Technical Sheet for Solution Implementation

Extensive Grazing for Ecosystem Services

Thematic area: Transversal.

Priority: How to manage issues related to access to agricultural land.

Need: Access to land: How to improve access to land for equine farms?; Give more information to farmers to be able to access communal land, on cooperation between authorities (e.g. construction and environmental services, highway services, etc.), or management of public places with horses (grazing9; How to deal with the lack of access to land?

Solution EU number: LA-02.

Content of the solution:
Extensive use of horses for landscape management delivers ecosystem services such as biodiversity conservation, wildfire prevention, and cultural landscape maintenance while integrating traditional equine husbandry into modern environmental and rural development strategies.

Reasons for Implementing the Solution

Equines can make an important contribution to landscape management through extensive grazing, especially in mountainous regions that are difficult to access. Their use as natural "care managers" promotes the preservation of open areas, reduces the accumulation of combustible biomass and supports the protection of biodiversity. At the same time, this form of animal husbandry offers ecological, cultural and socio-economic benefits.

Description of Solution Strategies

Extensive grazing with horses relies on the natural use of resilient and adaptable animals to maintain open landscapes. Through continuous grazing of grasses and shrubs, the encroachment of dense vegetation is prevented. This supports biodiversity and significantly reduces the risk of wildfires.

Unlike mechanical or chemical vegetation management, grazing by horses is resource-efficient and sustainable. In suitable areas, it can be integrated with traditional equine husbandry, especially using autochthonous breeds adapted to rough terrain.

Unlike intensive grazing systems, extensive grazing involves low stocking densities, seasonal or year-round free-range grazing, and minimal human intervention, relying instead on the animals' natural behaviors.

Key Mechanisms

- Biomass Reduction and Wildfire prevention: Horses consume grasses, herbs, and woody plants, reducing the amount of combustible material in unmanaged landscapes. Their grazing helps to limit shrub encroachment and delays forest succession, contributing to lower wildfire risk.
- Vegetation Mosaic Creation and Biodiversity conservation: Through their selective feeding, trampling, and movement patterns, horses create heterogeneous vegetation structures that benefit a range of species, including insects, ground-nesting birds, and rare plants.

Comparison to Other Grazing Species

- Compared to cattle, horses graze more evenly and are more effective in controlling coarse grasses and certain invasive plant species.
- Unlike sheep and goats, horses are less selective feeders and do not graze as closely to the ground, which helps retain soil cover and reduce erosion risks.
- In mixed grazing systems, horses can complement other species by targeting different plant types or strata.

Suitability and Requirements

- Most suitable for abandoned farmland, fire-prone shrublands, alpine pastures, heathlands, and extensively used meadows.
- Requires robust, often native breeds adapted to outdoor life, low-input management, and rugged terrain (e.g. Garrano, Pottok, Exmoor, Haflinger).
- May involve rotational grazing, seasonal movement, or free-roaming systems depending on the ecological context and land-use goals.

Management Tools

- GPS collars and remote monitoring systems can be used to track herd movement and grazing intensity.
- Electric fencing or natural barriers help manage grazing pressure and avoid overgrazing in sensitive areas.
- Habitat-specific grazing plans developed in collaboration with ecologists can enhance the environmental effectiveness of grazing interventions.

Implementation Steps

1. Site selection and needs assessment: Identification of suitable areas with dense vegetation or high fire risk.

2. Concept development: Creation of a tailored grazing and management plan in collaboration with ecologists, farmers, and local authorities

3. Infrastructure and herd setup: Installation of necessary infrastructure and establishment of an appropriate horse population.

4. Implementation and monitoring: Start of grazing activities with ongoing ecological and fire-risk monitoring.

5. Communication and outreach: Public information campaigns to raise awareness among local communities and decision-makers.

6. Evaluation and scaling: Assessment of results and potential transfer of the model to other regions.

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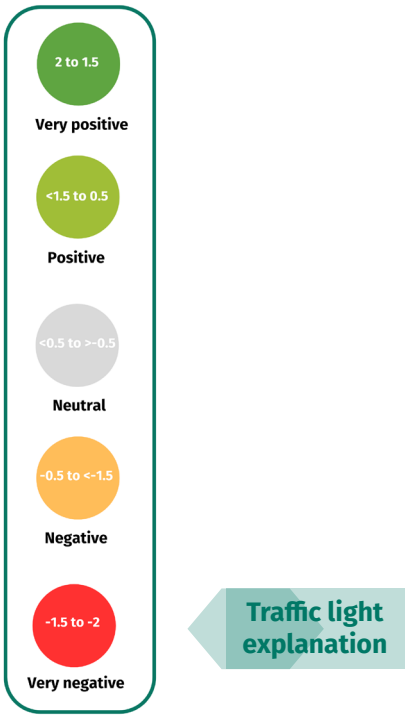
How Will this Solution Impact the Performance of your Farm?

