

Modular Facilities



Thematic Area: Socio-economic performance.

Priority: How can working conditions be improved?

Need: How to reduce arduousness.

Solution EU Number: WC-2.

Content of the Solution:

Decreasing arduousness of work and improving working conditions by modular facilities.

Key Contacts:

- Traders specialized in horse barn construction

Case Study: Not available.

Reasons for Implementing this Solution

The system facilitates mechanical manure removal, significantly reduces the physical strain on barn staff and shortens the time required to clean the barns. It creates optimum accessibility for tractors by adapting the stable aisles and offers flexible use thanks to individually adaptable box sizes, which is ideal for modernizing older stable buildings without standard dimensions or for short-term solutions.

Description of Solution Strategies

Modular facilities are suitable both for enabling mechanical manure removal and for customizing the design of the barn (e.g. for redesigning existing buildings, installing/extending or enlarging/shrinking boxes). Extendable, foldable or completely removable partitions between the stalls are suitable for this purpose. There are different variations of modular facilities:

- Sliding partitions (walls sliding to stable aisle) make it quick and easy to muck out the stalls, enabling simultaneous mechanical cleaning of all stalls.
- Hinged front wall to allow individual stalls to be mucked out mechanically from the front
- Swivel or hinged partitions are suitable for mucking out entire rows of stalls and for enlarging stalls (combining 2 or more stalls into one) without having to remove the partitions completely.

Modular equipment reduces the time and effort required to clean the stalls. The possibility of mechanical manure removal reduces physically heavy work and thus contributes to improved working conditions.

Modular Facilities

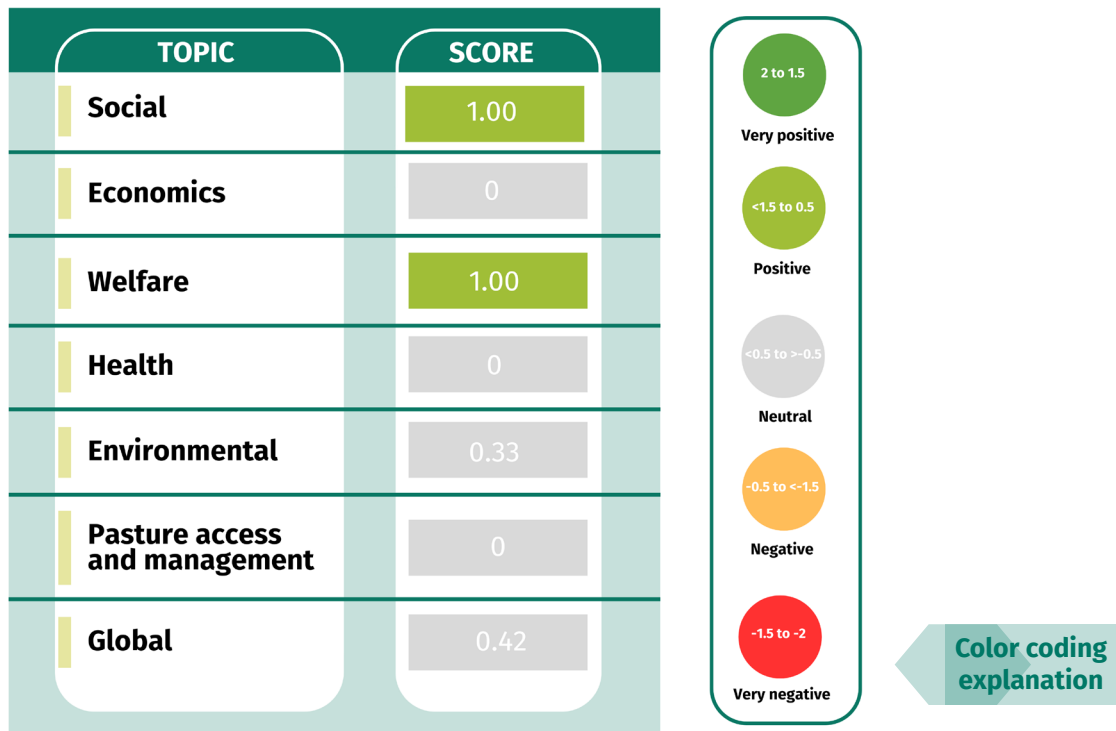
Implementation Steps

1. Assessment and evaluation of the needs of the farm.
 - a) What type of modular system is required or is best suited to the farm?
2. Calculation of re-/new construction of the boxes; draw up plans.
3. Request offers, compare and select providers.
 - b) Arrange a consultation appointment on site, if necessary.
4. For new buildings: incorporate modular systems directly into the designing process.
5. Replacement or installation of movable side panels or box fronts.



