

# Wood Fibre Arena Surfaces to Reduce Irrigation Needs



### Thematic area:

Environmental Sustainability.

**Priority:** Management of resources and adaptation of practices to climate changes.

**Need:** Water management: Lack of management of water resources: how to use water better?; How to deal with lack of water?; How to manage the quality of rainwater?; How to store and redistribute water?; How to manage water, quantitatively and collectively?; How to deal with drought?; How to reduce waste?; Information on financing and/or investments to preserve and better manage water resources

**Solution EU number:** CC-08.

**Content of the solution:** Using wood sticks footing alternative for equestrian arenas to limit irrigation.

### Key Contacts:

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## Reasons for Implementing the Solution

The quality of today's equestrian surfaces, which are mostly made up of sand, is determined by water. Using wood shavings as a working surface can significantly reduce or even eliminate the need for watering. This material can be used to create comfortable surfaces that require little maintenance, and it is a sustainable, environmentally friendly alternative.

It reduces dependence on drinking water and improves overall water management on farms, particularly during periods of drought.

## Description of Solution Strategies

The principle is based on using calibrated and refined wood sticks as the arena's main surface layer. Sticks that have been shredded along the grain of the wood are generally preferable. This type of surface can be used without watering under normal conditions. Thanks to its water retention capacity and low tendency to compact, it is suitable for year-round use.

### Recommended Materials:

- Shredded wood sticks along the grain (uniform sticks can cause slippage and instability on bends).
- Non-toxic, untreated, and EU-compliant wood sources.
- Optionally mixed with sand or natural fibers (e.g., wool) for added stability.
- Optional use of cork sticks in cork-producing regions.

### Performance characteristics:

- Irrigation-free in most conditions – only occasional watering in long dry periods and when used in indoor-arenas.
- Winter Use: Frost-resistant, remains usable in cold seasons.
- High elasticity – tendon-friendly and comfortable for equines.
- Shear Strength: Moderate – suitable for dressage and light jumping (below 1.40 m).



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- Maintenance: Low – There is no need to water or harrow. Passing with a grid is sufficient.
- Durability: Biodegradable – requires occasional top-up due to decomposition.
- Sustainable – biodegradable and made from renewable material.
- Aesthetic – natural look, no synthetic fibers.

### Limitations:

- Moderate shear strength – not ideal for high-level jumping.
- Decomposes over time – needs replenishment every 1–2 years.
- Hoof care – regular checks recommended due to softer surface.

### Unsuitable Materials:

- Uniform wood sticks can cause slippage and prove unstable on bends.
- No treated wood should be used.

## Implementation Steps

### 1. Consulting & material procurement

- If necessary, consult advice from an arena builder.
- Choose a supplier that offers screened wood sticks specially processed for riding arenas.
- Avoid untreated coarse shavings or materials with potentially toxic residues.

### 2. Construction of the riding arena base (For new construction)

- Ensure a suitable subbase and drainage layer:
  - Surface drainage through slope.
  - Depending on the nature and load-bearing capacity of the natural soil, a gravel or wooden foundation layer is laid (allowing for a 100% bio-based solution).
  - There is a possibility of applying a two-part working layer: sand at the bottom and wood sticks or a layer of mature wood on the surface.

### 3. For existing riding surfaces

- Check the conditions: removal/renewal of individual layers may be necessary
- Apply a footing layer of wood shavings (approx. 10–15 cm), distribute evenly, and compact lightly
- Avoid excessive compaction to maintain elasticity.

