Technical Sheet for Solution Implementation

Rangeland Management Using an Equine Grazing Assessment Grid

Thematic area:
Environmental Sustainability.

Priority: How to manage grassland in the face of the future challenges?

Need: Sharing good practices in grazing management in the face of climate change: Grazing practices; Selection of plant species: Development of new varieties / botanical compositions better adapted to dry summers; Plant biodiversity.

Solution EU number: GM-08.

Content of the solution: A grazing management tool adapted from the CERPAM grazing consumption grid for sheep and modified according to equine grazing behaviour. The grid helps farmers identify plant species consumed by horses and supports the sustainable management, utilisation, and renewal of grazing areas and herbaceous resources.

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Reasons for Implementing the Solution

Well-managed rangelands can improve forage self-sufficiency while supporting natural equine behaviour through continuous movement, grazing, and social interaction. In addition, sustainable rangeland management contributes to biodiversity conservation, landscape maintenance, and carbon storage.

Description of Solution Strategies

Rangelands

Rangelands are non-arable areas of high ecological and landscape value that are often partly wooded and characterised by diverse, heterogeneous, and multi-layered vegetation composed of herbaceous plants, shrubs, and trees. Unlike cultivated pasturelands, rangelands primarily consist of native vegetation rather than species established by humans. Part of this vegetation can be utilised by livestock through grazing, provided it is accessible, non-toxic, sufficiently palatable, and harvestable.

Three main types of rangelands are generally distinguished:
- grasslands (open areas),
- heathlands (shrub-dominated areas),
- and woodlands.

Horses utilise a wide variety of herbaceous plants as well as foliage, shoots, flowers, and fruits from trees and shrubs. Rangelands are often considered “poor pastures” because of their irregular topography, shallow or poor soils, seasonal vegetation growth, and exposure to climatic hazards. Compared with intensively managed grasslands, they generally produce lower forage yields and have shorter growing seasons. In addition, the presence of annual species requires plants to complete their reproductive cycle to ensure long-term persistence. Nevertheless, despite lower productivity and forage quality, rangelands generally remain well suited to equine nutritional requirements.

These environments usually require extensive grazing systems with large grazing areas, often several hectares per horse. Horses may travel considerable distances (approximately 5–15 km per day) while foraging.

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Thanks to their digestive physiology, equines are particularly well adapted to utilise fibrous forage resources found on rangelands. As monogastric herbivores, they can consume forage continuously over long periods and vary their intake according to forage availability. Horses generally graze for around 15 hours per day when kept outdoors continuously. Their incisors and highly mobile lips allow them to graze close to the ground and selectively choose plant material. Due to their body size, they can also browse higher vegetation and reach branches up to approximately 1.80 m.

Preservation and management of rangelands

Appropriate grazing management is essential to preserve rangeland vegetation while ensuring sufficient forage availability for animals. Both overgrazing and undergrazing can degrade pastoral environments:

- overgrazing reduces plant regrowth and long-term vegetation persistence,
- undergrazing promotes shrub encroachment and vegetation closure, limiting accessibility and utilisation of forage resources.

The three principal causes of rangeland degradation are:

- under-exploitation,
- grazing during environmentally sensitive periods,
- and over-exploitation.

Although grazing management tools have existed for sheep, cattle, and goats for many years, equine-specific tools only began to be developed recently due to the particular grazing behaviour and physiology of horses.

The equine grazing management tool presented here is based on the CERPAM grazing consumption grid originally developed for sheep and later adapted to horses. The tool was established following grazing assessments conducted in several equine grazing areas with varying grazing pressure. Based on these observations, a consumption scale ranging from 0 to 61 was created:

- 0 = no grazing impact,
- 6 = overgrazing.

The scale relies on visual indicators that allow farmers to estimate grazing pressure and utilisation levels of different plant species. This equine-adapted grazing grid helps farmers:

- identify consumed plant species,
- assess grazing intensity,
- adjust stocking density and grazing duration,
- support vegetation renewal,
- and improve sustainable utilisation of rangeland resources.

