

Mechanized Cleaning of Stalls



Thematic Area: Socio-economic performance.

Priority: How can working conditions be improved?

Need: How to reduce arduousness; What mechanization, digitalization and robotics solutions to improve working conditions on my equine farm.

Solution EU Number: WC-14.

Content of the Solution: Reduce arduousness of work by mechanization.

Key Contacts: Not available.

Case Study: Not available.

Reasons for Implementing this Solution

Improving working conditions by reducing the amount of work, physical strain and time spent cleaning stables/boxes through the use of machines.

Description of Solution Strategies

Various devices are available for the mechanical cleaning of stables/boxes. Automatic stall cleaning systems are specially designed to automate the work of stable maintenance. They clean the stalls by removing the manure and spreading some of the bedding. Possible technologies are:

- Robot stall cleaners are autonomous and can clean the stalls without a rail system. Allowing entry into almost all horse stalls, and turning around inside horse stalls themselves, those machines facilitates horse stall cleaning, reduces the time spent on it and enormously relieves the user of undeniable drudgery. They move through the barn and collect the manure. They are equipped with special sensors to detect obstacles and navigate safely.
- Wheel loaders and skid steer loaders offer flexibility, but are also versatile in use. There are small enough to operate in tight spaces, yet powerful enough to perform any operation. This perfect machine is just the right size to fit through narrow doorways, corridors, small paths and wickets, and to work under low ceilings. It's the perfect loader whenever the job is too big for an excavator, or the space too small for a larger machine.
- Wheel loaders are compact, highly maneuverable machines with a front bucket or manure fork that are used to pick up manure. These machines can also be used for transporting litter or moving manure to a manure storage area.

Mechanized Cleaning of Stalls

- Skid steer loaders are smaller, more maneuverable machines that are particularly advantageous in confined barns. They can be equipped with a variety of attachments, such as manure grabs, forks, shovels or even special cleaning equipment.

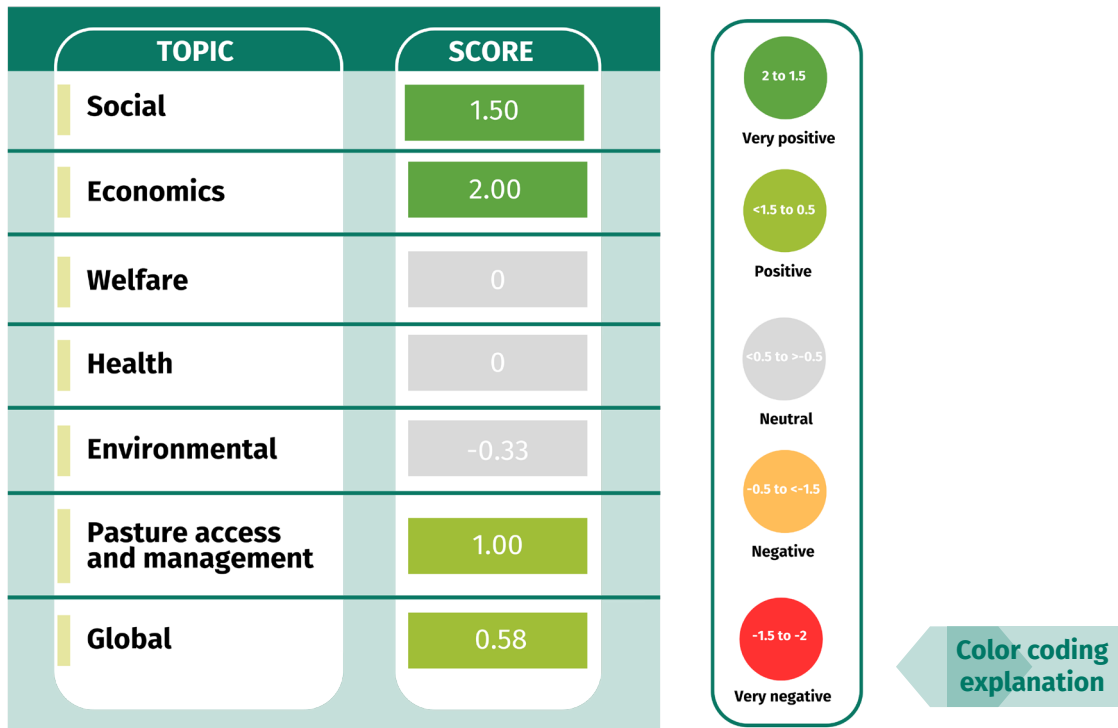
Implementation Steps

1. Assessment of the needs of the business.
2. Obtaining offers from various providers.
3. On-site consultation if necessary.
4. Purchase (and installation) of the equipment.
5. Training of employees.



Mechanized Cleaning of Stalls

How Will this Solution Impact the Performance of your Farm ?



