

Maintaining Existing Water Bodies



Thematic Area:

Environmental sustainability.

Priority: How can biodiversity be improved while maintaining equine activities?

Need: Find solutions to reduce the loss of biodiversity (and/or even increase biodiversity) in equine farms (positive and negative impacts of horses).

Solution EU Number: BD-9.

Content of the Solution:

What is a water body? How to manage and maintain it?

Key Contacts:

- Biodiversity agencies of your country.

Case Study: Not available.



Reasons for Implementing this Solution

Maintaining water bodies on horse farms is essential for managing stormwater runoff, reducing soil erosion, and filtering pollutants, which collectively improve water quality and environmental sustainability. Additionally, these water bodies provide crucial habitats for wildlife, enhancing biodiversity and supporting the overall ecosystem.

Description of Solution Strategies

A water body does not have to be a pond; it could be a lake, a waterway, a wetland or natural ditch, all of which provide different opportunities for wildlife. Both terrestrial and aquatic species will benefit from the right management.

The shallow water and exposed mud at the edge of ponds is particularly important for wildlife. It provides a safe habitat for aquatic insects but also benefits terrestrial species that use wet muddy edges or banks to breed - including many pollinators.

Flowers at water margins such as angelica, water-mint and purple loosestrife are valuable to pollinators. Healthy water bodies can support a wide range of marginal and aquatic plants, including once common plants, such as marsh marigold and water crowfoot.

A network of healthy ponds and wet habitats are essential for amphibians to breed, and grass snakes are closely associated with ponds and other wetlands as they feed on amphibians and fish. Birds and mammals will also make use of many wet habitats for drinking.

One of the key points to managing waterbodies is appropriate buffering to protect them from run-off and pollutants, as many species rely on clean water to survive.



Maintaining Existing Water Bodies

- Maintenance and Protection Strategies
 - Vegetative Buffers.
 - Maintain as much vegetated area as possible between the equine farm and any permanent water body to absorb pollutants and reduce runoff.
 - Use native plants, grasses, and trees to increase viability and eliminate invasive species.
 - Prevent the banks from deteriorating.
- Runoff Management
 - Install diversions or downspout extensions to direct runoff around areas with manure and mud.
 - Use gutters and downspouts to control roof runoff and direct it to areas with heavy vegetation or swales.
- Manure Management
 - Locate manure storage or composting sites at least 100 feet from streams or wells to allow pollutants to be absorbed into the soil before reaching water sources.
 - Cover manure piles and collect manure regularly to prevent contamination.

Implementation Steps

Observe the regional regulations and restrictions and consult professional advice/assistance. Some general advice:

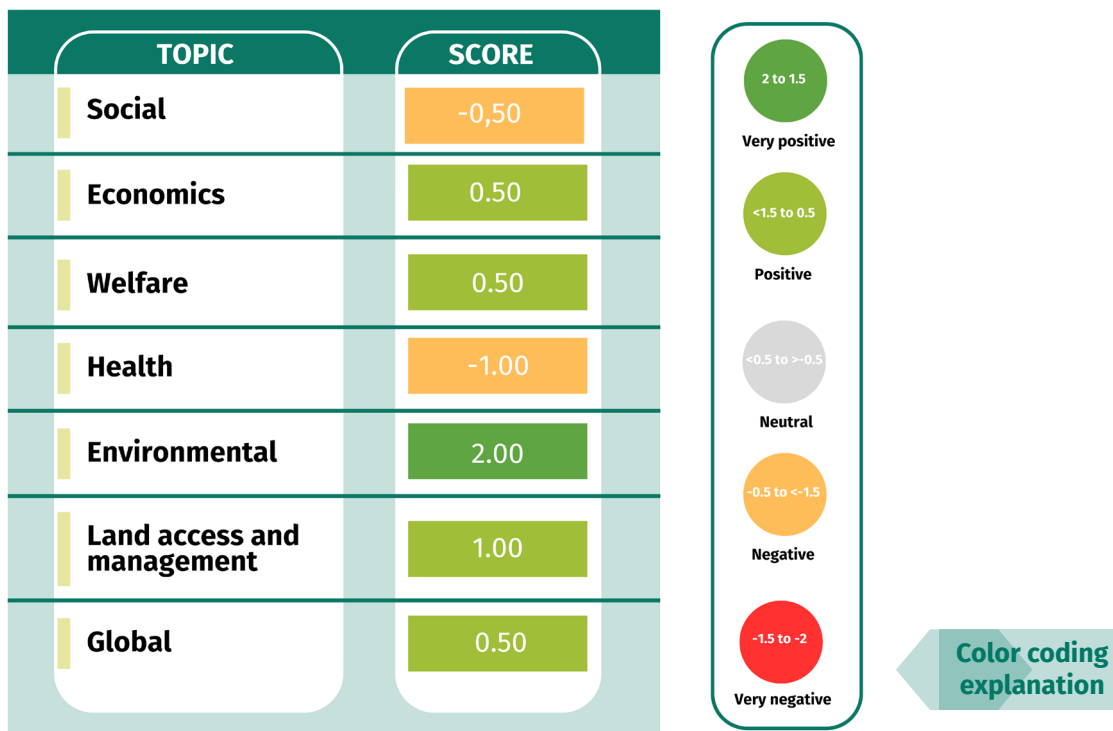
1. Buffer Zones.