TOPIC	SCORE
Social	0
Economics	0
Welfare	1.40
Health	0.50
Environmental	1.33
Pasture access and management	2.00
Global	1.07



Socioeconomics: This solution will not have effect on the social performance of the farm because its positive contributions to public image, cultural value, and more natural horse husbandry remain largely indirect and highly dependent on external factors such as active communication, public recognition, and institutional support. While extensive systems may reduce some routine stable work, these benefits are counterbalanced by increased requirements for field supervision, fencing, monitoring, and welfare checks over large areas. As a result, improvements in social outreach and quality of working life are variable and context-specific, leading overall to a neutral effect on social performance.

This solution will not have effect on the economic performance of the farm because revenues linked to environmental services—such as agri-environmental subsidies, nature-based tourism, or potential carbon credit schemes—are uncertain, often limited, and strongly dependent on policy frameworks and local market access. At the same time, additional costs related to infrastructure, monitoring, animal control, and compliance can offset these income opportunities. Since land is frequently owned by public authorities and not the farmer, farm capital does not directly increase, and profitability remains modest and unpredictable. Consequently, positive and negative economic effects tend to balance each other, resulting in an overall neutral impact on economic performance.

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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 choose their diet, shelters and, possibly, anthelmintic plants. The hoof trimming may be reduced if the soil allows tearing off the hoof horn, while daily unrestrained locomotor activity supports joint condition and proprioception.

This solution will support equine welfare performance by maintaining a positive emotional state and provision of welfare-friendly housing conditions, since, after the period of adaptation, the animals usually form aggression-free social groups, have access to the forage and present unrestrained locomotor activity, fulfilling the 3F aspects of welfare.

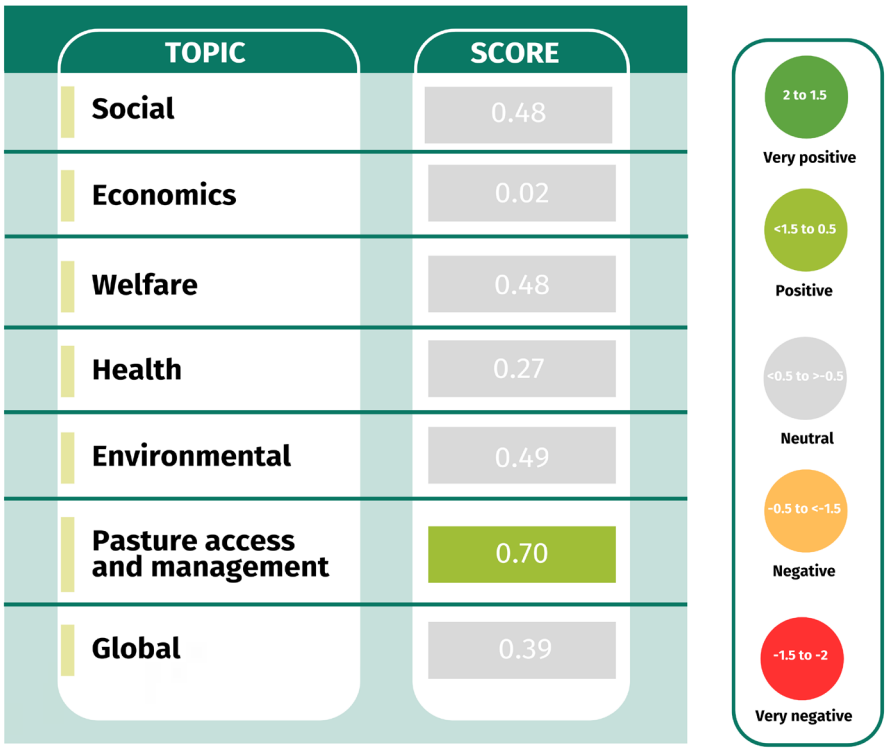
Environmental sustainability: This solution will support on the environmental performance of the farm because it has positive effects in several areas related to environmental sustainability. This solution supports climate change mitigation and adoption several ways. Permanent grassland is a CO_2 sink. Using equines for tasks such as low-impact logging, landscape maintenance, or traditional transport reduces reliance on fossil fuels and heavy machinery and cut greenhouse gas emissions. Additionally, equines adapt well to extensive, low-input systems that require fewer external energy inputs.

