

Overseeding to Maintain Good Pasture Biodiversity



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-4.

Content of the Solution:

Overseeding existing meadows to introduce more grass species into it without destroying the existing flora habitat.

Key Contacts: Not available.

Case Study: Not available.

Reasons for Implementing this Solution

Overseeding helps restore degraded meadows by introducing new species without disrupting existing flora. It enhances biodiversity, improves forage quality for horses, and provides environmental benefits like better soil health and water retention. This technique is especially useful for natural meadows that are difficult to plough.

Description of Solution Strategies

The practice of overseeding involves the introduction of additional grass and legume species into existing meadows to enhance their productivity and quality without disrupting the current flora. This method entails preparing the meadow, selecting suitable seeds, and ensuring effective seed-to-soil contact. Post-sowing management, including controlled grazing and regular monitoring, is essential for the successful establishment of new species. The primary objectives are to restore degraded meadows, increase biodiversity, and improve forage quality for horses, particularly in areas that are challenging to plough.

Implementation Steps

1. Open the Plant Cover:

- Overseeding requires the presence of sufficient free spaces for the seed to germinate and the seedling to develop. Currently, this condition is met in many meadows overgrazed during summer and therefore does not require any specific intervention. Otherwise, close mulching is necessary before overseeding to bring the vegetation to a height of less than 5 cm.
- Selective weeding is recommended if there are too many perennials (dock, thistles, buttercups, dandelions, etc.), which also increases the rate of free soil (10-15% minimum). However, there is a risk of herbicide persistence, particularly for all sulfonylurea-based

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products which almost systematically prohibit the overseeding of legumes.

- Scratching «opens» the meadow, creates gaps and promotes the creation of fine soil. It is carried out either by a cross pass of a spring harrow, or by a pass of heavy harrows with straight teeth, depending on the density of the vegetation in place.

2. Need for Rapid Installation:

- Current conditions with warm soils and a return of significant rainfall (20 to 30 mm minimum) in several sectors are favourable to rapid germination and emergence of seeds. On the other hand, sowing must not be too late so that the species planted are sufficiently developed (4-5 leaves for grasses, 3 leaves for white clover) to withstand early frosts. In most regions, overseeding of a grass-legume mixture must be carried out before September 20.
- In a context of strong competition with the existing vegetation, successful overseeding requires the choice of «aggressive» species and varieties that establish quickly. For plots intended for grazing, perennial ryegrass and white clover are preferred. For plots intended for mowing, hybrid ryegrass, brome and red clover will be better suited.

3. Seeding technique:

- Maximum depth of one centimetre: Several types of seeders can be used. In all cases, it is essential to respect a seeding depth not exceeding one centimetre due to the small size of the fodder seeds and therefore their low nutritional reserves.
- The classic cereal seeder, by raising the ploughshares or pushing back the descents, allows broadcast seeding after light harrowing that has created fine soil on the surface.
- A specific overseeding seeder combines several operations: scratching the meadow (tine harrow elements), opening the cover (discs or ploughshares), depositing the seed, burying (comb harrow) and reconsolidating (roller). These seeders are efficient but require precise adjustment. They only work the seeding line and therefore reduce the risk of weeds emerging. Due to their high purchase cost, they are most often used in CUMA or as a service provider (ETA).
- The centrifugal seeder distributing anti-slugs, mounted or not on meadow harrows or spring harrows, very often leads to a rather random dosage and distribution of seeds. It can be used for overseeding legumes but is not recommended for grasses (lighter seeds very sensitive to wind).
- The recommended seeding dose for overseeding is close to that of reseeding in bare soil: it varies from 20 to 25 kg/ha for grasses, pure or in association, and from 3 to 5 kg per ha for overseeding white clover alone.
- The cost of the different technical routes depending on the equipment used is between €25 and €45/ha, excluding seeds.