Modular Facilities

How Will this Solution Impact the Performance of your Farm ?



Socioeconomics: The positive effect depends on the initial conditions of the farm and its facilities. This solution requires buildings that are adequately prepared for such adjustments. It is an excellent option, particularly for farms with a large number of horses. This solution can improve social performance due to reduction in daily labor requirements: the approach was discussed as an effective solution for the routine task of cleaning, as it saves time. It was noted that this solution requires less time for cleaning, but it is not suitable for every type of bedding. Furthermore, the cleaning tractor used in these facilities must be small. However, public perception might view infrequent cleaning or group housing negatively. So, it's important to pay attention to those criteria.



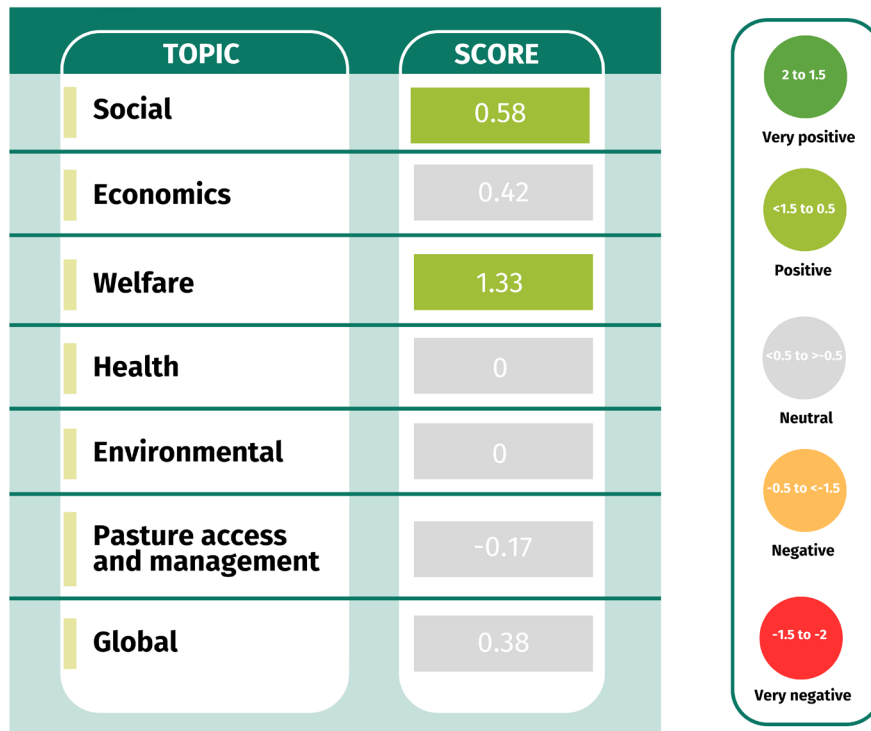
Health & Welfare: This is a good idea to promote less work thus, indirectly, better supply of horses with the fresh, clean straw or other type of bedding material. The functionality also provides with the possibility to merge single boxes into bigger ones for foaling and group keeping. In case of the health problems, it enables isolation of individual horses when kept in groups. So, the effect of this solution on welfare performance is positive and neutral on health performance.



Environmental Sustainability: This solution can have a small positive effect on mitigation of climate change by accumulating manure on the facility and not on manure piles. But globally, the effect is neutral on the environmental performance of the farm.

Modular Facilities

How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: Positive effects include a reduction in daily labor requirements, making this solution particularly beneficial when the workforce is limited due to any type of challenge (if labor costs rise for example). So, this solution can help to maintain a good level of social performance facing external challenges.



Health & Welfare: The availability of such mobile construction provides the owner a possibility to regroup the horses in the case of any challenge such as weaning requiring larger sizes of boxes or quick adaptation to the need for isolation of the horse for health issue or incoming delivery in mares. When group-housed, the horses are provided with conspecifics and then social needs are fulfilled. So, this solution can help to maintain a good level of welfare performance facing external challenges.

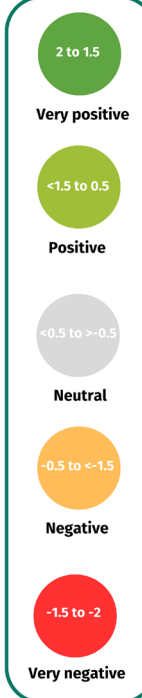


Environmental Sustainability: The effect of this solution on farm resilience from environmental sustainability perspective is neutral. So this solution will not impact the environmental performance of your farm facing external challenges.