This solution supports halting biodiversity loss by promoting ecosystem services. The benefits of the work carried out by semi-wild horses on common lands, has been widely studied and proved to be efficient. The forest fire control is the most important direct benefit. Extensive grazing prevents scrub encroachment, creates mosaic structures, promotes insects, birds and rare plants. Hence, equines are often employed in conservation grazing programs that maintain or restore semi-natural habitats, such as wetlands, wood pastures, and meadows. These activities help prevent overgrowth, support habitat heterogeneity, and sustain plant and insect diversity, including protected species

While not directly focused on water, horse-based land management avoids soil compaction (common with tractors), which helps preserve natural water infiltration and reduces erosion. Extensive grazing protects soil cover (equines do not graze as deeply as some other animals). Horses can also access fragile ecosystems without damaging water-sensitive zones, especially when properly rotated. On the other hand, overgrazing or incorrect management can cause trampling damage to banks or wetlands.

Extensive Grazing for Ecosystem Services

How Will this Solution Impact the Resilience of your Farm?



Socioeconomics: This solution will not impact social performance of the farm facing external challenges assessed because its social benefits—such as improved public image, stronger alignment with societal values on sustainability and animal welfare, and meaningful work for staff—remain largely indirect and context-dependent. While extensive horse-based environmental management can stabilize outreach and maintain social relevance during inflation, pandemics, or regulatory change, these effects rely heavily on active communication, public recognition, and external partnerships. Increased monitoring, field supervision, and biosecurity constraints during crises can also offset gains in quality of working life. As a result, positive and negative social effects tend to balance each other, leading overall to a neutral impact on social performance under external challenges.

This solution will not impact economic performance of the farm facing external challenges assessed because its economic contributions are uncertain and often insufficient to counterbalance rising costs or income losses during crises. Although extensive systems can reduce feeding and energy costs, attract subsidies, and occasionally diversify income (e.g. environmental services, conservation contracts), these revenues are generally limited, policy-dependent, and do not fully offset increased costs linked to supervision, infrastructure, water provision, or reduced productivity under disease outbreaks, extreme weather, or inflation. Land is frequently publicly owned, limiting capital gains, and sales of animals or services remain vulnerable to market disruptions. Consequently, positive and negative economic effects largely counterbalance each other, resulting in an overall neutral impact on economic performance when facing external challenges.

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Health & Welfare: This solution will not have an impact on health performance when the farm faces external challenges since it does not directly reduce pain, mortality, or the need for extensive medication. However, it can have slightly positive indirect effects, as it might save the equine health by larger area, thus lower concentration of pathogenes compared to traditional stabling.

This solution, although providing satisfaction of 3Fs, has neutral, but slightly positive effects on the welfare performance of the farm when faced with different external challenges. However, they may not outweigh the negative effects of the challenges in socioeconomic or environmental sustainability areas.

Environmental sustainability: TThis solution will not impact environmental performance of the farm facing external challenges assessed because effects, albeit being positive, are a little bit modest taken that this solution would be already in use, if farm faces assessed challenges. Extensive grazing is ecologically resilient and stabilises output, does not have a strong impact on in a case of these challenges.

This solution will support land access or management performance of the farm facing external challenges assessed because it helps to compensate for the loss of agricultural land. Equines contribute to landscape maintenance, they support the long-term sustainability of grasslands and natural areas, which may improve access to communal or conservation lands through agreements with public or private landowners. . Continued use of horses for grazing and low-impact land care during lockdowns helps maintain land health and ensure long-term access for equine and environmental purposes, keeping these assets productive and accessible, Promoting the use of horses for land stewardship enhances access to public or protected lands under controlled, environmentally sustainable conditions, often through partnerships with municipalities or conservation NGOs. Using horses for environmental tasks can increase acceptance and incentives for maintaining grazing rights and access to marginal or protected lands, especially where mechanical access is limited or restricted in drought-prone ecosystems. The environmental role of horses makes a compelling argument for continued or renewed access to public or community lands. It strengthens negotiation positions with landowners or public agencies by offering mutual benefits,

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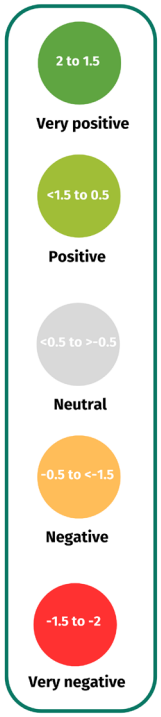
How can this solution help your farm to face specific external challenges to be more resilient?