### 4. Maintenance routine

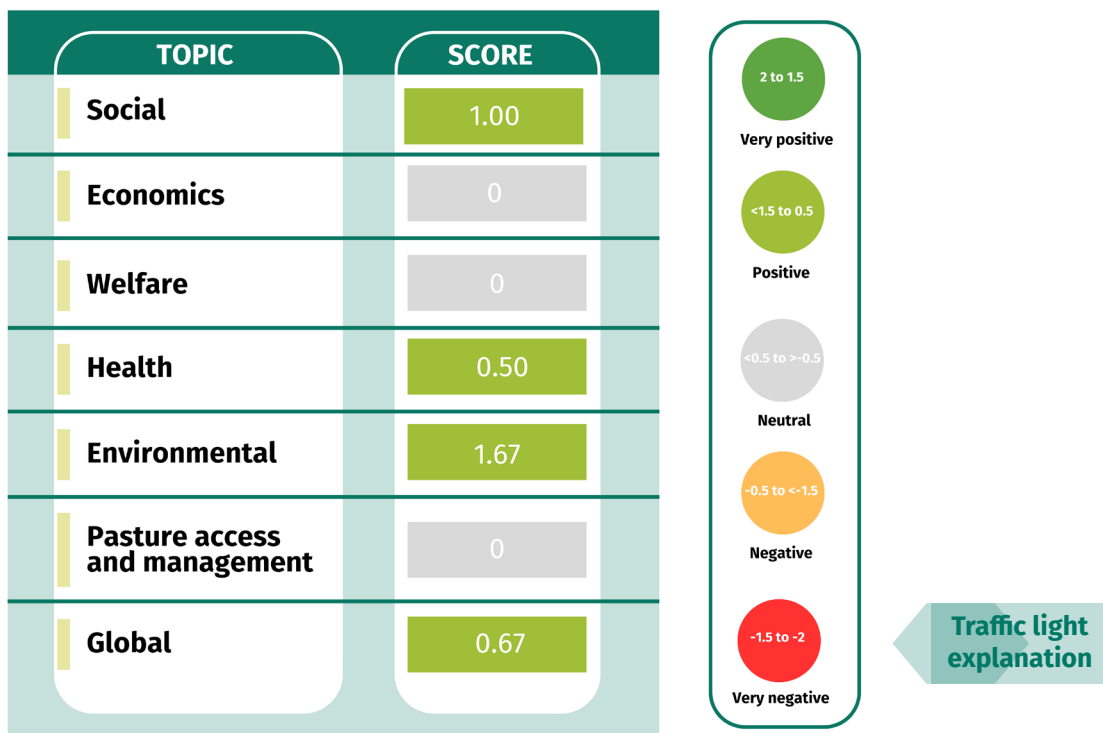
- Regularly level with simple dragging equipment (no special harrow required).
- Monitor surface wear and refill with wood sticks as needed.
- Check for decomposition and maintain the correct layer depth.

### 5. Long-term care

- Avoid contamination by sharp or large foreign objects.
- The frequency of manure collection should depend on how intensively the quarry is used. This is not necessary if use is moderate.

# Wood Fibre Arena Surfaces to Reduce Irrigation Needs

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



**Socioeconomics:** This solution enhances the farm’s social performance by reducing its water consumption and use of non-renewable resources, thereby strengthening its public image as an environmentally responsible organisation. It also prevents synthetic materials (such as fibres, oils and waxes used in equestrian surfaces, tarpaulins and drains in sub-irrigation quarries) from dispersing into the environment, thereby reducing the risk of microplastic pollution. It also eases the workload by reducing the need for watering and frequent maintenance compared to sand arenas, which can enhance working conditions. By showing sensitivity to resource scarcity, the farm strengthens its social outreach and reputation within the equine sector.

This solution will not have effect on the economic performance of the farm because the financial balance remains uncertain. While it may reduce maintenance costs, the purchase price and replacement frequency of wood sticks are not well established, and they may vary depending on type and preparation. As a result, the economic outcome is inconclusive, with no clear evidence of significant cost savings or farm capital gain. However, the prospects for timber production on the farm will improve its self-sufficiency and resilience, which are sources of economic security.

