

Rainwater Collection for Equine Riding Arenas & Green Areas



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-06.

Content of the Solution: Collection and reuse of rainwater from roofs to supply water for riding arenas, green spaces, and sanitary purposes.



Reasons for Implementing this Solution

Harvesting rainwater from rooftops provides an environmentally sustainable and cost-effective water source for watering riding arenas, irrigating green areas, and supporting certain sanitary needs on premises where equids are kept. This reduces reliance on potable water supplies and improves overall water management, particularly during dry periods.

Description of Solution Strategies

Rainwater running off the roofs of equine farm buildings (e.g. stables, storage buildings, or indoor arenas) is collected via a gutter and downpipe system and directed into storage tanks for later use. The harvested water is directed into either above ground or underground storage tanks. The stored rainwater can then be used for multiple purposes:

- Watering riding arenas (dust control).
- Irrigation of pastures or other green spaces.
- Certain sanitary uses (e.g. cleaning equipment and facilities, showers, etc.). depending on local regulations and water treatment.

Key technical elements include:

- **Catchment surface:** Roofs with suitable material for clean runoff.
- **Gutters and downpipes:** To collect and direct the rainwater.
- **Leaf/debris filters** and optional **first-flush diverters**.
- **Storage tanks:** UV-resistant above-ground tanks or buried cisterns.
- **Water delivery system:** Gravity-fed or pump-assisted distribution.
- **Optional filtration or treatment** depending on use (e.g. sanitary).



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The cost of implementing a rainwater harvesting system varies depending on the size and complexity of the installation and local market conditions.

Indicative ranges for material costs include:

- **Gutter installation:** approx. €15–40 per meter.
- **Storage tanks:** approx. €1,000–10,000 depending on volume and type (above or underground).
- **Pump systems** (if required): approx. €500–900.

Additional costs may apply for filtration, excavation (for underground tanks), and professional installation.

Implementation Steps

1. Site Assessment

- Identify appropriate roof surfaces and estimate collection potential based on surface area and local rainfall.
- Assess the water needs for arenas, green areas, and sanitary uses.

2. System Design

- Plan an efficient gutter/downpipe system to maximize water capture.
- Choose a tank size suitable for the expected rainfall and water demand.
- Determine if a pump is needed for water delivery, especially for elevated or distant points of use.
- Decide whether filtration or treatment is necessary based on intended use and regulations.

3. Installation

- Install gutters, downpipes, and leaf/debris filters.
- Connect the system to the selected water storage tanks.
- Integrate pumps and piping as needed for distribution.
- Ensure proper overflow systems and safe drainage paths.

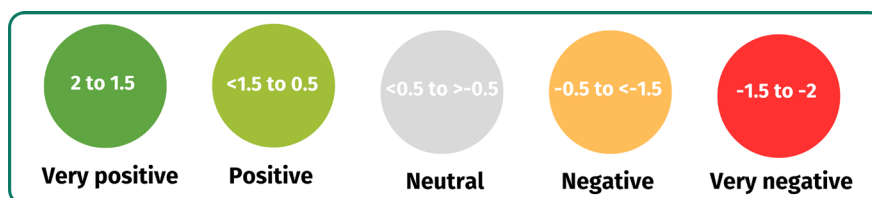
4. Operation and Maintenance

- Regularly check and clean gutters, filters, and storage tanks.
- Inspect the pump and piping for leaks or wear.
- Monitor water levels and usage efficiency.

Rainwater Collection for Equine Riding Arenas & Green Areas

How Will this Solution Impact the Performance of your Farm ?

TOPIC	SCORE
Social	0.50
Economics	1.50
Welfare	0
Health	0
Environmental	1.33
Pasture access and management	0
Global	0.67



Color coding explanation



Socioeconomics: This solution will support the social performance of the farm because it demonstrates clear commitment to preserving vital water resources. By collecting rainwater, the farm strengthens its social image as responsible and environmentally conscious. Such practices foster trust and positive outreach within the local community and among stakeholders. However, this approach requires ongoing maintenance and monitoring to remain effective and credible.

This solution will support the economic performance of the farm because it reduces dependence on external water supplies and lowers operating costs. By reusing rainwater, the farm can limit expenses linked to irrigation and daily operations. It also provides a buffer against price fluctuations or scarcity of water resources. Although installation and maintenance require investment and monitoring, long-term savings outweigh these costs.



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How Will this Solution Impact the Performance of your Farm ?



Health & Welfare: Although this solution has a directly neutral effect, it may potentially benefit the health of horses when they are ridden on appropriately moistened arena soil, as such a surface is elastic (hoof- and tendon-friendly) and not dusty (which is better for the respiratory system).

