

## Automatic Sweeper



**Thematic Area:** Socio-economic performance.

**Priority:** How can working conditions be improved?

**Need:** How to reduce arduousness of work.

**Solution EU Number:** WC-13.

**Content of the Solution:**

Automatic sweepers and their benefits and disadvantages for working in horse stables.

**Key Contacts:**

- Specialist retailers.



### Reasons for Implementing this Solution

Implementing automatic sweepers can significantly reduce the time and physical effort required for cleaning stables, leading to increased employee satisfaction and well-being.

### Description of Solution Strategies

Automatic sweepers are ideal for cleaning the walkways, the bottom of the hedges or the yard of your farm or barn. They remove debris such as sawdust, wet or dry leaves, cigarette butts, paper, manure and more. The machines can be petrol-powered, hand-operated or electric. There are different types of sweepers:

- Small models that can be pushed.
- Large models that are mounted behind tractors.
- Self-built models.
- Robotic models.
- Home made ones with rubber pannels fixed on tedder/ endainer.





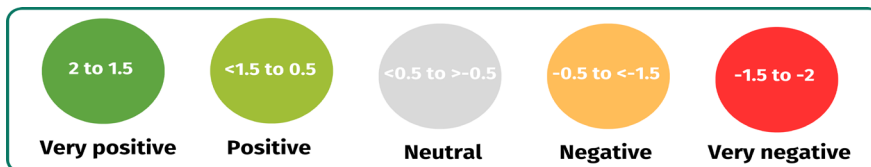
# Automatic Sweeper

### Implementation Steps

1. **Assessment and Planning:** Evaluate the specific cleaning needs of your farm, including the size of the area, types of debris, and frequency of cleaning. Determine the most suitable type of sweeper (push, tractor-mounted, robotic) based on these needs.
2. **Budgeting and Procurement:** Establish a budget for the purchase and maintenance of the sweepers. Research different models and suppliers to find the best options within your budget. Consider both initial costs and long-term maintenance expenses.
3. **Installation and Setup:** Once the sweepers are purchased, set them up according to the manufacturer's instructions. This may involve assembling parts, charging batteries (for electric models), or attaching them to tractors.
4. **Training and Safety:** Train your staff on how to operate the sweepers safely and efficiently. Ensure they understand the maintenance requirements and safety protocols to prevent accidents and prolong the lifespan of the equipment.
5. **Monitoring and Maintenance:** Regularly monitor the performance of the sweepers and conduct routine maintenance checks. Address any issues promptly to ensure continuous and effective operation. Keep records of maintenance activities and any repairs needed.

### How Will this Solution Impact the Performance of your Farm ?

TOPIC	SCORE
Social	2.00
Economics	1.00
Welfare	2.00
Health	0.50
Environmental	-0.30
Pasture access and management	0
Global	1.00



Color coding explanation



**Socioeconomics:** This solution will enhance the socioeconomic performance of your farm by improving profitability through an automated system, as it requires less time and effort, ultimately reducing the amount of work needed. It will decrease the arduousness of work, so that's good for the social outreach of the farm.



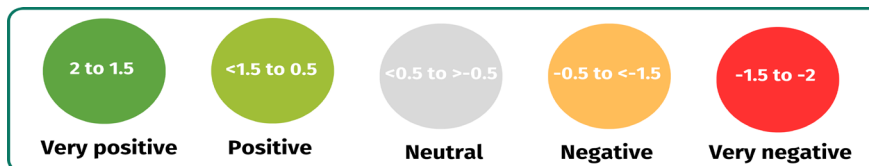
**Health & Welfare:** This solution can have a positive effect on reduction of microbial/ parasitic infestation and thus reduction of curative medicine/anthelmintics use. This will not directly improve feeding practices, social company and free movement but the general propriety of the environment. Care should be taken to habituate the horses to the devices, especially the autonomic ones, not to provoke panic reactions and resulting injuries.



**Environmental Sustainability:** This solution will not have an effect on performance related to environmental sustainability or grassland management. It has a negative effect on mitigation of climate change due to energy consumption.

### How Will this Solution Impact the Resilience of your Farm?

TOPIC	SCORE
Social	0.58
Economics	0.08
Welfare	0.17
Health	0.08
Environmental	-0.06
Pasture access and management	0.17
Global	0.17



**Socioeconomics:** This solution will support social performance of the farm facing external challenges because of optimising working time and reducing drudgery when labour is less available or more expensive. On the other hand, it won't have any direct effect on economic performance.



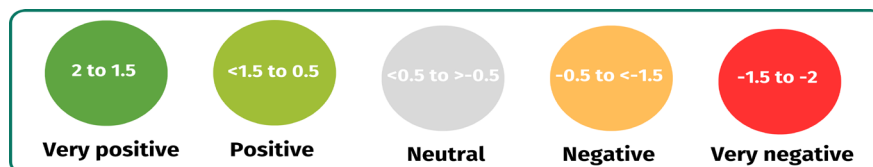
**Health & Welfare:** This solution will not have impact on health or welfare performance facing external challenges.



**Environmental Sustainability:** This solution will not have an effect on farm's ability to recover from defined challenges regarding performance in environmental sustainability or grassland management.

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

CHALLENGES	SCORE
Inflation	0
Pandemic	0
High welfare standard	0
High infectious diseases	0
Extreme weather event	0.08
Loss/limited access to grassland	0



**Inflation & Social Crises:** This solution won't have any direct effect on the global performance of the farm in case of inflation or pandemic.