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Example of the pastoral resource grazing grid:

SCORE	INDICATORS		ILLUSTRATIONS
	Visual indicators	Overall quantitative extraction of the resource	
1/5	There are scattered traces of bites on the grass and foliage. The observer must pay close attention to spot the tooth marks	< 20%	Careful observation is required to detect traces
2/5	The grass cover is grazed very unevenly, depending on the animals' preferences. Their favourite plants are grazed, while the rest are completely ignored. The foliage of non-thorny species is generally among their favourites	20 to 40%	The green part was partially consumed, while the dry part was not consumed at all.
3/5	The grass cover is grazed very unevenly, depending on the animals' preferences. Their favourite plants are grazed, while the rest are largely ignored. The foliage of non-thorny species can be extensively consumed	40 to 60%	The lawn is well-worn, except for the False-Brome Browsing on rowan trees
4/5	Although grass cover is widely consumed, there is a lot of waste, particularly for dry standing stock. Tree and shrub foliage is also widely consumed	60 to 80%	Only the dry stock has been neglected here
5/5	The herbaceous vegetation has been consumed evenly, regardless of the type of edible plant. There is hardly any dry stock left standing. Only refuse remains in the dung. Almost all of the foliage of trees and shrubs has been consumed. Only foliage protected by sharp thorns remains.	80 to 100%	The grass cover is consumed evenly, including at the edges of thorny obstacless Rosehip foliage is highly prized here

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Implementation Steps

1. Assessment of rangeland suitability
- Evaluate available rangeland areas and vegetation types.
- Identify accessible, palatable, and non-toxic plant species.
- Assess water availability, terrain accessibility, and shelter conditions.

2. Preparation of grazing infrastructure
- Install or repair fencing if necessary.
- Ensure safe access routes and water points for horses.
- Divide grazing areas if rotational management is planned.

3. Introduction of horses to rangelands
- Gradually introduce horses to extensive grazing conditions.
- Monitor adaptation to terrain, forage availability, and grazing behaviour.
- Adjust herd composition and stocking rates according to available resources.

4. Regular grazing assessment
- Use the equine-adapted CERPAM grazing grid regularly.
- Observe plant consumption levels and grazing pressure.
- Identify signs of undergrazing or overgrazing.

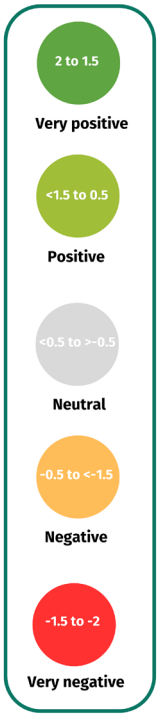
5. Adaptive grazing management
- Adjust stocking density according to vegetation availability and seasonal conditions.
- Modify grazing duration and resting periods where necessary.
- Prevent grazing during environmentally sensitive periods.

6. Long-term monitoring and maintenance
- Monitor vegetation changes and pasture regeneration over time.
- Maintain fencing, water supply, and access infrastructure.
- Adapt grazing management according to climatic variability and vegetation dynamics.

Rangeland Management Using an Equine Grazing Assessment Grid

How Will this Solution Impact the Performance of your Farm?

TOPIC	SCORE
Social	0.50
Economics	0.50
Welfare	1.00
Health	2.00
Environmental	0.67
Pasture access and management	2.00
Global	1.00



Traffic light explanation

Socioeconomics: This solution will enhance the farm's social performance because it demonstrates responsible and sustainable grassland management. This will have a positive impact on the farm's image and environmental footprint management. While the benefits may not always be apparent to the general public, using a structured grazing assessment tool indicates good management practices and helps to preserve natural landscapes and biodiversity. This solution will improve the farm's economic performance by enabling more efficient use of rangeland resources, helping farmers to adjust grazing pressure, maintain pasture productivity and prevent degradation. Better forage management can boost self-sufficiency, cut the need for bought-in feed or hay, and improve the long-term productivity and sustainability of grazing areas.