CHALLENGES	SCORE
Inflation	0.62
Pandemic	0.58
High welfare standard	0.68
High infectious diseases	0
Extreme weather event	0.02
Loss/limited access to grassland	0.38



Inflation & Social Crises: Social challenge: This solution will support the global performance of the farm facing pandemics because extensive, outdoor-based horse management linked to environmental services can continue with limited human contact, allowing farms to remain socially visible and active even during lockdowns. By maintaining meaningful, low-contact activities (e.g. conservation grazing, landscape maintenance), the farm preserves public trust, staff motivation, and horse welfare, while reducing dependence on events, tourism, or intensive on-site interactions that are more vulnerable during pandemics.

Economic challenge: This solution will support the global performance of the farm facing inflation because extensive horse use for environmental management lowers dependence on costly inputs such as feed, fuel, and electricity, and increases the value of natural resources and ecosystem services. Although revenues remain limited, reduced operating costs, access to agri-environmental support, and stable demand for landscape services help buffer cost increases, contributing to moderate economic resilience under inflationary pressure.

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Welfare & Diseases: This solution will not support the global performance of the farm across all three areas when facing infectious disease challenges. Having the animals spread over a big area, the solution will not help with preventing or dealing with the potential disease outbreak. In such conditions, it may be also difficult to reduce the pain, mortality rate, and curative medication of equines.

This solution will support the global performance of the farm when faced with high welfare standards legislation, because it assures the fulfilment of 3Fs criteria, so, as result, it assures a positive emotional state of animals.

Climate Change & Access to Land: Environmental challenge: this solution will not impact the global performance of the farm facing abnormally high temperatures and/ or drought because effects are mainly negative or neutral Positive effects on social outreach, climate change mitigation and adoption, halting biodiversity loss and access to grasslands.

Land access/management challenge: this solution will not impact the global performance of the farm facing loss or limited access to agricultural land because effects are two folded.

Cost-benefit Analysis

Costs

Socioeconomics:

- Initial investment for adapting infrastructure (fencing, shelters, portable corrals, monitoring equipment).
- Increased labour requirements compared to mechanised alternatives (horse care, supervision, training).
- Additional workload for monitoring horses on extensive land, especially where daily supervision is not possible.
- Lower short-term profitability where no established market or public contracts for environmental services exist.
- Administrative costs for local authorities related to land allocation, contracts, and monitoring.
- Need for trained handlers, especially when horses live semi-feral or on common land.
- Occupational risks when working with horses in public spaces or forestry contexts (accident prevention, insurance).

Benefits

- Diversification of farm income through payments for ecosystem services, agri-environmental schemes, municipal contracts, eco-tourism, and educational activities.
- Improved economic resilience by reducing dependence on traditional equine markets (sport, leisure).
- Enhanced public image and social prestige of equine farms through visible contributions to environmental protection.
- Increased attractiveness of rural regions through well-maintained open landscapes and grazing horses as a touristic asset.
- Cost savings for municipalities compared to mechanical landscape maintenance.
- Improved access to land for equine farms through recognition as legitimate land managers.
- Strengthening of rural economies and local employment opportunities.

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Costs

Health & Welfare:

- Higher risk of injury on large, rugged or fenced terrain (e.g. falls, trampling, fence injuries).
- Increased exposure to weather conditions, requiring adequate natural or artificial shelters.
- Parasite pressure may increase under extensive grazing if not properly managed.
- Health issues may be detected later due to less frequent direct observation.
- Need for regular veterinary care (vaccination, deworming, identification) and hoof care despite extensive conditions.
- Risk of predation (e.g. wolves) in certain regions, particularly for foals.

Sostenibilidad medioambiental:

- Risk of environmental damage if management is inadequate (overgrazing, soil compaction, erosion).
- Potential pollution of water bodies if riparian grazing is not controlled.
- Need for ecological planning, expert guidance, and monitoring, often involving public resources.
- Occasional carbon footprint linked to horse transport for conservation purposes (generally low compared to machinery).
- Losses due to predation can indirectly affect conservation outcomes.