- Establish vegetative buffer zones around water bodies to filter runoff and prevent pollutants from entering.
- Plant grasses and other vegetation to act as natural filters and stabilize soil.

2. Maintenance and Monitoring.

- Regularly monitor and maintain water bodies to ensure they remain healthy and functional.
- Control invasive species and manage water levels to support a diverse ecosystem.

How Will this Solution Impact the Performance of your Farm ?



Socioeconomics: This solution could slightly weaken social performance but could support the economic performance of your farm, as increased exposure to vector-borne diseases, the need for specialized infrastructure in wetlands and the additional workload associated with training and awareness raising can have a negative impact on the farmer's quality of life. However, it offers economic benefits such as improved fodder availability during droughts, potential subsidies and the ability to rent alternative grazing land, which can help stabilize farm finances in difficult conditions.



Health & Welfare: This solution has a positive impact on farm performance from a welfare point of view, as it can protect the farm from water shortages, i.e. the provision of drinking and technical water. However, if not properly treated, stagnant water can have a negative impact on the health of the horse, for example by providing a habitat for micro-organisms and insects that are the cause or vector of disease. The farmer should also pay attention to the area around water points to prevent accidents such as getting stuck.

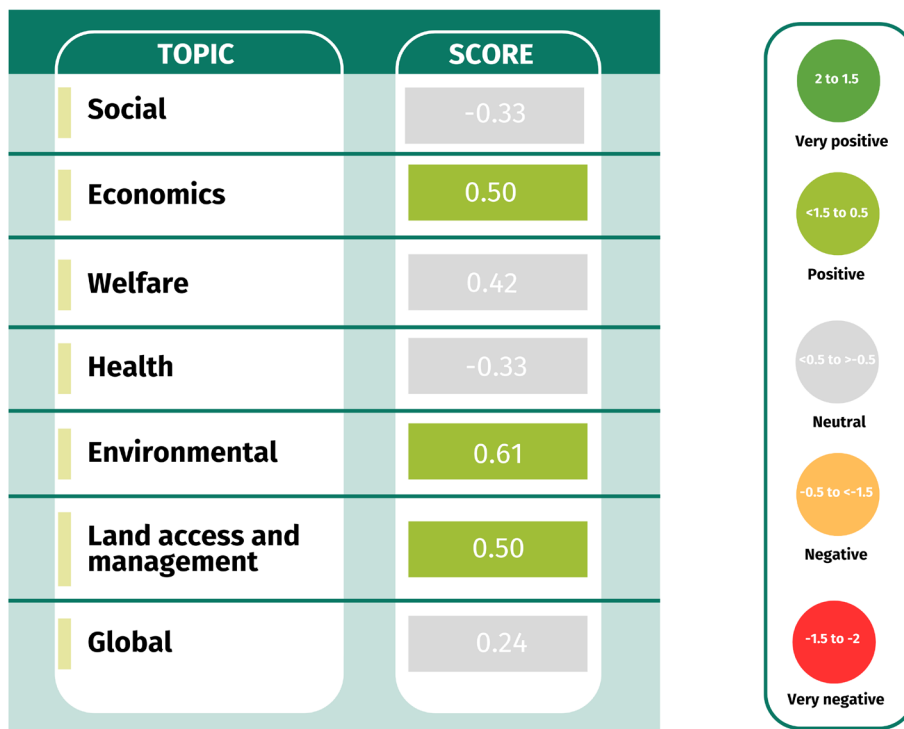
Maintaining Existing Water Bodies



Environmental Sustainability: This solution has a very positive impact on performance related to environmental sustainability (habitats and refuges for biodiversity, beneficial effects on the water cycle, islands of freshness, landscape identity, water resource) and positive effect on grassland management (access to water into pasture). It requires, however, compatible loading and no direct access to water and watercourses to not deteriorate it.

So globally, this solution can have a positive impact on the performance of your farm.

How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: This solution could weaken social performance, but could support the economic performance of the farm in the face of external challenges, because although waterbody maintenance requires time-consuming commitments, it improves resource efficiency by managing stormwater, reducing erosion and improving water quality. These environmental benefits can lead to lower production costs and greater farm resilience, supporting economic stability even in times of rising input prices or limited labor availability.