Health & Welfare: This solution will support the everyday farm's health performance by helping to maintain low levels of pain, mortality, and drug use through more nature-like environmental conditions when the equines can exert locomotor activity, along with more physiologically adjusted foraging behaviour in well monitored conditions providing sufficient forage basis. This solution will support equine welfare performance by promoting positive emotional states and providing welfare-friendly conditions. Grazing is one of the most highly motivated and preferred behaviours in horses and prevents the development of oral stereotypies. Access to diverse environments with appropriate plant productivity increases opportunities for satiety and feed choice. These opportunities contribute to positive welfare and an optimal mental state.

Rangeland Management Using an Equine Grazing Assessment Grid

Environmental sustainability: This solution will support the environmental performance of the farm because helps equine farms manage pastures more effectively in daily practice. Grazing consumption grids show where equines and other livestock graze most, helping farmers adjust stocking rates, rotate paddocks, and prevent overgrazing. For climate mitigation, this improves pasture condition and reduces carbon loss while supporting more efficient feeding. For climate adaptation, it helps farmers respond to changing weather and grass growth by using pastures more flexibly.

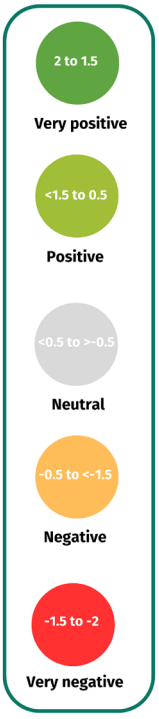
This solution also supports both biodiversity and ecosystem health. By guiding rotational grazing and balanced stocking, they create more varied pasture conditions (e.g. shorter and taller grass areas), which encourages a wider range of plant species. Effect on water management was considered as neutral. Although soil physical properties affect water regulation at the farm level, the extent of these effects vary with local conditions and management approaches. At the time of the assessment, pastures were assumed to be non-irrigated.

This solution will support the land access or management performance of the farm because it helps equine farmers manage pastures in a more structured and precise way. By considering how horses graze, they support decisions on stocking rates and grazing systems (continuous or rotational), which directly affect grass quality, plant diversity, and pasture condition. Using tools or grids to control where and when horses graze allows farmers to balance pasture use and conservation, avoid overgrazing, and maintain healthy, species-rich grasslands. Overall, well-managed grazing systems improve pasture productivity, ecological value, and resilience, but they require regular monitoring and adjustment to maintain both horse performance and long-term pasture health. Overall, these tools help equine farms balance horse needs with pasture biodiversity and long-term sustainability.

Rangeland Management Using an Equine Grazing Assessment Grid

How Will this Solution Impact the Resilience of your Farm?

TOPIC	SCORE
Social	0.08
Economics	0
Welfare	0
Health	0
Environmental	0.22
Pasture access and management	0.17
Global	0.08



Socioeconomics: This solution will not impact the social performance of the farm facing external challenges assessed because the grazing assessment grid is mainly a technical pasture management tool with limited direct influence on labour organisation, customer relations, or social dynamics during crises. It can indirectly support horse welfare and grazing management, especially under drought conditions, but its effects on social resilience remain limited. This solution will not impact the economic performance of the farm facing external challenges, as the tool itself does not directly protect against inflation, pandemics or disease outbreaks. However, it can help to optimise pasture utilisation and maintain pasture health during extreme weather events. It can also improve management efficiency in areas where grazing is reduced, thereby indirectly supporting forage availability and limiting feed losses over time.