Benefits

- Promotion of natural living conditions with access to pasture, movement, and social interaction (Friends, Forage, Freedom – “3Fs”).
- Improved physical health through regular low-intensity exercise, reducing metabolic diseases and obesity.
- Better musculoskeletal development and healthier hooves due to varied terrain and surfaces.
- Reduced incidence of behavioural disorders compared to stable-based systems.
- Lower stress levels and improved emotional wellbeing through meaningful, low-pressure work.
- Reduced need for curative medication when management is appropriate.
- More suitable, less energy-rich diets, lowering risks of colic and metabolic disorders.

- Maintenance of open landscapes and prevention of shrub and forest encroachment.
- Reduction of wildfire risk through continuous biomass reduction.
- Creation of heterogeneous vegetation mosaics that support high biodiversity.
- Improved soil structure through aeration, trampling, and manure deposition.
- Seed dispersal over large distances due to horses’ roaming behaviour.
- Preservation of grasslands as carbon sinks and reduced reliance on fossil fuel-powered machinery.
- Protection of culturally valuable, biodiversity-rich traditional landscapes.
- Provision of ecosystem services for society (recreation, tourism, cultural identity).

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Costs

Cooperation between farms

- Potential competition for limited land resources between equine farms and other livestock systems.
- Conflicts arising from differing objectives (nature conservation vs. production-oriented agriculture).
- Organisational and administrative effort required for shared land use agreements.
- Liability and responsibility issues when multiple farms operate on the same land.
- Social tensions if benefits (e.g. land access, subsidies) are distributed unevenly.

Benefits

- Opportunities for complementary grazing systems (e.g. horses with cattle or sheep).
- Shared use of infrastructure, portable equipment, veterinary services, and administrative resources.
- Strengthened cooperation with nature conservation bodies, municipalities, and tourism actors.
- Enhanced knowledge exchange and social cohesion among farmers.
- Collective management of communal or protected grasslands.
- Improved recognition of horse owners as legitimate land users alongside traditional agriculture.
- Potential for joint marketing, eco-tourism routes, and regional branding.

Additional Resources

Websites

- EU Funding Portals:
  - EIP-Agri – European Innovation Partnership for Agricultural Productivity and Sustainability https://ec.europa.eu/eip/agriculture/
  - EU CAP Network https://eu-cap-network.ec.europa.eu/index_en
  - LIFE Programme – EU environmental and climate funding https://cinea.ec.europa.eu/programmes/life_en
  - National support agencies (e. g. chambers of agriculture)

Publications

- Celaya, R.; Ferreira, L.M.M.; Lorenzo, J.M.; Echegaray, N.; Crecente, S.; Serrano, E.; Busqué, J. Livestock Management for the Delivery of Ecosystem Services in Fire-Prone Shrublands of Atlantic Iberia. Sustainability 2022, 14, 2775. https://doi.org/10.3390/su14052775
- Janeiro-Otero, A., Álvarez, X. & Dormann, C.F. Application of remote sensing to understand the role of Galician feral horses in the biomass reduction of a shrub-grassland-dominated landscape. BMC Ecol Evo 24, 89 (2024). https://doi.org/10.1186/s12862-024-02276-5
- Rouet-Leduc, J., Pe'er, G., Moreira, F., Bonn, A., Helmer, W., Shahsavan Zadeh, S. A. A., Zizka, A., & van der Plas, F. (2021). Effects of large herbivores on fire regimes and wildfire mitigation. Journal of Applied Ecology, 58, 2690–2702. https://doi.org/10.1111/1365-2664.13972
- Rigueiro-Rodríguez, A., Mouhbi, R., Santiago-Freijanes, J. J., González-Hernández, M. del P., & Mosquera-Losada, M. R.. (2012). Horse grazing systems: understory biomass and plant biodiversity of a Pinus radiata stand. Scientia Agricola, 69(1), 38–46. https://doi.org/10.1590/S0103-90162012000100006
- Schmitz, A.; Isselstein, J. Effect of Grazing System on Grassland Plant Species Richness and Vegetation Characteristics: Comparing Horse and Cattle Grazing. Sustainability 2020, 12, 3300. https://doi.org/10.3390/su12083300