This solution does not influence the welfare performance of the farm, since it is not related to improved housing conditions or the positive emotional state of the animals.

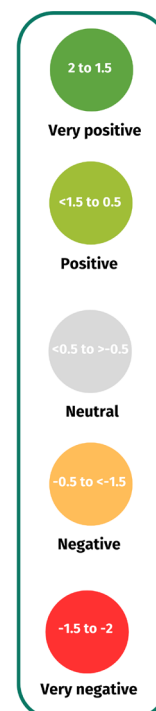


Environmental Sustainability: This solution will support the environmental performance of the farm in themes related to climate change mitigation/adoption and water management. The collected rainwater can be used for the slopes, or horse showers, for example, and this will save freshwater resources and energy.

This solution will not have effect on the land access or management performance of the farm because it primarily relates to buildings, and the amount of collected water is primarily used at the stable.

How Will this Solution Impact the Resilience of your Farm?

TOPIC	SCORE
Social	0.17
Economics	0.17
Welfare	0.25
Health	0.08
Environmental	0
Pasture access and management	0
Global	0.15



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How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: This solution will not impact social-economic performance of the farm facing external challenges assessed because its contribution remains generally limited. However, it can slightly ease financial pressure by reducing exposure to rising water costs. It may also offer practical benefits during extreme conditions by ensuring arena maintenance and horse welfare through watering and showering. Beyond these marginal advantages, its influence on wider socio-economic resilience is largely neutral.



Health & Welfare: This solution does not directly enhance the farm's health performance under external challenges. Although it has some potential to reduce pain or medication use related to musculoskeletal and respiratory treatments, its overall contribution may be too limited.

Similarly, this solution does not directly improve the welfare performance of the farm in the face of external challenges. It does not necessarily lead to a better emotional state for the horses or improved living conditions.



Environmental Sustainability: This solution will not impact the environmental performance of the farm facing external challenges assessed as it was already implemented before the challenge arose. The solution does not add value to environmental sustainability as the farm attempts to cope with the defined challenges.

This solution will not impact land access or management performance of the farm facing external challenges assessed as it was already implemented before the challenge arose. The solution does not add value to pasture and grassland management as the farm attempts to cope with the defined challenges.



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

CHALLENGES	SCORE
Inflation	0.17
Pandemic	0
High welfare standard	0
High infectious diseases	0.25
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 overall effect on resilience remains limited. While it can slightly reduce the pressure of rising water costs during inflation, this benefit is not significant enough to influence the farm's broader stability.



Welfare & Diseases: Despite its potential for use for sanitary purposes, this solution will not support the farm's overall performance when facing infectious disease challenges. In such cases, it cannot prevent mortality, disease-related pain, or the need for curative medication. Likewise, this solution has little potential to strengthen the farm's overall performance when adapting to compulsory high welfare standards, as its impact may be too limited.



Climate Change & Access to Land: This solution will support the global performance of the farm facing extreme abnormally high temperatures and/or drought because it allows watering of tracks and showering of horses even in times of restriction, thus providing better soil quality for equines and maintenance of activities. Positive effects occur especially in the fields of social outreach, good maintenance and positive emotional state of animals and less pain, mortality and injuries.

This solution will not impact the global performance of the farm facing loss or limited access to agricultural land because it is not linked to ownership or management of land.

Rainwater Collection for Equine Riding Arenas & Green Areas

Cost-Benefit Analysis

Costs

Socioeconomics:

- Investment costs for:
 - Installation of gutters and downpipes.
 - Storage tanks (above or below ground).
 - Filter systems (e.g., leaf filters, first flush systems).
 - Optional: Pump for water distribution.

Note: Actual costs vary depending on the country, scope of the system, and type of installation.

Health & Welfare:

- None identified.

Environmental Sustainability:

- For underground tanks: potential negative environmental impact due to soil excavation (e.g., soil sealing, interference with existing microecosystems, emissions from construction machinery).
- Energy use.



Benefits

- Reduction in operating costs through lower freshwater consumption.
- Independent irrigation even during dry periods or water shortages.
- Ensures the usability of riding arenas and green spaces during heat waves.
- Long-term cost-effectiveness through reduced dependence on external water sources.



- Regular watering ensures optimal arena footing, reducing injury risk.
- Provides consistent training conditions, even in dry periods.
- Helps prevent dust, which supports equine respiratory health.
- Ensures animal comfort by maintaining green turnout areas in dry periods.