Health & Welfare: This solution does not directly support the farm's health performance, as plant productivity control does not directly reduce pain, mortality, or the need for medication when the farm is exposed to external pressures such as staff shortages, reduced farm income, or water shortage. Nevertheless, prolonged access to diverse, productive feed across the rangelands may help maintain horses in good health and body condition, thereby supporting their ability to cope with external challenges. When the farm is subjected to socio-economic or environmental pressures, such as staff shortages, reduced farm income, water scarcity, or limited access to maintenance and technical services, the effectiveness of this solution may be compromised. As a result, the solution has a neutral effect on farm welfare performance although the

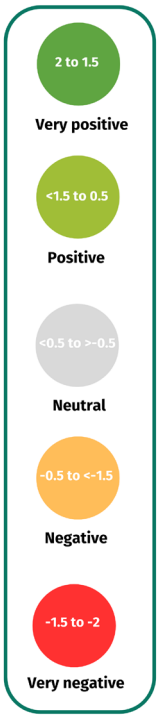
access to diverse environments ensuring sufficient forage is highly enriched in such conditions, which promotes equine welfare.

Climate Change & Access to Land: This solution will not impact environmental performance of the farm facing external challenges assessed because at most of the challenges it does not have clear direct effect on environmental sustainability. However, if the farm faces extreme weather event it has positive effect on climate change adoption and halting biodiversity loss. Horses tend to stay close to water and shade, leading to heavy grazing in these areas and underuse elsewhere. The grids help you identify these pressure spots so the farmer can rotate paddocks, rest overused areas, or guide horses to less-used zones. The solution supports flexible stocking and grazing time, allowing you to adjust horse numbers to match reduced grass growth.

This solution will not impact land access or management performance of the farm facing external challenges assessed because it does not increase available land or change practices as it has been already in use before farm faces these challenges. However, it helps to manage limited pasture more efficiently.

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

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



Inflation & Social Crises: Social challenge: This solution will not affect the overall performance of farms during pandemics because the equine grazing assessment grid is primarily a technical tool to support pasture management decisions and is not directly affected by labour shortages, sanitary restrictions or reduced social interactions. Its main contribution is to support grazing continuity and horse welfare indirectly, through better pasture management. Economic challenge: This solution will not impact the global performance of the farm facing inflation because the tool itself does not directly reduce rising production costs or protect against market instability. However, it can improve forage efficiency and pasture utilisation indirectly, helping farms to manage their grazing resources more effectively and limiting feed-related costs slightly over time.

Welfare & Diseases: Health challenge: This solution has a neutral effect on the global performance of the farm across the three sustainability dimensions when facing an infectious disease challenge. Socioeconomic, environmental, and animal health and welfare objectives may be difficult to achieve if the farm experiences a sudden outbreak of infectious disease. Although diverse environments providing well controlled quantity and quality of feed can support good nutritional status and general health, they are unlikely to be sufficient to mitigate the consequences of an infectious disease outbreak. Welfare challenge: Similarly, this solution does not significantly affect the global performance of the farm in the context of implementing high-standard animal welfare legislation. Access to pasture is a fundamental requirement from an equine welfare perspective, and the duration of pasture access is often more important than pasture quality alone. However, when extended pasture access is combined with environmentally enriched rangelands with sufficient plant productivity, this solution may contribute to greater farm resilience and facilitate compliance with higher animal welfare standards.

Climate Change & Access to Land: Environmental challenge: this solution will support the global performance of the farm facing abnormally high temperatures and/or draught because in the context of climate change, dry summers may be a relatively new phenomenon in some regions. Some farmers may lack the experience needed to cope with these dry spells. The tool can directly help to manage pastures more effectively and make the right choices to maintain pasture health, working conditions of staff and managers, climate change adoption, halting biodiversity loss and management of grassland. Land access/management challenge: this solution will not impact the global performance of the farm facing loss or limited access to agricultural land because it won't help address the shortage of land. However, it does make it possible to manage the smaller area that remains available more effectively.

Cost-benefit Analysis

Costs

Socioeconomics:

- Increased workload related to monitoring grazing areas and regularly using the grazing assessment tool.
- Initial installation costs, particularly for fencing and pasture organisation.
- Time and effort required to observe vegetation and complete grazing assessments.