Further information

- There is currently no known EIP-Agri operational group that focuses specifically on the use of horses for extensive grazing and forest fire prevention. However, there are similar approaches with other grazing animals that illustrate the relevance of this strategy. There are also several European projects that emphasize the role of horses in semi-natural landscape management. Although not all projects focus exclusively on forest fire prevention, they demonstrate the ecological and operational value of using horses in extensive grazing.
- **Previnovic (Spain):** An EIP-Agri Operational Group exploring the use of sheep and goats to reduce combustible biomass in fire-prone landscapes. The aim is to apply sustainable grazing as a means of wildfire prevention. https://www.redpac.gob.es/en/news/previnovic-operational-group-studying-use-extensive-sheep-and-goat-farming-fire-prevention
- **Horse Grazing – Normandy (France):** A regional pilot promoting horse grazing to maintain biodiversity and landscape quality in Normandy. Focuses on training land managers and improving the environmental image of equine farming. https://eu-cap-network.ec.europa.eu/projects/horse-grazing-normandy_en
- **PaturBovEquin (France):** An EIP-Agri Operational Group testing mixed grazing with horses and cattle to improve pasture use, animal health, and reduce parasite loads in extensive systems. https://eu-cap-network.ec.europa.eu/projects/paturbovequin_en
- **Rewilding with Horses – Western Iberia (Portugal):** A rewilding initiative using semi-feral Sorraia horses to manage vegetation, prevent wildfires, and restore biodiversity in abandoned rural areas.
  - https://rewildingeurope.com/landscapes/greater-coa-valley/
  - https://rewilding-portugal.com/?gad_source=1&gad_campaignid=18569019060&gclid=CjwKCAjw1dLDBhBoEiwAQNRiQV6_DMZ3Ws2C2NzJhvmgZCFa7Yngfo-BWs2CoKv41vhnLxidBFuXGxoConAQAvD_BwE

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Annex

Ideas to Animate a Workshop About the Solution

- Ask an advisor or organisation specialised in extensive grazing, landscape management, or equine husbandry to sponsor or co-host the workshop.
- Identify a model equine farm or communal grazing area where horses are already used for environmental services (e.g. conservation grazing, common land management).
- Prepare practical demonstration tasks (e.g. grazing planning, monitoring, handling in open landscapes) and actively involve participants so they can experience the system in practice.

Proposed Structure for the workshop on Reduction of Extensive Horse Grazing for Environmental Services in Equines Farms

1. Introduction to the solution
- What is extensive horse grazing for environmental services?
- Role of horses in landscape management, biodiversity conservation, and wildfire prevention.
- Key components of the system (horses, land types, grazing intensity, management framework).
- Different implementation models (private farms, communal land, conservation areas).

2. Benefits of the solution in equine farms
- Contribution to environmental protection and ecosystem services.
- Diversification of farm activities and income opportunities.
- Improved public perception and social acceptance of equine farming.
- Meaningful, purpose-driven work for farmers and caretakers.

3. Practical Applications on equine farms
- Conservation grazing on grasslands, heathlands, and mountain pastures.
- Use of horses in fire-prone or abandoned landscapes.
- Integration with other land uses (e.g. mixed grazing, tourism, education).

4. How to Choose the most suitable grazing approach
- Assessment of farm objectives and available land.
- Evaluation of environmental conditions and conservation goals.
- Selection of suitable horse types/breeds and herd structures.
- Legal and administrative requirements (contracts, permits, subsidies).

5. Hands-On Demonstration
- Observation of horses at work in extensive grazing areas.
- Demonstration of handling, monitoring, and low-stress management techniques.
- Participant involvement in basic tasks (e.g. pasture assessment, setting grazing boundaries).

6. Maintenance and Troubleshooting
- Animal welfare considerations in extensive systems.
- Monitoring vegetation, grazing pressure, and horse health.
- Preventing overgrazing, erosion, and conflicts with other land users.

7. Case Studies and Real-World Examples
- Short presentations of existing projects (e.g. Normandy, Portugal, Spain).
- Discussion of implementation challenges and success factors.
- Lessons learned from farmers and project coordinators.

8. Cost Analysis and Return on Investment (ROI)
- Typical cost categories (infrastructure, labour, monitoring).
- Overview of public support schemes and environmental payments.
- Long-term value for farms and municipalities (non-monetary and indirect benefits).

9. Q&A Session
- Open discussion on practical concerns, regional constraints, and participant experiences.

10. Wrap-Up and Resources
- Summary of key messages from the workshop.
- Further resources (guidelines, funding portals, networks).
- Opportunities for follow-up exchanges or pilot projects.