics: A chemical risk assessment leads to effective prevention, which results in fewer accidents and occupational diseases. This is therefore associated with a strong positive score for social performance. The economics score is slightly positive according to the solution that also allows for better product selection, reducing costs and increasing efficiency, while improving the overall quality of life at work for both the farmer and their employees. So, this solution will support socio-economic performance of your farm.

Health & Welfare: Important solution related to equine (and human) health, so then horse welfare and human wellbeing. This solution protects from the exposition to harmful chemicals. So, this solution will support health and welfare performance of your farm.

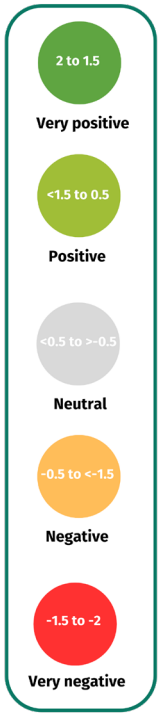
Environmental Sustainability: This solution has a positive impact on environmental sustainability's and pasture management's performance of the farm as better use of molecules means less treatment, better efficiency, lower resistance, lower water pollution and less impact on flora and fauna.

So, this solution will improve the global performance of your farm.

Chemical Risk Analysis

How Will this Solution Impact the Resilience of your Farm?

TOPIC	SCORE
Social	1.67
Economics	1.00
Welfare	0.42
Health	2.00
Environmental	1.11
Pasture	1.17
Global	1.22



Socioeconomics: This solution will support socio-economic performance of the farm facing external challenges as a better use of molecules leads to a healthier workforce with increased availability of workers and lower production costs. Similarly, improved use of toxic products enhances the farm's image, optimizes production cost management, and creates better working conditions that help in case of external challenges.

Health & Welfare: This solution will support health performance of horses facing external challenges because it limits exposure to chemicals and so health issues no matter the type of external challenges.

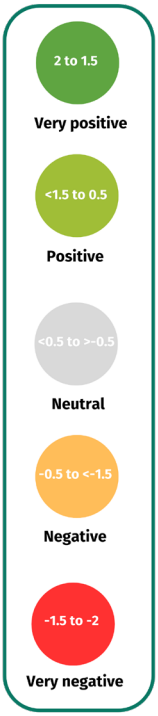
Environmental Sustainability: This solution will support Environmenntal's and pasture management's performance facing external challenges due to better chemical management.

So, facing external challenges this solution can support the global performance of the farm to be more resilient.

Chemical Risk Analysis

How Can this Solution Help Your Farm to Face Specific External Challenges to Be More Resilient?

CHALLENGES	SCORE
Inflation	1.25
Pandemic	1.00
High welfare standard	1.50
High infectious diseases	1.42
Extreme weather event	1.17
Loss/limited access to grassland	1.33



Socioeconomics: This solution can support the global performance of the farm facing inflation or pandemic thanks to the reduction of vet costs, staff health problems or accidents, and thanks to the increase of productivity. Having healthy horses and staff can help to face these challenges.

Health and Welfare: This solution can support global performance of the farm facing high welfare standards or high infectious diseases as it is effective for the assurance both high health and welfare standards on the farm. Having healthy horses and staff can help to face these challenges.

Environmental Sustainability: This solution can support global performance of the farm facing extreme weather event or loss of lands because the good use of chemical molecules means better use of products, fewer molecules released into the water, less antibiotic/phyto resistance and leads optimization of products on soils.

Chemical Risk Analysis

Cost-Benefit Analysis

Costs

Socioeconomics:

- Initial Investment in training, PPE, and safety equipment.
- Ongoing Costs: Regular training, inspections, and potential chemical replacements can incur ongoing costs.
- Time-Consuming: Developing and maintaining a chemical risk management plan requires significant time and effort. Regular training, inspections, and record-keeping can be time-consuming for busy stable owners and managers.
- Limited Product Availability: Finding less toxic alternatives to certain chemicals can be difficult, especially in niche markets like equine care.
- Training Costs: Training staff in chemical safety can require time and resources.
- PPE Costs: Providing and maintaining PPE can be costly.
- Staff Compliance: Ensuring that all staff members consistently follow safety protocols and using PPE can be difficult, particularly in busy environments.
- Potential for Increased Labor or costs: Some mitigation measures to prevent risks may require more labour and budget (alternative for safer products.

Benefits

- Reduced Veterinary Costs: Fewer illnesses and injuries due to chemical exposure can lead to lower veterinary bills.
- Reduced costs for medical treatments of staff: fewer work accidents related to chemicals reduce medical bills for the staff.
- Increased Productivity: A healthier workforce can improve efficiency and productivity.
- Reduced Legal Liability: Proper chemical handling and storage can mitigate potential legal issues.
- Improved Worker Health: Reducing exposure to harmful chemicals can improve worker health and reduce sick leave.
- Increased Job Satisfaction: A safe and healthy work environment can boost employee morale.
- Reduced Workplace Accidents: Proper training and safety protocols can minimize accidents and injuries.

Chemical Risk Analysis

Cost-Benefit Analysis

Costs	Benefits
Equine Health & Welfare : • No effect.	• Improved Animal Health: Reducing exposure to harmful chemicals can prevent illnesses and injuries. • Enhanced Well-being: A safer environment can improve the overall well-being of horses.
Environmental Sustainability: • No effect.	• Reduced Environmental Impact: Proper chemical storage and disposal can minimize pollution. • Preservation of Natural Resources: Reducing chemical use can help conserve natural resources. • Protection of Biodiversity: Minimizing chemical runoff can protect local ecosystems. • Soil Protection: Minimizes the risk of soil contamination from improper chemical disposal. • Water Protection: Protects water bodies from pollution caused by chemical runoff.
Cooperation between farms: • No effect.	• No effect.