Health & Welfare: This solution has a neutral effect on health and welfare performance of the farm facing external challenges. In the event of climatic events, this solution can provide drinking water for the horses and fresh pasture, so that the farm may still be able to provide good stabling conditions in terms of water and forage supply. But it can also increase the risk of diseases (fluke, vector borne) and so vet costs and use of drugs which will worsen the situation facing external challenges.



Environmental Sustainability: This solution should support environmental and pasture management/access performances facing external challenges. While investment is decreasing due to inflation, water bodies help to increase biodiversity and have a positive impact on climate change mitigation. If the budget for water quality management is reduced, the risk of pollution increases, especially at the water's edge. This solution provides access to floodplains or dry grasslands which is interesting to face some challenges.

So, this solution will not have a significant impact on the farm performance facing external challenges due to balance between positive and negative effects.

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

CHALLENGES	SCORE
Inflation	0.50
Pandemic	0
High welfare standards	0
High infectious diseases	-0.08
Extreme weather event	0.58
Loss or limited access to grassland	0.91

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 could support the overall performance of the equine farm in the event of inflation by reducing production costs through improved water management, helping to offset rising prices. However, in the event of a pandemic, while disruption to the workforce could limit some of the benefits, the long-term environmental benefits of the solution could still provide a neutral effect, with reduced costs in the future but challenges in immediate farm operations.

Maintaining Existing Water Bodies



Welfare & Diseases: This solution will not have impact on the global performance of the farm facing high welfare standards or a high infectious disease. Indeed it can provide drinking water and therefore the welfare requirements for proper feeding. However, it should be considered that it may contribute to the spread of infectious diseases.



Climate Change & Access to Land: This solution has a positive effect on the resilience of the farm in the event of abnormally high temperatures, excessive rainfall or drought. In the event of flooding, the water body can collect/store water. In the event of a drought, it helps to improve access to water in the event of high temperatures and to cool down pastures which can help to reduce health risks. Be careful, however, as this requires good management of water bodies, otherwise the situation could worsen (especially in the case of flooding), which is time-consuming.

This solution has a very positive effect on the farm facing challenges related to limited/lost access to grassland. Indeed, it can improve access to pastures (soil drainage and pasture yield). On the other hand, the solution can have a negative impact as it increases the workload.



Cost-Benefit Analysis

Costs

Socioeconomics:

- **Maintenance:** Ongoing expenses for regular maintenance, monitoring, e. g.: water quality tests, infrastructure improvement, and managing invasive species.
- **Buffer Zones:** Establishing and maintaining vegetative buffer zones require investment in native plants and labor.
- **Operational Management Costs:** Personnel and operating costs for the maintenance of water sources and infrastructure (e.g. pumps, filter systems).
- Training to well manage the water bodies.
- Risk for human vector borne diseases.

Health & Welfare:

- **Veterinary Care:** Potential increased costs for veterinary care if water quality issues are not properly managed.
- **Greater risk of horse vector born diseases:** fluke or mosquitos often use water bodies to lay their eggs.
- Accidents in the areas of water bodies.



Benefits

- **Economic Justification:** Long-term cost savings by managing stormwater, reducing soil erosion, and improving water quality.
- **Financial and Economic Profitability:** Enhanced property value due to improved aesthetics and ecological health.
- **Improved fodder** production because in times of drought there are natural water reservoirs.
- **Possible gain of subsidies.**
- **Increased competitiveness:** A horse farm with sustainable water sources and systems is perceived as more responsible and could gain a competitive advantage, e.g. in the marketing of feed products or sustainable horse husbandry.
- **Cost savings:** Developing your own water sources can reduce long-term costs of buying water from external suppliers and make farm management more efficient.
- Access to fresh pasture and to water.

Cost-Benefit Analysis

Costs

Environmental Sustainability :

- **Introduction of invasive species:** Artificially created bodies of water can unintentionally promote invasive plants or animals that displace local flora and fauna. These invasive species can threaten both local plant diversity and the animal species that depend on these ecosystems.
- **Habitat degradation:** The alteration of natural water bodies could lead to the disturbance or destruction of habitats for some animal species such as amphibians, fish or birds.
- **Loss of areas for natural vegetation:** If water bodies are created or enlarged (e.g. by artificial ponds or ditches), this could lead to a loss of meadow areas or natural pastures. Removing meadows to create water bodies can have a negative impact on biodiversity by losing habitats for plants, animals and insects.
- **Alteration of the natural water balance:** The creation of artificial water bodies could affect local watercourses or underground water flows and disrupt the natural water balance in the region, which can affect plants and animals that depend on stable water sources.