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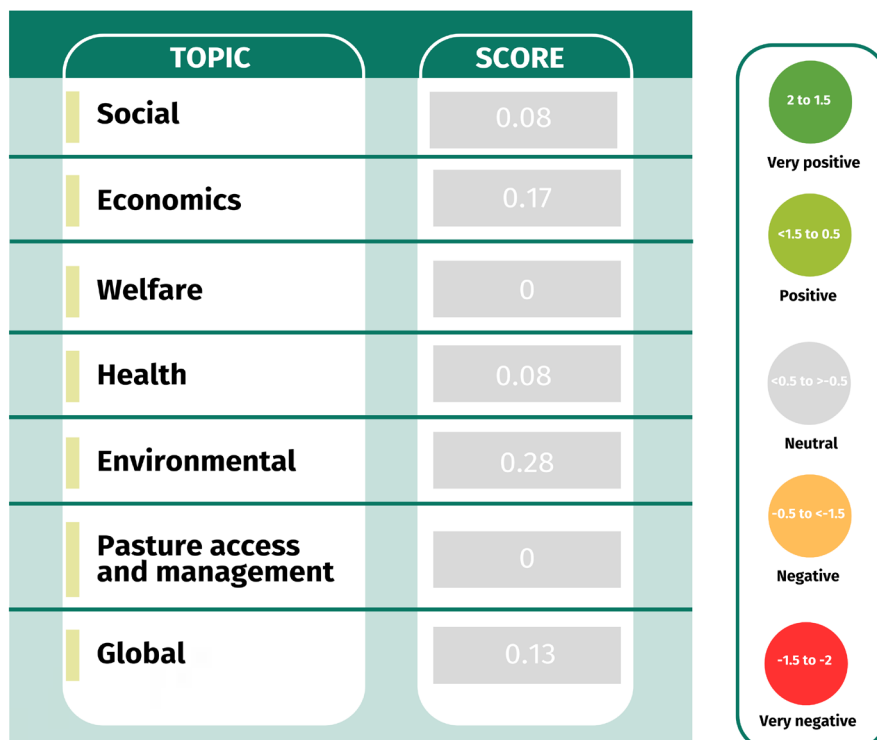


**Health & Welfare:** This solution positively impacts the everyday farm’s health performance by helping to maintain low levels of pain and drug use, through increased elasticity, which may be better for joints and soft tissues (less concussive than sand) and also by reducing hoof wear or cracking. It should be considered, however, that dust levels are not clearly lower than sand when surfaces are dry, thus provoking possible respiratory concerns. It can become slippery if the wood sticks are too big. Potential problems with allergens if the material is wet and poorly maintained. It has a neutral effect on the welfare performance of the farm as it is not related to a positive emotional state or provision of welfare-friendly housing conditions.



**Environmental sustainability:** This solution will support the environmental performance of the farm depending on which wood is used, this soil could be a «climate-neutral-soil» (local trees, sustainable production). Reduced water consumption is an added bonus, and the organic nature of the material encourages microbial activity in the soil, thereby promoting biodiversity. This solution also prevents microplastic emissions. This solution will not have an effect on the land access or management performance of your farm, because it mainly relates to riding indoor and outdoor riding arenas.

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



# Wood Fibre Arena Surfaces to Reduce Irrigation Needs



**Socioeconomics:** This solution will not impact the social performance of farms facing external challenges because its effects on outreach and welfare are limited. While reduced water use and climate mitigation may have a slightly positive impact on the farm's image under extreme conditions, the influence on social cohesion and stakeholder trust is generally marginal.

Similarly, this solution will not impact the farm's economic performance when facing external challenges because the cost benefits are limited and context-dependent. Although reduced water use may offer minor savings during periods of inflation and contribute to resilience when financial resources are limited, the economic impact is generally negligible in most other situations.



**Health & Welfare:** This solution has a neutral effect on the health performance of the farm when it faces external challenges, as it does not reduce pain, mortality or the need for medication. Consequently, the farm will not become more resilient to external pressures. Furthermore, this solution does not directly improve the farm's welfare performance when faced with external challenges. Using this solution will probably not improve the emotional state or living conditions of equines.



**Environmental sustainability:** This solution will not affect the environmental performance of the farm when facing external challenges, as the estimated effects are very small. This solution will not impact the farm's land access or management performance when facing external challenges, as it mainly relates to indoor and outdoor riding arenas.

## Wood Fibre Arena Surfaces to Reduce Irrigation Needs

How can this solution help your farm to face specific external challenges to be more resilient?