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4. Post-Sowing Management:

- **Reconsolidation:** One of the keys to success is to reconsolidate immediately after sowing to promote soil/seed contact. This operation can be carried out using a “cultipacker” or “crosskillette” type roller or, better still, by passing animals with a high level of instantaneous loading (15 to 20 ares/LU). Rolling the area ensures the seeds benefit as much as possible from the residual moisture.
- **When installing and developing young seedlings,** it is advisable to limit competition from existing vegetation: rapid rate of exploitation of the plot (grazing, early mowing), absence of nitrogen fertilization in the months preceding or following overseeding, etc.
- **Renovating a meadow by overseeding** requires having clearly identified, beforehand, the causes of the degradation and meeting certain conditions. Subsequently, the implementation of suitable practices (loading, fertilization, operating methods, sanitation, etc.) will guarantee the sustainability and productivity of the meadow.
- **Grazing Management:** Allow livestock to graze the area lightly for a few days after sowing to keep the old sward in check, but remove them before the new seeds germinate.

5. Monitoring and Maintenance:

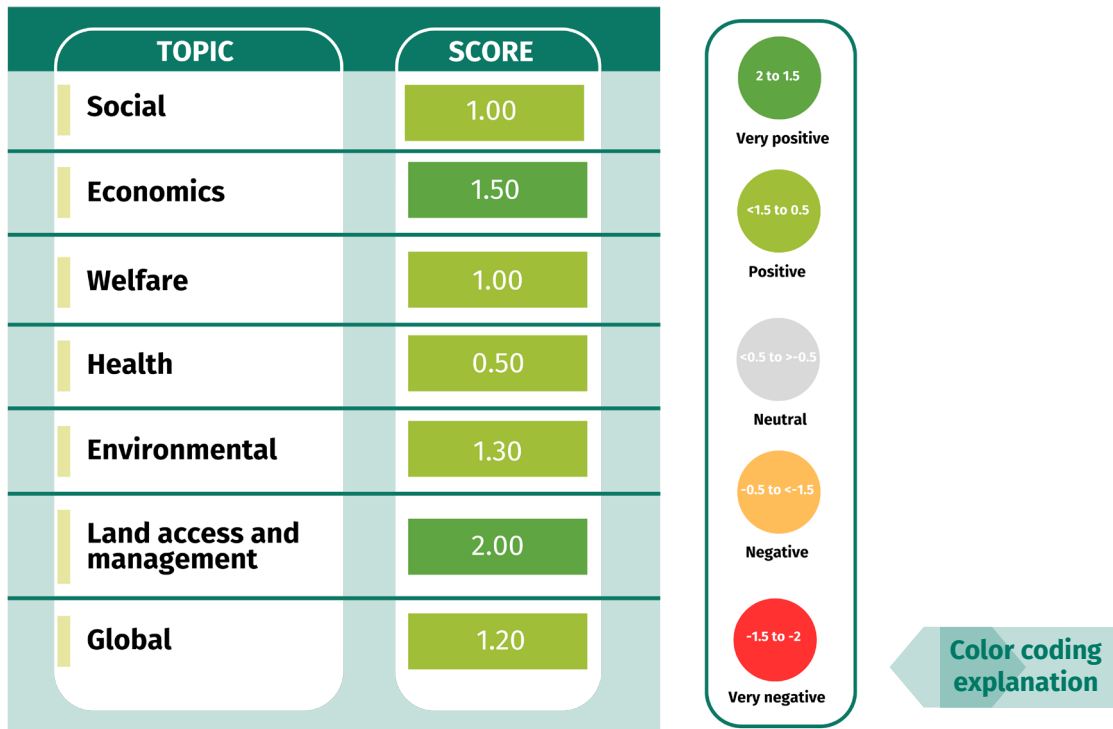
- **Review Pasture Management:** Regularly monitor the meadow to ensure the new species are establishing well. Adjust grazing and other management practices as needed to support the growth of the new plants.

While in theory overseeding appears to be a perfect solution, the practical results are controversial and do not replace good grazing management.



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How Will this Solution Impact the Performance of your Farm ?