Cooperation between farms:

- **Shared Investments:** Initial costs for shared infrastructure and maintenance agreements.
- **Conflicts between agricultural use and water protection.**



Benefits

- **Pollution Control:** Vegetation before Water bodies filters pollutants from runoff, improving water quality and protecting the environment.
 - **Conservation of natural resources:** The sustainable management of water sources helps to conserve resources, especially when rainwater storage and efficient irrigation systems are used. This reduces pressure on external water sources.
 - **Nutrient Management:** Proper water management helps minimize nutrient runoff from manure, improving pasture health and reducing environmental impact.
 - **Biodiversity and ecosystems:** Water bodies on horse farms can promote biodiversity by providing habitats for birds, insects and plants. The use of natural waters improves the ecological balance and contributes to environmental protection.
 - **Reduction of water waste:** Efficient use of water sources conserves water resources in the long term, which is also environmentally sustainable.
 - **Preservation and reservation of the blue corridor.**
-
- **Shared Resources:** Cooperation between farms can lead to shared investments in water infrastructure, reducing individual costs and enhancing overall water management.
 - **Community Benefits:** Collaborative efforts can improve water quality and environmental sustainability for the entire community.



Additional Resources

Websites

- <https://www.laufstall-hollergarten.de/teich.htm>
- <https://sonneberg-pferde.de/sonneberg-pferde-ein-privater-paddock-trail-laufstall-offenstall-in-der-oberlausitz/der-badeteich-abkuehlung-an-heissen-tagen-und-natuerliche-traenke/>
- <https://praxistipps.lbv.de/praxistipps/kleingewaesser-anlegen.html>
- https://www.anl.bayern.de/fachinformationen/beweidung/6_4_1_fliessgewaesser.htm
- <https://www.abu-naturschutz.de/projekte/laufende-projekte/naturnahe-beweidung>

Publications

- RP Gießen, Obere Naturschutzbehörde. Pferdebeweidung aus Sicht des Naturschutzes. Anregungen und Informationen zur Weideführung für Pferdehalterinnen und Pferdehalter. https://rp-giessen.hessen.de/sites/rp-giessen.hessen.de/files/2024-07/broschuere_pferdebeweidung_aus_sicht_des_naturschutzes_bf.pdf

Further Information

- ELCR: Understanding the Value of Wetlands on Equine Land. <https://elcr.org/wp-content/uploads/2019/06/Understanding-the-Value-of-Wetlands-on-Equine-Land-May-2019.pdf>
- NABU: https://hamburg.nabu.de/imperia/md/content/hamburg/geschaeftsstelle/stadtnatur/unternehmensnatur_05_massnahme_teich.pdf



Ideas to Animate a Workshop About the Solution

- Ask a nature office in the local area to hold the workshop with specific information about how water bodies should be maintained, installed and protected.
- Ask a landscape firm specialized in runoff management of farms to contribute to the workshop.
- Find a model farm which has already implemented solution strategies for water and ecosystem protection.

Proposed Structure for the Workshop on Development and Maintenance of Waterbodies on Horse Stables

1. 1. Introduction to Water bodies on Equine Farms

- What are water bodies? Which types of water bodies exist on horse farms and grasslands?
- Key features of horse proof and farm proof water bodies.
- Types of water bodies which could be installed and types of protection for already existing water bodies.

2. Benefits of maintaining water bodies on equine farms

- Increased Efficiency: Improved management of stormwater and nutrient runoff.
- Increased Protection of grazing land: better water management and detention reservoirs as efficient means to prevent grassland from floods and mudding.
- Enhanced Biodiversity: Support for a variety of wildlife species.

3. How to Choose the most suitable Approach

- Evaluation of the needs of the farm.
- Assessment of the structural requirements of the farm.
- Which subsidies are available and how to act like the requirements of them.

4. Maintenance and Troubleshooting

- Cleaning and care of water bodies and surrounding vegetation.
- Regular monitoring and readjustment to maintain health and functionality.

5. Case Studies and Real-World Examples

- Examples of farms or equestrian centers which have water bodies on their farms.
- Discussion of how they have integrated water bodies and the management of them in their daily operations.
- Lessons learned and tips from farm operators.



6. Cost Analysis and Return on Investment (ROI)

- Initial cost of implementing water bodies vs. long-term savings in water management and labor.
- How to calculate ROI based on farm size, workload, and usage of subsidies.

7. Q&A Session

- Open floor for participants to ask questions about specific concerns or experiences.
- Address any uncertainties regarding the effectiveness or cost of water bodies.

8. Wrap-Up and Resources

- Summary of key points covered in the workshop.
- Additional resources for further learning (websites, suppliers, online communities).