Health & Welfare:

- Grazing on rangelands does not necessarily reduce the need for deworming treatments.
- Continuous access to clean drinking water must be ensured.
- Water quality, especially during summer periods, requires regular monitoring.
- Small or poorly managed areas may increase trampling pressure and reduce forage availability.

Environmental Sustainability:

- On small or heavily stocked areas, horses may damage vegetation through trampling or excessive grazing pressure.
- Poor grazing management may contribute to localised degradation if stocking density and grazing duration are not adapted.

Benefits

- Improved feed self-sufficiency through better use of natural rangeland resources, reducing the need to purchase fodder.
- Better decision-making support for grazing management thanks to clear grazing indicators.
- Reduced stress for farmers through improved monitoring and planning of grazing pressure.
- More efficient and sustainable use of available pastoral resources.

- Continuous access to forage and roughage adapted to equine digestive physiology.
- Greater freedom of movement and increased daily activity.
- More natural and enriched environments with varied vegetation and landscapes.
- Increased access to natural shelter and shaded areas compared with conventional pastures.
- When grazing is well managed, rangelands provide highly positive conditions for equine health and welfare.

- Helps maintain the balance between undergrazing and overgrazing.
- Supports vegetation renewal and long-term pasture productivity.
- Prevents shrub encroachment and closure of open grazing landscapes.
- Contributes to biodiversity conservation and preservation of pastoral ecosystems.

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Costs

Cooperation between Farms:

- No major direct costs identified.

Benefits

- Low-input pastoral systems generally require limited diesel and fuel consumption.
- The grazing management tool helps minimise the environmental impact of grazing by supporting sustainable pasture use.

- Proper management of rangelands may encourage landowners to make additional grazing areas available for horses.
- Exchange of practical experience and grazing strategies between neighbouring farms.
- Sharing of knowledge regarding pasture assessment and sustainable grazing management practices.

Additional Resources

Publications

- Clausecker, F., Komainda, M., Riesch, F., & Isselstein, J. (2025, August). Horse husbandry for biodiverse grassland. In EGF Symposium 2025-Proceedings (pp. 301-303). Wageningen Academic. https://brill.com/downloadpdf/edcollchap-oa/book/9789004751163/BP000076.pdf
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- Liu, G., Bou, G., Su, S., Xing, J., Qu, H., Zhang, X., Wang, X., Zhao, Y., & Dugarjaviin, M. (2019). Microbial diversity within the digestive tract contents of Dezhou donkeys. PloS One, 14(12), e0226186. https://doi.org/10.1371/journal.pone.0226186
- Schmitz, A. (2021). Grassland management with horses: Its role in grassland utilization in Germany and the effects on grassland vegetation (Doctoral dissertation, Dissertation, Göttingen, Georg-August Universität, 2018). https://ediss.uni-goettingen.de/bitstream/handle/21.11130/00-1735-0000-0005-1550-9/Schmitz2017_Dissertation_GrasslandsForHorses_ediss_ohneCV.pdf?sequence=1&isAllowed=y
- Volpe, J., Nota, G., Viterbi, R., Mainetti, A., Ravetto Enri, S., Lonati, M., Lombardi, G., & Pittarello, M. (2025). Foraging behaviour of donkeys in encroached pastures in Gran Paradiso National Park, Italy. Agroforestry Systems, 99(7), Article 187. https://doi.org/10.1007/s10457-025-01286-6