CHALLENGES	SCORE
Inflation	0.25
Pandemic	0
High welfare standard	0
High infectious diseases	0
Extreme weather event	0.50
Loss/limited access to grassland	0

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:** This solution will not impact the global performance of the farm facing inflation or pandemics because its contribution to resilience remains marginal. Although reduced water use could slightly ease costs during inflation, the effect is limited, and in the case of pandemics there is no meaningful influence on operations, welfare, or social stability. Overall, the solution does not provide significant support to global resilience under these socio-economic challenges.



**Welfare & Diseases:** This solution does not enhance the overall performance of the farm when facing infectious diseases. It has a neutral effect on social, economic, health, welfare, and environmental priorities under such circumstances. Similarly, this solution offers only neutral potential in strengthening the farm's overall performance when adapting to compulsory high-welfare standards. Social, economic, health, welfare, and environmental priorities cannot be guaranteed by this solution when the farm is required to meet high welfare demands



**Climate Change & Access to Land:** Environmental challenge: This solution will support the global performance of farms facing abnormally high temperatures and/or drought because it saves water. Hence, there is no need for arena irrigation. In addition, maintenance requirements are reduced. It improves the farm's image and profitability, and helps with climate change adaptation and water management. Land access/management challenge : This solution will either support or have no impact on the performance of farms facing loss or limited access to agricultural land, as it mainly relates to indoor and outdoor riding arenas.

# Wood Fibre Arena Surfaces to Reduce Irrigation Needs

### Cost-benefit Analysis

#### Costs

##### Socioeconomics:

- Unknown whether wood sticks are more expensive than quartz sand (no consistent pricing data).
- Replacement frequency is unclear; wood decomposes over time and may require regular top-ups.
- Possible need for different equipment
- Initial training or adjustment may be required for stable staff unfamiliar with wood surfaces.
- Type (what kind of wood etc.) of sticks affect costs and safety.
- Wood sticks should be safe if they are from EU-area. Be careful with wood sticks from other areas.

##### Health & Welfare:

- Dust levels are not clearly lower than sand when surfaces are dry → possible respiratory concerns.
- Becomes slippery if woodsticks are to big (under wet and dry conditions)
- Potential for mould or allergens.
- Toxic woods must be strictly avoided – could harm equines (even if ingestion is unlikely).

##### Sostenibilidad medioambiental:

- Wood must be sourced locally and sustainably to avoid increasing environmental footprint.
- Decomposition of wood may release minimal organic matter into soil – needs monitoring.



#### Benefits

- Reduced water use → lower irrigation costs.
- Lower maintenance frequency → fewer working hours and reduced wear on equipment.
- Better winter usability → surface freezes less quickly, increasing availability.
- Safety benefit: softer ground may reduce risk of injury to riders during falls.



- Increased elasticity may be better for joints and soft tissues (less concussive than sand).
- Less abrasive surface → reduced hoof wear or cracking.
- In outdoor arenas, wood may stay cooler in extreme heat, improving comfort for equines.



- Reduced or eliminated use of irrigation water conserves local water resources.
- No need for chemical de-icers if the surface stays usable during frost.
- Fully biodegradable material, no microplastics or synthetic fibers involved.
- The wood and wool can be added to the soil directly.
- Cork sticks (rests from cork production) could be a solution in countries with cork production.



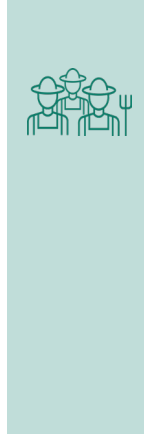
# Technical Sheet for Solution Implementation

## Wood Fibre Arena Surfaces to Reduce Irrigation Needs

### Costs

#### Cooperation between farms

- Coordination effort for joint manure use or shared biogas facilities.



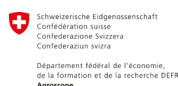
### Benefits

- Potential for regional collaboration: e.g., joint investment in chipping equipment.
- Forest-owning farms or local forestry companies can supply or process material.
- Strengthens local networks and circular economy in rural regions.

