Twelve steps to reduce Greenhouse Gas Emissions

Strategies to reduce emissions can also enhance efficiency and animal welfare

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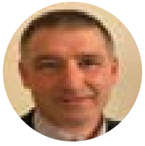

1 Soil test and prepare a fertiliser plan
Soil sampling is the critical first step in effective pasture management. It provides detailed information about the soil's nutrient levels, such as lime, phosphorous (P) and potassium (K) as well as pH balance and organic matter content.

This data helps identify nutrient deficiencies or excesses that can affect crop health and productivity.

Soil test results are the basis for your customised fertiliser plan. They guide you in applying the right nutrients in the right amounts and at the right time. This targeted approach enhances both quality and crop yield as well as reducing unnecessary input costs. It prevents over-fertilisation and nutrient imbalances, while minimising environmental risks, such as soil degradation and water contamination.

Soil samples should be taken from the top 10cm of soil, following a W pattern route, avoiding areas like gateways or latrines. Collect at least 20 cores per 2ha to 4ha. Don't sample a field within three to six months of a phosphorous (P) or potassium (K) application, or within two years of the last lime application.

2 Apply lime if needed
For optimal grass production, aim for a pH of 6.3 to 6.5 on mineral soils and 5.5 to 5.8 on peaty soils. This is crucial for nutrient availability (N, P, & K) and will enhance grass productivity each year. Lime application guidelines include:

- The maximum single application is 7.5t/ha, with the remaining lime applied two years later.
- Avoid over-liming soils, as this can reduce nutrient availability, particularly phosphorous (P).
- Lime can be applied at any time of the year, but it's most effective when applied to low grass covers (eg after grazing or cutting, or to prevent residue build-up).
- Maintaining soil pH helps release nitrogen (up to 70kgN/ha) from organic matter in the spring, which supports early season growth.
- For soils with high molybdenum (Mo) levels, maintain a pH below 6.2 to reduce problems with copper deficiency. Alternatively, follow lime recommendations and supplement animals with copper. High molybdenum levels can interfere with calcium, phosphorous, and copper utilisation – all essential for healthy development.
- For heavier and organic soils, apply lower rates (< 5t/ha), more regularly to avoid 'softening' the soil and to reduce the risk of poaching

Some farmers may opt for low-input permanent pasture, with restricted use of fertilisers, lime, and pesticides. While production will be greatly reduced, the result will be a more diverse sward, which benefits both flora and fauna.

3 Build and maintain good soil fertility
The Nitrates Action Plan regulations (March 2022) specify that the "phosphorous (P) index for soil shall be deemed to be index four unless a

soil test indicates a different P index is appropriate in relation to that soil".

This means that no phosphorous (P) chemical fertiliser can be applied without prior soil testing, with tests no more than four years apart.

For productive ryegrass swards, the goal is to achieve P and K index of three. Maximising grass production on haylage and hay areas is important for both yield and quality.

However, for grazing areas used by equines, this may not be necessary due to lower grass demand. Maintaining a P&K index of two may be sufficient for more extensively grazed farms and lower stocking densities of equines, depending on grass production requirements.

Apply fertiliser when soil and weather conditions are appropriate. This means when soils are at or above 5°C, the conditions allow machinery to work without damaging the soil structure, and there is a forecast of 48 hours of dry weather after application.

4 Make better use of farmyard manure (FYM)

Horse owners must decide whether to retain or export farmyard manure (FYM), a decision that should be based on several key factors:

- **Composting system:** The effectiveness and duration of the composting process should be evaluated. Proper composting reduces pathogens, parasites and weed seeds, making FYM safer for land application.
- **Anthelmintic resistance**: If there is evidence of anthelmintic (wormer) resistance on the farm, all FYM should be exported off-site to prevent further contamination and spread of resistant parasites. It is also good practice to test manure for parasites. Only spread if it is clear.
- **Land availability and use:** Land should be rested after FYM application to ensure the breakdown of manure and to get the growth benefits.

5 Better grassland management.

Mixing cattle or sheep with horses can help maintain a healthy and evenly grazed sward, reducing overgrazing in specific areas, and helping with parasite control. Cattle and sheep break the life cycle of the worms and are vital in the battle against parasites.