Socioeconomics: This solution will support the socioeconomic performance of your farm because it positions your operation as modern and innovative while reducing workload, working time, and physical strain on workers, thereby lowering the risk of injuries and cutting human labor costs. By streamlining tasks and improving efficiency, the farm can optimize productivity and profitability. However, it is important to consider energy costs, initial investment, and potential licensing requirements for operating the machine.



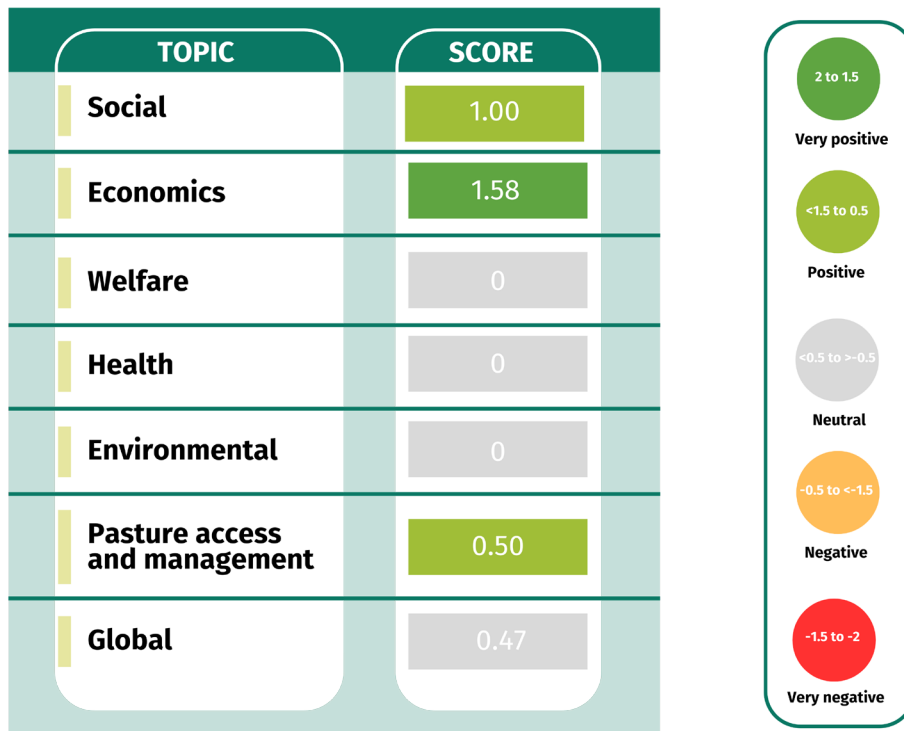
Health & Welfare: This solution will not have an effect on health and welfare, as directly not improving the access to companions, forage and free movement, and thus the positive emotional state of horses. It also has no direct effect on reduction of pain and mortality as well as curative medication.



Environmental Sustainability: This solution will have little effect on environmental performance, because if it is compared to manual work, it has small negative effect due to energy consumption. On the other hand, it will support the performance of grassland management by keeping the grassland clean and making transportation easier.

Mechanized Cleaning of Stalls

How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: This solution will support socioeconomic performance of the farm facing external challenges because it eases operations during labor shortages by reducing workload and working time, ensuring tasks are completed efficiently. Additionally, the machine can be rented out to generate extra income, providing financial flexibility. However, it is essential to have qualified operators to maximize its benefits.



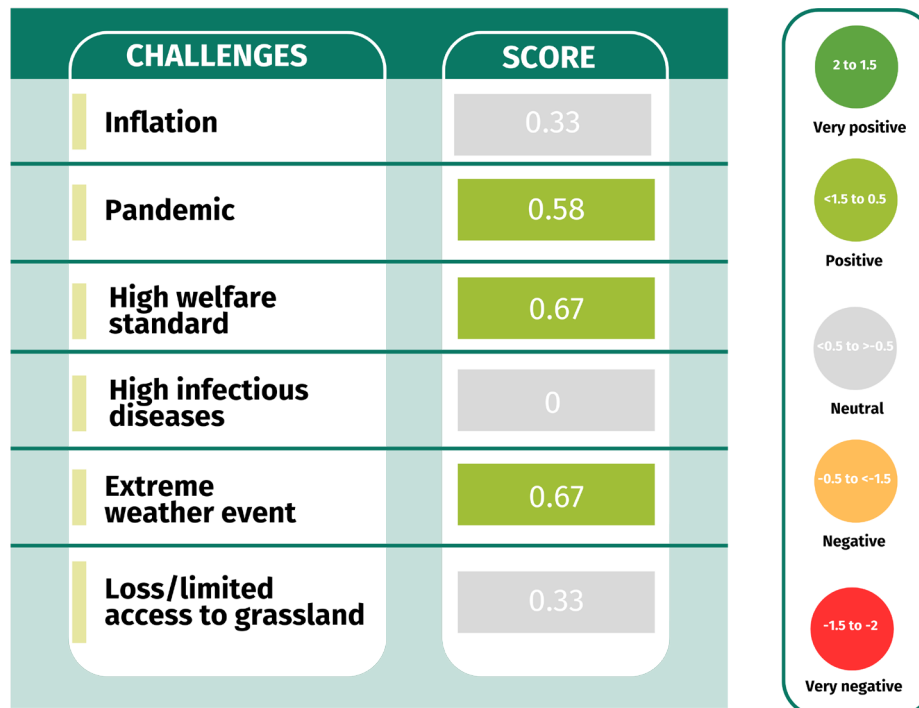
Health & Welfare: This solution will not have an effect on health and welfare performances facing external challenges.