### Additional Resources

#### Model Companies

- German
  - Die Reitsand GmbH <https://www.reitsand-gmbh.de/hackschnitzel-reitplatz>
  - Moritz Scharffetter Reit- und Sportböden <https://www.moritzscharffetter.de/beitrag/hackschnitzel-fuer-reitplatz.html>
  - Hübner-Lee Reitplätze <https://www.huebner-lee.de/dressur-springplatz.html>
- English
  - Hübner-Lee Riding Areas <https://www.huebner-lee.de/en/dressage-jumpingarena.html>
- French:
  - STUDY OF THE SPORTING AND ENVIRONMENTAL PERFORMANCE OF ORGANIC EQUESTRIAN SOILS BASED ON WOOD OR WOODY BRUSH, MATURED OR UNMATURED [https://equipedia.ifce.fr/fileadmin/bibliotheque/3\\_Guide\\_pocket\\_et\\_autres\\_pdf/3.7\\_Projets\\_recherche/SOLORGA.pdf](https://equipedia.ifce.fr/fileadmin/bibliotheque/3_Guide_pocket_et_autres_pdf/3.7_Projets_recherche/SOLORGA.pdf)



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### Ideas to Animate a Workshop About the Solution

- Ask a company specializing in riding arena surfaces, footing materials, or equestrian facility construction to sponsor the workshop. This could include suppliers of wood sticks, arena builders, or maintenance equipment manufacturers.
- Find a model farm or equestrian facility already using wood chip footing as a demonstration site. Ideally, this location shows both the practical use and the long-term effects of reduced irrigation needs.
- Plan interactive demonstration tasks such as:
  - Testing different footing compositions (pure wood sticks vs. mixed systems).
  - Operating basic maintenance equipment (dragging, topping-up).
  - Simulating wet and dry weather to observe the material's water retention.
  - Showing how to evaluate footing condition and when to renew.

### Proposed Structure for the workshop on Using Wood Sticks as a Soil for the Arena in Equine Farms

#### 1. Introduction to wood sticks as alternative surface for riding areas

- Why wood sticks and which kind of wood sticks as surface on riding areas?
- Key features:
  - Made from fine, splinter-free wood (not coarse wood sticks).
  - Biodegradable, elastic, and shock-absorbing.
  - Can be used as a top layer or in combination with sand or as sub-layer for moisture retention.
- Types on the market:
  - Pure wood chip footing.
  - Mixed systems (sand + wood sticks).
  - Chip-based sub-layers beneath sand top-layers.

#### 2. Benefits of wood stick as surface in riding areas in equine farms

- Lower or none water consumption outdoors, reduced humidity control indoors.
- Better winter usability (less freezing).
- Improved comfort for equines (elastic, hoof-friendly).
- Potential cost savings on water and maintenance.
- Softer surface improves rider safety in case of falls.

#### 3. Practical Applications on equine farms

- Suitable for outdoor arenas, paddocks.
- Adaptable for indoor use, but some level of irrigation may still be needed.

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

- Assess arena use (discipline, intensity).
- Evaluate existing base layers and drainage.
- Choose between pure chip systems or mixed chip/sand solutions.
- Consider material source, quality, and preparation.
- Compare supplier offerings and warranties.



## 5. Hands-On Demonstration

- Live setup of a demo wood chip arena surface.
- Compare chip size and elasticity.
- Let participants test maintenance tools (e.g., dragging, harrowing).
- Demonstrate water absorption and behavior under simulated rainfall.

## 6. Maintenance and Troubleshooting

- How to top-up decomposed layers.
- Importance of avoiding rotting or mould.
- Best practices for aerating and evening out the surface.
- Seasonal care advice.

## 7. Case Studies and Real-World Examples

- Short video or live testimony from a farm already using wood chip surfaces.
- Key lessons: maintenance rhythm, cost development, rider/equine experience.

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

- Initial material and installation cost.
- Estimate of water savings over 1–3 years.
- Expected maintenance frequency vs. sand arenas.
- Compare ROI for small vs. large-scale arena.

## 9. Q&A Session

- Address concerns about dust, mould, decomposition.
- Clarify differences between unsuitable coarse sticks vs. optimized wood.
- Discuss regional sourcing and supplier network.

## 10. Wrap-Up and Resources

- Summary of benefits and challenges.
- Supplier contact list, technical sheets.
- Access to guides, maintenance videos, and funding opportunities.
- Information on possible group purchases or cooperations.