- Reduces pressure on groundwater and drinking water sources.
- Promotes responsible water use and resource circularity.
- Minimizes runoff and erosion by managing rainwater at the source.
- Contributes to climate adaptation on a small-scale, decentralized level.



Technical Sheet for Solution Implementation

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Cost-Benefit Analysis

Costs

Cooperation between farms:

- Possible coordination effort for shared use or planning.



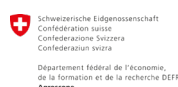
Benefits

- Possibility to jointly invest in larger storage or filtration systems to reduce individual costs.
- Exchange of good practices and technical knowledge among equid-holding farms.
- Strengthens local networks for sustainable water management.
- Collective solutions may increase access to subsidies or public funding (depending on country).

Additional Resources

Websites

- French: L'eau de pluie, oui, mais pour quel(s) usage(s) <https://equipedia.ifce.fr/infrastructure-et-equipement/installation-et-environnement/developpement-durable/leau-de-pluie-oui-mais-pour-quels-usages>



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Rainwater Collection for Equine Riding Arenas & Green Areas

Ideas to Ideas to Animate a Workshop about the Solution

- Ask a company **specializing in water management, rainwater harvesting systems, or agricultural infrastructure** to sponsor the workshop.
- Find a model equid-holding farm that already uses or is willing to demonstrate a rainwater collection system.
- Plan practical, hands-on demonstration tasks such as installing gutters, inspecting a storage tank, or evaluating water distribution options, so that participants can experience key steps of the system.

Proposed structure for the workshop on Collecting rainwater from roofs to water riding arenas and/or green spaces in equines farms

1. Introduction to Rainwater Collection from roofs to water riding areas/green spaces

- Why and how to collect rainwater for equine facilities?
- Key components: Roofs, gutters, filters, storage tanks, pumps, and distribution.
- Types of systems:
 - Above-ground vs. underground tanks.
 - Gravity-fed vs. pump systems.
 - Basic vs. filtered setups depending on end use (arena watering vs. cleaning).

2. Benefits of Rainwater Harvesting in Equine Farms

- **Water Security:** Enables watering of arenas and green areas even in periods of drought or restrictions.
- **Cost Savings:** Reduces dependence on potable or purchased water.
- **Environmental Value:** Conserves water resources and reduces runoff.
- **Equine Welfare:** Maintains footing quality and air quality by controlling dust.

3. Practical Applications on Equine Farms

- Arena watering using harvested rainwater to control dust and maintain safe footing.
- Irrigation of pastures or turnout areas.
- Cleaning of stable aisles, equipment, and, where permitted, for showers.
- Optional expansion for sanitary purposes depending on regulations.

4. How to Choose the Most Suitable System

- Evaluate:
 - Roof surface area and local rainfall volume.
 - Daily water needs (arena size, irrigation areas).
- Assess:
 - Structural space for tanks (above vs. below ground).
 - Technical options: filtration, first-flush diverters, pumps.
- Compare:
 - Costs, ease of installation, maintenance needs.
 - Providers and support in your region.



5. Hands-On Demonstration

- Live demo:
 - Rainwater flow from roof → gutter → filter → tank.
 - Use of water in arena or green space.
- Participants test:
 - Cleaning leaf guards, inspecting filters, operating pump (if present).
- Tips for:
 - Maximizing water collection.
 - Reducing wear (e.g., regular maintenance).

6. Maintenance and Troubleshooting

- Cleaning:
 - Gutters, filters, tank lids.
 - Seasonal checks (e.g. before/after winter).
- Troubleshooting:
 - Blockages, leaks, overflow issues.
- Adjustments:
 - Changing or cleaning filters, first-flush systems.

7. Case Studies and Real-World Examples

- Visit or present:
 - One or two farms already using rainwater harvesting.
- Hear from farm managers:
 - Why they implemented the system.
 - Challenges, benefits, and practical tips.

8. Cost Analysis and Return on Investment (ROI)

- Investment overview (gutters, tank, filter, pump – with price ranges).
- ROI examples:
 - Savings in water bills over seasons or years.
 - Reduced wear on arenas thanks to consistent watering.
- Considerations:
 - Cost differences between systems.
 - Long-term durability and reuse value.

9. Q&A Session

- Space for participant questions:
 - Feasibility on small or large farms.
 - System sizing.
 - Filtration and hygiene for different uses.



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10. Wrap-Up & Resources

- Summary of key learnings:
 - Components, benefits, maintenance, ROI.
- Resources:
 - Supplier lists, guides for system sizing and planning.
 - Local water management authorities or funding programs.
- If applicable:
 - Partner supplier offers, discounts, or trial equipment.