Modular Facilities

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

CHALLENGES	SCORE
Inflation	0.25
Pandemic	0.59
High welfare standard	0.59
High infectious diseases	0.25
Extreme weather event	0.25
Loss/limited access to grassland	0.33



- 2 to 1.5
Very positive
- <1.5 to 0.5
Positive
- <0.5 to >-0.5
Neutral
- 0.5 to <-1.5
Negative
- 1.5 to -2
Very negative



Inflation & Social Crises: Reducing the need for daily stall cleaning and enabling group housing improves labor efficiency and animal welfare, particularly under high labor costs due to inflation or under lack of availability of labor due to pandemic. However, group housing may slightly increase injury risks, and social perception could be negative if daily cleaning is seen as insufficient. Overall, the solution supports better adaptation and efficiency in farm operations.



Welfare & Diseases: The availability of such mobile construction provides the owner a possibility to regroup the horses in the case of any challenge such as the legislation requiring larger sizes of boxes or quick adaptation to the need for isolation of the horse for health issues. With appropriate stocking rate (not too many horses in one pen) and habituation of horses to the new group the injury risk is minimal. With easier cleaning, its higher frequency potentially promotes general health and resistance to diseases.



Climate Change & Access to Land: The impact of extreme weather event was evaluated from abnormally high temperatures and draught perspective. This solution will not have impact on the capacity to the farm to face extreme weather event or limited access to grassland.

Overall, this solution can particularly help a farm to be more resilient facing a pandemic or high welfare standard.

Modular Facilities

Cost-Benefit Analysis

Costs

Socioeconomics:

- 390 € - 3000 € per unit.
- Depending on system, characteristics and quality of material, size of required parts.
- Potential higher injuries in workers if animals are housed in groups and free stalling.
- Need to have specific machinery (e. G. tractors) and conversions if required which can increase costs.

Health & Welfare:

- Potential respiratory problems increase if not well air removal in the facilities due to potential use of accumulated manure; potential higher injuries if animals are group housed without respecting a maximum of stocking rate.



Benefits

- Reduced working time requirement
- Equine farmer benefits from lower labour costs and improved worker output.
- Flexible, individual solutions without major conversion measures.
- Decreasing daily labour.
- Simplify working steps by cleaning all stables at once using tractor/wheel loader.
- The installation of sliding or pivoting stall partitions is therefore highly recommended when constructing a new building but can just as easily be installed in an existing building (new or old). Professional masonry work is highly recommended to create a uniform slab that will enable sliding or pivoting stall partitions to function properly.
- Possibility to create bigger boxes for individuals or to create group housing.



Modular Facilities

Costs

Environmental Sustainability:

- No effect.

Cooperation between Farms:

- If labour and/or machines are shared, you have to coordinate well with each other.



Benefits

- Accumulating manure on the facility and not on manure piles can have a positive effect on climate change mitigation.
- Helping each other out, sharing machines.





Technical Sheet for Solution Implementation

Modular Facilities

Additional Resources

Video

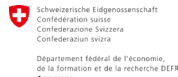
- <https://youtu.be/An3m1lgQaDI>

Websites

- <https://www.roewer-rueb.com/en/products/horse-stalls/partitions>
- <https://www.rutjespferdeboxen.de/produkt/drehbare-boxenfront-stall/>
- <https://www.sulzberger.de/pferdeboxen/trennwaende#gallery{data:uid}-10> <https://www.sulzberger.de/pferdeboxen/trennwaende#gallery{data:uid}-9>
- <https://www.mulderstallundhof.de/product/frontwand-basic-komplett-drehbar-mit-mini-und-schiebetuer/>
- <https://www.stalltechnik24.de/drehbare-trennwand-holz-gitter-2-37-x-2-18-m/rp-0033>

Further Information

- Consult with local farmers who have adopted electric wheelbarrows for peer advice.
- Check with regional agricultural authorities for specific regulations or incentives.



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Ideas to Animate a Workshop About the Solution

- Ask traders specialized in horse-barn construction 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 About Using Electric Wheelbarrows in Horse Farms

1. Introduction to Modular Facilities

- What are modular facilities?
- Key features and components of modular facilities (e.g., material, quality).
- Types of modular facilities available on the market (sliding, pivoting, can be completely removed).

2. Benefits of Modular Facilities in Horse Stables

- **Reduced Physical Strain:** Less manual labour for farm workers, especially important for those with physical limitations.
- **Cost Savings:** Potential long-term savings on labour.
- **Increased Efficiency:** Faster transport of manure, bedding.
- Individually adjustable.

3. Practical Applications on Horse Farms

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

4. How to Choose the Most Suitable System

- Load capacity and weight considerations.
- Battery life and charging time.
- Durability and construction materials for outdoor use.
- Features like tilt mechanisms, speed control, and ease of manoeuvring.

5. Hands-On Demonstration

- Live demo of handling the modular facilities.
- 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 centres using modular facilities.
- 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)

- 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.

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.