Environmental Sustainability: This solution will have little effect on farm's ability to recover from challenges in terms of environmental sustainability. The solution has a small positive effect on grassland management due to less amount of needed human work. This way it is easier to keep up good condition of grassland.

Mechanized Cleaning of Stalls

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



Inflation & Social Crises: This solution won't have any effect on the global performance of farms facing inflation. On the other hand, a slight positive effect can be seen in the event of a pandemic, when the workforce is reduced through a lower workload.



Welfare & Diseases: This solution may have some positive effects on the performance of the farm faced with the need to improve welfare standards when due to easier management of arduous works, regular cleaning may occur more frequently. However, the negative effects of noise and fumes may occur when the horses aren't turned out during the cleaning. This solution could not prevent the occurrence of infectious diseases.



Climate Change & Access to Land: This solution can help farms to recover after extreme weather event (abnormally high or low temperatures, excessive raining). Mechanization of work helps with recovery. This solution does not have an effect on recovery of the farm if it faces loss/limited access to grassland.

Mechanized Cleaning of Stalls

Cost-Benefit Analysis

Costs

Socioeconomics:

- Energy costs.
- Initial costs (depends on size, 6500 € - 50.000 €).
- License to drive the machine.
- Quality of air in stables (for humans and animals) if benzine powered.
- Maintenance and repair costs.

Health & Welfare:

- Quality of air in stables (for humans and animals) if benzine powered.
- Impact of noise if not electric.

Environmental Sustainability:

- Energy consumption.

Cooperation between farms:

- No effect.



Benefits

- Reduced risk of injury to the worker.
- Reduced physical load on the worker.
- Less human work costs.
- Less workload and worktime consumption.
- Multipurpose machine.



- No effect.



- No effect.



- No effect.



Technical Sheet for Solution Implementation

Mechanized Cleaning of Stalls

Additional Resources

Model Companies

- <https://www.bobcat.com/eu/fr/equipment/loaders/skid-steer-loaders/s70>
- <https://www.micro-pelle.fr/>
- <https://www.weidemann.de/>
- <https://www.schaeffer.de/en/>
- https://aktivstall.de/de/hit-aktivstallroboter_active-cleaner/



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Ideas to Animate a Workshop About the Solution

- Ask trader specialized in Mechanized cleaning of stalls to sponsor the workshop.
- 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 Mechanized Cleaning of Stalls in Horse Stables:

1. Introduction to Mechanized Cleaning of Stalls

- What is/are Mechanized cleaning of stalls?
- Key features and components of Mechanized cleaning of stalls (e.g., machines, quality).
- Types of machines for cleaning of stalls available on the market (robooter, wheelloader etc.).

2. Benefits of Mechanized Cleaning of Stalls in Horse Stables

- Reduced Physical Strain: Less manual labor for farm workers, especially important for those with physical limitations.
- Cost Savings: Potential long-term savings on labor.
- Increased Efficiency: reduced workload and time consumption.

3. Practical Applications on Horse Farms

- Multipurpose machines suitable for various kind of work.

4. How to Choose the Most Suitable System

- Evaluation of the needs of the farm.
- Assessment of the structural requirements.
- Features such as material, construction, ease of use.
- Price comparisons.

5. Hands-On Demonstration

- Live demo of handling mechanized cleaning of stalls.
- Testing different (if available) models and giving participants a chance to try them out.
- Proper techniques for maximizing efficiency and reducing wear on the equipment.

6. Maintenance and Troubleshooting

- Cleaning and care of modules and parts such as screws, hinges, etc.
- Readjustment.

7. Case Studies and Real-World Examples

- Examples of farms or equestrian centers using machines for cleaning.
- Discussion of how they have integrated these tools into their daily operations.
- Lessons learned and tips from farm operators who using this system.



8. Cost Analysis and Return on Investment (ROI)

- Calculation of long-term savings in labor.
- 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 machines to clean stalls.

10. Wrap-Up and Resources

- Summary of key points covered in the workshop.
- Additional resources for further learning (websites, suppliers, online communities).
- How to access special discounts or offers on modular facilities if partnered with suppliers.