Socioeconomics: Positive scores are explained by the following positive aspects of the solution: Overseeding techniques promote environmentally sustainable farming practices, enhancing the farm’s reputation and creating opportunities for community outreach and collaboration. This method helps maintain healthier, more productive pastures with minimal disruption, reducing the need for intensive land restoration while improving working conditions. Although overseeding involves upfront costs, it is a cost-effective solution that increases pasture yields, lowers input costs, and boosts profitability over time. By sustaining land productivity and enhancing the farm’s public image, overseeding contributes to both the farm’s economic and reputational value, though consistent upkeep is essential to maintain long-term benefits.

Economic impact describes in this assessment will depend on positive result of the overseeding which is not guaranteed.



Health & Welfare: Overseeding with native plant seeds ensures better quality of biodiversity of meadows and pastures (with less place for toxic plants). With taking care for non-toxic, health-promoting plants to be present in the seed mixture, the quality of hay (meadows) or green feed (pastures) will increase contributing to diversified feed for horses. Then, diversity of plant mixture has the potential to increase health, and consequently, the welfare for horses. The reduction of the risk of intoxication by toxic plants and maintaining access to forage help to improve health and welfare performance.

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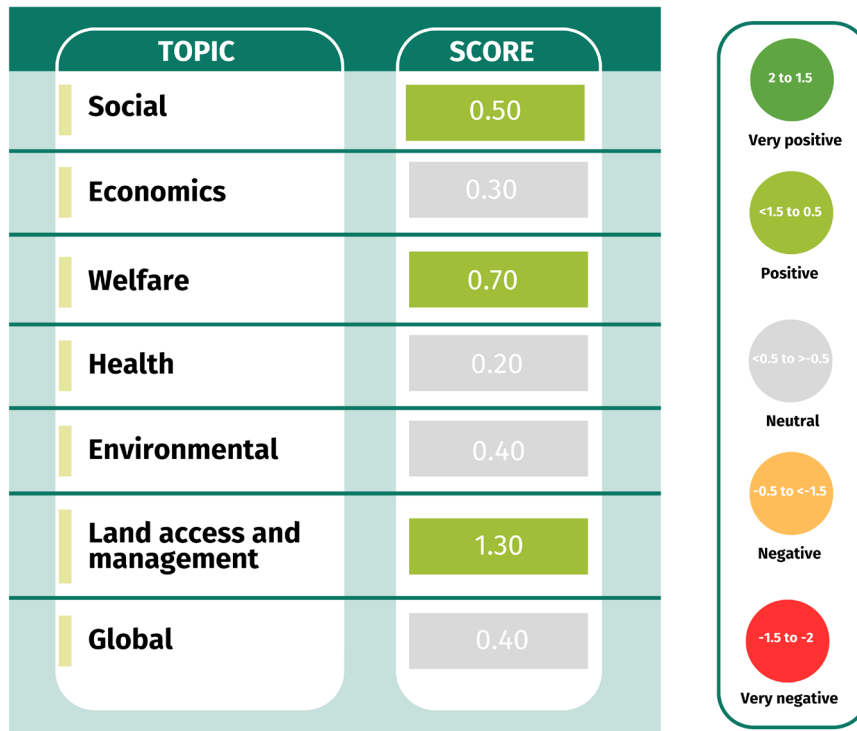
Environmental Sustainability: Overseeding has very positive overall effect on farm-level environmental performance. It helps maintain productive pastures that can sequester carbon. By ensuring continuous ground cover, it also aids in soil moisture retention, helping farms adapt to changing climate conditions. However, the overall impact on climate change is modest. Overseeding supports biodiversity by improving the variety of plant species in pastures without disturbing the existing flora. It encourages the growth of native grasses and legumes, promoting a more diverse ecosystem and halting biodiversity loss. Overseeding helps improve soil structure and water retention in pastures, which can reduce runoff and improve water use efficiency. While it's not a comprehensive water management solution, it contributes positively to managing water resources. Overseeding improves grassland quality and ensures continued access to productive grazing areas without needing to plow or reseed entirely. This technique maintains the usability of grasslands, helping to ensure sustainable management of grazing areas.