Additional Resources

Other Technical Sheet or Document

- Technical sheet, Declic Travail (fr), https://declictravail.fr/fiche/531
- Guideline in french to assess chemical risk (fr), https://marne-ardennes-meuse.msa.fr/lfp/documents/98915/1196191/Evaluation_risque_chimique.pdf

Online Tool

- https://www.seirich.fr/seirich-web/index.xhtml

Websites

- https://www.vetline.de/hygienemanagement-in-pferdebetrieben-ergebnisse-einer-fragebogenstudie
- https://www.fedlex.admin.ch/eli/cc/2005/478/de
- https://www.bfr.bund.de/de/chemikaliensicherheit-4056.html
- https://safetyculture.com/topics/safety-symbols/
- https://www.hse.gov.uk/comah/sragtech/techmeassigns.htm
- https://www.safeopedia.com/safety-symbols-and-their-meanings/2/6550
- MSA et risques chimiques (fr), from https://ssa.msa.fr/risque/risques-chimiques/

Publications

- BfR (2005): EU-Chemikalienrecht und Verbraucherschutz. Proceedings zum ersten BfR-Forum Verbraucherschutz am 23. und 24. Juni 2005. ISBN 3-938163-07-0. https://www.bfr.bund.de/cm/350/eu_chemikalienrecht_und_verbraucherschutz_proceedings.pdf
- ISO (2011): Graphical symbols — Safety colours and safety signs — Registered safety signs. Symboles graphiques — Couleurs de sécurité et signaux de sécurité — Signaux de sécurité enregistrés. Reference number ISO 7010:2011(E). https://cdn.standards.iteh.ai/samples/54432/d95ae24129984dbe89de9ece47fada44/ISO-7010-2011.pdf

Funded by the European Union

This project has received funding from the European Union under Grant Agreement No. 101086551.

Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Chemical Risk Analysis

Annex

Ideas to Animate a Workshop About the Solution

- Ask Horse societies or official agencies about donating info material / resources for making local workshops.
- Find a model farm where the workshop can take place.
- Complete the required tasks and let the participants take part in these demonstration tasks so that they can get to know the system.
- Proposed structure for the workshop on “Implement health and safety measures: Measures against chemical risk analysis in horse stables:” The key points serve as an example and must be adapted for the respective solutions

Proposed Structure for the Workshop on Self-service Stall fronts in Horse Stables:

1. Introduction to Chemical Risk Assessment on Horse Farms

- What is Chemical Risk Assessment?
- Key features and components of Chemical Risk Assessment (e.g., material, quality).
- Types of Chemical Risk Assessment- tools, sheets, information, SOP´s available on the market (EU-REACH, EPA, ISO 7010, ...).

2. Potential for Chemical Risk Assessment in Horse Farms

- Analyse together with participants where risks lie in the usage of chemicals, and which questions they have about the safer handling of them.
- Give them an overview about the benefits and challenges of implementing a chemical risk assessment plan.
- Regulatory Overview: Discuss relevant regulations and standards related to chemical use in agriculture and veterinary medicine.

3. Practical Module: Identifying and Assessing Chemical Hazards

- Present typically used chemicals to the participants and give out handouts where those products are detailed described.
- Then let Participants per Work group solve those steps.
- Inventory of Chemicals: create a comprehensive list of chemicals used on the farm.
- Hazard Identification: Let them first work out the different types of chemical hazards (e.g., toxicity, flammability, corrosivity).
- Then sum up the results of the work groups in a table, with the columns: chemicals, warning signs, potential hazards, storage and risk assessment.
- Risk Assessment: Explain how to assess the risks associated with each chemical, considering factors like exposure routes, toxicity, and environmental impact.

4. Safe Handling and Storage of Chemicals

- Safe Handling Practices: Demonstrate proper techniques for handling chemicals, including the use of personal protective equipment (PPE).
- Storage Guidelines: Discuss best practices for storing chemicals, such as using appropriate containers, labelling, and ventilation.

- Spill Response: Train participants on how to respond to chemical spills and leaks.

5. Minimizing Environmental Impact
- Sustainable Chemical Use: Explore strategies for reducing chemical use and selecting eco-friendly alternatives.
- Waste Management: Discuss proper disposal of chemical waste, including recycling and hazardous waste disposal.
- Water Quality Protection: Explain how to prevent chemical runoff into water bodies.

6. Emergency Preparedness and Response
- Emergency Response Plan: Develop a customized emergency response plan for the farm.
- First Aid: Provide basic first aid training for chemical exposures.
- Evacuation Procedures: Discuss evacuation procedures in case of a major chemical incident.

7. Case Studies and Real-World Examples
- Examples of farms or equestrian centres using Chemical Risk Assessment.
- Discussion of how they have integrated these Strategies into their daily operations.
- Lessons learned and tips from farm operators who use this system.

8. Cost Analysis and Return on Investment (ROI)
- Initial cost modular systems vs. long-term savings in labour.
- How to calculate ROI based on farm size, workload, and usage.
- Financial benefits from reducing strain on workers and improving productivity.

9. Q&A Session
- Open floor for participants to ask questions about specific concerns or experiences.
- Address any uncertainties regarding the effectiveness or cost of modular facilities.
- Address any uncertainties regarding the effectiveness or cost of self-service stall fronts.

10. Wrap-Up and Resources
- Summary of key points covered in the workshop.
- Additional resources for further learning (websites, suppliers, online communities).