**Welfare & Diseases:** This solution won't have any direct effect on the global performance of the farm in case of high welfare standard or high infectious disease.



**Climate Change & Access to Land:** This solution will not have an effect on farm's ability to recover in a case of excessive rainfall or loss/limited access to grassland.

### Cost-Benefit Analysis

#### Costs

##### Socioeconomics:

- **Purchase costs:** Prices for automatic sweepers can vary depending on size and model, from a few hundred euros for small hand-operated models to several thousand euros for larger, tractor-powered machines.
- **Operating costs:** Gasoline or electricity costs for operation, maintenance costs and spare parts may be incurred.

##### Health & Welfare:

- **Risk of fright and injury** if direct interaction.
- **Lack of specialization:** Some automatic sweepers may not be specifically optimized to handle equine environments, which can lead to additional adjustments or precautions.
- **Lack of prevention for inaccurate cleaning:** If the machine is not working properly, incomplete cleaning processes can lead to respiratory issues.



#### Benefits

- **Labor savings:** Automatic sweepers reduce the workload, resulting in greater efficiency.
- **Reduced physical strain.**
- **Time saving:** They allow large areas to be cleaned more quickly, giving farmers more time for other tasks.
- **Increased productivity:** Clean areas promote a healthier environment for animals, which can indirectly lead to better profitability.



- **Less respiratory hazard** for horses and humans compared to other cleaning methods such as blowers.
- **Improved hygiene:** Clean stables and pastures reduce the risk of infections, parasite infestations and other diseases, resulting in healthier animals.
- **Prevention of injuries:** Removing manure, dirt and other materials reduces the risk of hoof injuries and accidents.

### Cost-Benefit Analysis

#### Costs

##### Environmental Sustainability:

- Energy consumption: If the machines are electrically powered, a certain amount of energy is required. With gasoline-powered models, emissions and fuel consumption can have a higher environmental impact.

##### Cooperation between farms:

- Cost of shared use: If machines are shared, administrative costs or contract settlements need to be considered to ensure fair access and operation.



#### Benefits

- Reduction of waste: Automatic sweepers help to systematically remove waste, such as cigarette butts and paper, which reduces environmental pollution.
- Cost sharing: By sharing machinery, several farms can benefit from the advantages of an expensive investment, reducing the financial burden on each individual farm.
- More efficient use of resources: Cooperation between different farms enables more efficient use of machinery, resulting in better capacity utilization.



# Technical Sheet for Solution Implementation

## Automatic Sweeper

### Additional Resources

#### Websites/Model Companies

- [https://aktivstall.de/de/hit-aktivstallroboter\\_active-cleaner/](https://aktivstall.de/de/hit-aktivstallroboter_active-cleaner/)
- [Trucs et astuces d'agriculteurs : Balayeuse multi-services | Noël Bidet](#)
- [https://www.equestrian.technology/fr\\_BE/equestrian-sweeping-bot](https://www.equestrian.technology/fr_BE/equestrian-sweeping-bot)
- <https://www.bohlmann-reitboden.de/de/produkte/paddockcleaner/aepfelsauger.html>
- <https://www.agriexpo.online/de/landwirtschaftlich-hersteller/handgefuehrte-kehrmaschine-943.html>

#### Further Information

- <https://youtu.be/se1FYAcODZ4?si=gYx3RwjE8RGKX4IT>
- <https://cordis.europa.eu/article/id/386846-when-it-comes-to-cleaning-stables-let-the-robot-do-the-dirty-work/fr>
- <https://pferde-betrieb.de/aktuelles/abappeln-mit-technik-offenstall-misten/>
- <https://www.country-reiten.de/magazin/news/258-abaepeln-mit-roboterhilfe-hit-stellt-den-active-cleaner-vor>
- <https://www.agrarheute.com/technik/kehrmaschinen-fuer-stall-hof-test-geeignet-fuer-landwirtschaft-615895>



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### Ideas to Animate a Workshop about the Solution

- Ask a trader or horse farm who already use automatic sweepers to sponsor/ host the Workshop.
- As there existing self-built versions, it could be a fun event to do to a “do it yourself” workshop.
- Find a model farm where the workshop can take place.

### Proposed structure for the workshop on automatic sweepers in horse stables

#### 1. Introduction to automatic sweepers

- What are automatic sweepers?
- Key features and components (e.g., material, quality).
- Types available on the market (e.g., push sweepers, tractor-mounted, robotic).

#### 2. Benefits of automatic sweepers 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: Faster transport of manure, bedding.
- Individually adjustable to different area sizes.

#### 3. Practical Applications on Horse Farms

- Individual adjustment of the box size possible.
- Group and individual stalling possible.
- Enables mechanical cleaning of the stalls. .

#### 4. How to Choose the most suitable model

- 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 the sweepers.
- Testing different models and giving participants a chance to try them out.
- Proper techniques for maximizing efficiency and reducing wear on the equipment.



# Technical Sheet for Solution Implementation

## Automatic Sweeper

### Annex

#### **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 automatic sweepers.
- Discussion of how they have integrated these tools into their daily operations.
- Lessons learned and tips from farm operators using this system.

#### **8. Cost Analysis and Return on Investment (ROI)**

- Initial cost modular systems vs. 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 automatic sweepers, think about accident prevention possibilities.

#### **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.