Overseeding to Maintain Good Pasture Biodiversity

How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: Overseeding contributes to a positive social score by promoting sustainable farming practices and improving pasture quality, which supports the farm’s environmental reputation and social outreach. It simplifies pasture management, reduces the need for intensive interventions, and ensures consistent forage quality, alleviating some labor pressures and contributing to a healthier work environment. However, the economic score remains neutral because, while overseeding is cost-effective and requires minimal investment, it does not significantly enhance profitability or farm capital during times of financial constraint. Its benefits are primarily in maintenance rather than growth, limiting its ability to offset broader economic challenges.



Health & Welfare: Overseeding can help to maintain good performance from health point of view facing external challenges as it helps to provide access to forage to horses and reduce risks of intoxication with toxic plants.



Environmental Sustainability: Overseeding is a highly effective method for restoring and maintaining grassland productivity. However, the overall impact overseeding may be limited in resilience related environmental sustainability. Overseeding helps to improve soil health by maintaining ground cover and reducing the risk of soil degradation. While it can’t fully prevent soil damage caused by overuse, it contributes positively to soil management efforts in limited grazing areas.

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

CHALLENGES	SCORE
Inflation	0.50
Pandemic	0.30
High welfare standards	0.70
High infectious diseases	0.40
Extreme weather event	0.60
Loss or limited access to grassland	0.40

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: Limited communication due to inflation could reduce opportunities to share positive outcomes related to this solution. However, its indirect benefits could still be highlighted without significant investment in communication resulting in a positive score against inflation. Overseeding does not directly address social crises or improve public perception during a pandemic. While it may offer environmental benefits, the farm’s ability to communicate these advantages may be limited due to the broader social crisis, leading to a neutral impact.



Welfare & Diseases: Overseeding can help the farm to face high welfare standards as it can help to maintain horses in pasture longer with good quality of forage. It will not have effect facing high infectious disease.



Climate Change & Access to Land: Overseeding has a somewhat positive effect on farm resilience in a case of extreme weather event (abnormally high or low temperatures, drought, or excessive raining). It helps improve soil health and maintain productive pastures. However, the overall impact may be limited if severe weather damages the broader ecosystem. address issues related to water quality that may arise from extreme weather events, such as flooding or drought.

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Cost-Benefit Analysis

Costs

Socioeconomics:

- Initial investment in overseeding equipment (if purchased) or service fees for overseeding (€25-€45/ha excluding seeds).
- Ongoing labor costs associated with implementing overseeding techniques and pasture management.
- Some short-term disruption during overseeding (labor, time investment), though this is minor compared to reseeding.
- Potential costs for soil testing to determine the best seed mix and soil preparation techniques.
- Costs associated with selective weeding and potential herbicide application.

Health & Welfare:

- Need for careful management to avoid pasture overgrazing while the new species establish, which could require temporary adjustments in horse turnout.



Benefits

- Lower costs compared to full reseeding or purchasing additional feed.
- Increased pasture productivity and reduced long-term maintenance costs.
- Improved horse health and productivity, leading to potential economic gains from healthier, more active horses.
- Potential for increased farm revenue due to higher quality forage and healthier livestock.



- Higher forage quality contributes to better nutrition and overall horse health.
- Reduced health risks associated with poor-quality pasture, such as digestive issues or injuries from degraded land.

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Costs

Environmental Sustainability:

- Temporary disruption of existing ecosystems during overseeding, though this is minimized compared to more invasive interventions.
- Potential competition between newly introduced species and existing flora, which could affect local biodiversity balance.
- Potential for herbicide residue to affect the overseeding process, especially in cases where selective weeding is needed before overseeding.

Cooperation between Farms:

- Potential logistical challenges in coordinating overseeding efforts among farms if shared equipment or staff is used.