Publications

- https://idele.fr/detail-article/diffuzequiparcours-le-projet
- https://idele.fr/umt_pasto/dossiers-et-publications/detail-article?tx_atolidelecontenus_publicationdetail%5Baction%5D=showArticle&tx_atolidelecontenus_publicationdetail%5Bcontroller%5D=Detail&tx_atolidelecontenus_publicationdetail%5Bpublication%5D=17084&cHash=e65128317e10f30f043e6b3d783f8aaa
- https://en.wikipedia.org/wiki/Rangeland
- Technical sheets (in French):
  - Les strategies d'alimentation des équins sur parcours: https://idele.fr/?eID=cmis_download&oID=workspace://SpacesStore/5ddd3911-2449-45d6-a586-64416a476de0
  - Réguler et piloter le pâturage équin sur parcours: https://idele.fr/?eID=cmis_download&oID=workspace://SpacesStore/56428595-d3e0-43d3-bfa8-56009683da93
  - La valorisation des parcours par les équidés: https://idele.fr/?eID=cmis_download&oID=workspace%3A%2F%2FSpacesStore%2F018856bf-f586-4ab6-b8a2-c79c6e9cb66b&cHash=0211992ac4c93698c3b55157ef619fb5

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Annex

Ideas to Animate a Workshop About the Solution

- Ask advisors, pastoral management specialists, agricultural services, or grazing management organisations to sponsor or support the workshop.
- Organise the workshop on a farm using rangelands and equine grazing management practices.
- Include practical field observations and allow participants to use the grazing assessment grid directly on pasture areas.

Proposed Struct.ure for the Workshop on Equine Rangeland Grazing Management in Equine Farms

1. Introduction to Equine Rangeland Grazing Management

- What are rangelands and how are they used in equine systems?
- Introduction to the equine grazing management grid adapted from the CERPAM method.
- Main characteristics of rangelands: grasslands, heathlands, and woodlands.
- Overview of equine grazing behaviour and forage selection.

2. Benefits of Equine Rangeland Grazing Management on equine farms

- Improved use of natural forage resources and greater feed self-sufficiency.
- Support for horse welfare through movement, social interaction, and natural feeding behaviour.
- Preservation of biodiversity, landscapes, and ecosystem services.
- Better decision-making through grazing indicators and monitoring tools.
- Reduced pressure on cultivated grasslands and forage purchases.

3. Practical Applications on equine farms

- Organising horses on large grazing areas.
- Adapting stocking density and grazing duration according to pasture conditions.
- Monitoring forage availability and grazing pressure.
- Combining rangelands with conventional pasture systems.
- Managing access to water and natural shelter areas.

4. How to Choose the most suitable grazing management approach

- Evaluation of available rangeland resources and farm objectives.
- Assessment of fencing, accessibility, water supply, and terrain conditions.
- Identification of suitable grazing periods and seasonal management strategies.
- Adapting grazing pressure according to vegetation type and climatic conditions.

5. Hands-On Demonstration

- Field visit to observe different rangeland vegetation types.
- Practical use of the equine grazing consumption grid.
- Estimation of grazing levels using visual indicators.
- Demonstration of how to adjust stocking rates and grazing duration based on observations.

6. Maintenance and Troubleshooting

- Monitoring vegetation recovery and preventing overgrazing.
- Identifying signs of undergrazing or shrub encroachment.
- Managing heavily used areas and reducing trampling damage.
- Maintaining fences, water points, and access routes.

7. Case Studies and Real-World Examples
- Examples of equine farms successfully using rangelands.
- Discussion of grazing management strategies in different climatic and environmental conditions.
- Lessons learned regarding pasture preservation and horse adaptation.
- Experiences with the implementation of the grazing assessment tool.

8. Cost Analysis and Return on Investment (ROI)
- Initial investment needs (fencing, infrastructure, monitoring).
- Potential savings through improved feed self-sufficiency.
- Long-term benefits for pasture sustainability and reduced forage purchases.
- Evaluation of labour requirements and grazing efficiency.

9. Q&A Session
- Open discussion on grazing challenges and pasture management experiences.
- Questions regarding stocking density, vegetation management, and horse welfare.
- Exchange of experiences between participants and advisors.

10. Wrap-Up and Resources
- Summary of key points covered during the workshop.
- Distribution of grazing management grids and monitoring resources.
- Additional resources on rangeland management and equine grazing systems.
- Information on advisory services, training opportunities, and farmer networks.