Sheep are great at cleaning up the grass that horses leave behind and in winter don't poach the land as much. Cattle are great if grass is too long as they will eat up all the toppings.

6 Improve animal health

The long-term benefits of proactive health management for equines – financially and environmentally – are immense. Reducing the need for antibiotics, lowering veterinary expenses, and minimizing feed waste not only make for a more efficient system but also support a more sustainable and ethical approach to equine care.

Prioritising disease prevention through vaccination, monitoring, and biosecurity practices will lead to better overall animal welfare, higher performance, and lower environmental impact.

7 Aim to breed sound horses

Incorporating genetic testing into breeding decisions is a key step in advancing responsible, effective, and sustainable breeding practices. It helps reduce the burden of veterinary interventions, minimises the risk of genetic diseases, and contributes to the overall welfare of the animals.

8 Improve breeding husbandry

Focus on reducing the number of matings per cycle while enhancing reproductive fertility indicators offers numerous benefits in terms of both sustainability and economic viability. By improving the reproductive efficiency of mares, equine enterprises can reduce resource use, lower costs, and increase productivity.

9 Maximise and maintain farm hedgerows

Hedgerows play an important role in sequestering carbon by storing it in woody growth, roots, leaf litter, and soil organic matter.

While newly planted hedgerows offer the greatest potential for carbon sequestration, allowing hedgerows to grow one metre outward and upward can also increase carbon capture by one to two tonnes per hectare per year.

Native trees and shrubs are especially valuable for heritage and biodiversity. In addition to carbon storage, hedgerows provide habitats for pollinators, plants, and wildlife, help prevent soil erosion, intercept water flows and offer shelter and stock-proofing.

10 Protect water quality

Protecting water sources (such as drains, watercourses, streams, lakes, wells, and abstraction points) from nutrient, sediment, and pesticide runoff is a key aspect of the nitrates regulations.

When applying fertilisers, cultivating, or spraying fields, it is important to consider buffer zones to reduce nutrient loss, sediment, and pesticide runoff, and to disrupt the flow of surface runoff.

A riparian buffer zone is an area adjacent to a water body where no chemical and organic fertiliser applications, cultivation and spraying can be carried out. Zones vary in width tailored to the specific landscape and water bodies they protect.

Runoff is most likely when soils are waterlogged, with excess rainfall causing fertilisers, chemicals, and sediment to be carried over the surface. In fields with poorer drainage, widening buffer zones enhances water protection.

Natural vegetation or native wooded or scrubby buffer zones help absorb nutrients, trap sediment, and improve water infiltration, while also supporting biodiversity, carbon sequestration, and riverbank stability. Your local ASSAP advisor can provide free guidance on riparian buffers.

11 Allocate field margins to nature

Field margins are crucial in supporting biodiversity and maintaining healthy ecosystems. They are strips of naturally growing vegetation along the edges of fields, adjacent to linear features like hedgerows. Here's a brief summary of key points:

- **Protection:** Fencing off field margins from livestock helps maintain their ecological integrity.
- **Mowing:** Cutting field margins in autumn, after flowering and once every three years helps prevent the vegetation from becoming overgrown and turning into scrub.
- **Spraying and fertilising**: Ensure a minimum distance of 1.5 meters between the crop and the field margin when applying chemicals. Avoid blanket spraying and refrain from using chemical fertilisers or manure within the margins.
- **Natural regeneration:** Allow natural plant growth and regeneration to enhance local biodiversity, without the need for sowing seed mixes.

This approach balances agricultural productivity with environmental conservation, creating habitats for wildlife and maintaining ecological health.

12 Reduce fossil fuel reliance

Integrating renewable energy sources, such as wind and solar, can diversify income streams, support sustainable energy production and offer long-term benefits.

However, it is crucial to conduct careful planning, understand regulations – including permits, grid connection requirements, environmental impact assessments, and planning permission – and perform comprehensive financial evaluations before initiating renewable energy projects.

By carefully considering these factors, equine owners can make informed decisions about incorporating renewable energy into their enterprises, leading to both environmental benefits and economic resilience.