Benefits

- Improved biodiversity due to the introduction of grass and legume species that promote a healthier ecosystem.
- Better soil structure and reduced risk of erosion, leading to more sustainable land use.
- Potential for carbon sequestration through healthier pasture ecosystems, contributing to climate change mitigation.
- Cost-sharing for overseeding equipment or services, reducing the financial burden on individual farms.
- Strengthened collaboration and knowledge-sharing about pasture management best practices, contributing to improved outcomes for all.



Technical Sheet for Solution Implementation

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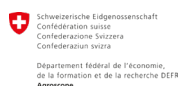
Additional Resources

Websites

- <https://thecountrysmallholder.com/news/overseeding-pasture-and-meadows-a-guide-for-small-scale-land-owners/>
- <https://www.cotswoldseeds.com/articles/529/sowing-and-growing-horse-pasture-overseeding>
- <https://meadowmania.co.uk/blogs/news/to-reseed-or-not-reseed-your-horse-paddock>
- <https://www.bostonseeds.com/advice/grass-seeds/horse-paddock-care-methods>
- <https://www.equineguelph.ca/pdf/infosheets/Overseeding%20Tips.pdf>
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Publications

- Barszczewski, J.; Horaczek, T. (2024). Assessment of the effectiveness of overseeding methods for hardwood meadows under various pluviothermal conditions. Journal of Water and Land Development. 91-101. DOI: 10.24425/jwld.2024.151794.
- Burgess, J. (2024): Overseeding Pasture and Meadows – a guide for small scale land-owners. In: The country smallholder 85 – 88. <https://tractekeng.com/wp-content/uploads/2024/08/Country-Smallholder-Article.pdf>
- Diepolder, M.; Hartmann, St.: (2013): Pferdeweiden – Nutzung, Pflege und Düngung. Bayerische Landesanstalt für Landwirtschaft (LfL), Freising-Weihenstephan. 3. Auflage https://www.lfl.bayern.de/mam/cms07/publikationen/daten/informationen/p_36811.pdf



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Ideas to Animate a Workshop About the Solution

- Ask a company specialized in pasture management or agricultural services 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 on Overseeding in Horse Stables

1. Introduction to Overseeding

- What is overseeding?
- Key features and components of overseeding (e.g., seed selection, soil preparation).
- Types of overseeding techniques available on the market (e.g., broadcasting, drilling).

2. Benefits of Overseeding in Horse Stables

- Increased Biodiversity: Enhances the ecological health of the meadow.
- Improved Forage Quality: Provides better nutrition for horses.
- Cost Savings: Lower costs compared to full reseeding or purchasing additional feed.
- Environmental Benefits: Better soil structure, reduced erosion, and potential carbon sequestration.

3. Practical Applications on Horse Farms

- Preparation: Grazing or cutting the meadow to reduce vegetation height.
- Soil Preparation: Harrowing to create bare soil for seed contact.
- Sowing: Broadcasting or drilling seeds at the appropriate depth.
- Post-Sowing Management: Rolling the area and managing grazing.

4. How to Choose the Most Suitable Overseeding Approach

- Evaluation of the needs of the farm.
- Assessment of the structural requirements.
- Features such as seed mix compatibility, soil type, and climate conditions.
- Price comparisons of different overseeding methods and equipment.

5. Hands-On Demonstration

- Live demo of making the overseeding process.
- Testing different overseeding techniques and giving participants a chance to try them out.
- Proper techniques for maximizing efficiency and ensuring successful seed establishment.



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6. Maintenance and Troubleshooting

- Cleaning and care of overseeding equipment.
- Readjustment and monitoring of the meadow.
- Addressing common issues such as poor seed germination or competition with existing flora.

7. Case Studies and Real-World Examples

- Examples of farms or equestrian centers using overseeding.
- Discussion of how they have integrated overseeding into their daily operations.
- Lessons learned and tips from farm operators who have successfully implemented overseeding.

8. Cost Analysis and Return on Investment (ROI)

- Initial cost of overseeding vs. long-term savings in pasture management.
- How to calculate ROI based on farm size, workload, and usage.
- Financial benefits from improved forage quality and horse health.

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 overseeding.

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 overseeding equipment or services if partnered with suppliers.