



meadows, grass & pasture



what is it?

Grass is an angiosperm, or flowering plant, that can spread via side shoots and roots, so can survive and spread even if grazed / cut before producing seed, making it ideal for grazing animals. There are over 10,000 grass species. The words pasture, meadow & grassland are interchangeable, but pasture tends to be used more for grazing land, meadow for grassland cut for hay. The big difference though, is between unimproved and improved grassland. Unimproved grassland is usually species-rich, with quite poor soil, that hasn't been ploughed or fertilised – or at least not for a long time. It can support up to 30-40 plant species per m² (and up to 50 on chalk land). This supports many more species of butterflies and other wildlife. The problem for smallholders is that it's not financially viable for grazing or haymaking. However, in the UK there are grants to help - farmers are paid for production foregone.

Improved leys (grassland sown to be productive), are largely sown ryegrass, often with clover. Ryegrass is productive & responds well to fertilisers, but supports little wildlife.

The UK has lost c. 97% of its unimproved grassland since WWII, when there was an intensification of agriculture and farmers were paid to 'improve' their land, ploughing up old pastures and applying chemicals.

Natural grasslands include the prairies and Pampas of the Americas, savannas of Africa & steppes of Eurasia. Grasslands increased globally after the Neolithic Period as humans removed forest for grazing livestock and growing crops.

The main types of farmed grasslands are: upland acid (the least diverse); neutral (most lowland meadows); and calcareous, on limestone or chalk (the most diverse). There are also springline mires (wet, rushy ground around springs – quite diverse); lowland and upland heath (not strictly grassland, but still grazed); and lowland marshes and salt grassland alongside estuaries.



Plants of unimproved pasture: devil's bit scabious; crested dogstail; green-winged orchid; quaking grass; pepper saxifrage; red fescue; ragged robin; sweet vernal grass; snake's-head fritillary.

what are the benefits?

Unimproved: the natural climax vegetation of the UK, in the absence of humans, would be forest. But humans have removed natural forest cover for urban development, transport links and agriculture, sometimes replacing it with monocultures of fast-growing conifers.

Unimproved pasture is a habitat created by agriculture. Ironically, large areas have been destroyed by advances in agriculture over the last century. The biodiversity and importance of the remaining areas needs to be recognised. Native fine-leaved grasses such as red fescue, quaking grass, crested dogstail and sweet vernal grass are good for the sward (the composition of the meadow – i.e. grasses plus wild flowers) as they are almost never dominant and allow space for herbs and other grasses, which promotes a diverse and interesting sward. Native grasses are also the food plants for the larvae of grassland butterflies such as the meadow brown, hedge brown, ringlet and marbled white. Agricultural grasses such as perennial ryegrass, Timothy and cocksfoot tend to have a vigorous growth habit and dominate the sward at the expense of more interesting herbs and less competitive native grasses. Although cocksfoot is a good plant for wildlife (larval food plant of several butterflies) it can become dominant in under-grazed swards. Perennial ryegrass comes in many forms but supports very little wildlife and is almost never a good thing to have in grass sward managed for wildlife.

Improved: it's good to have clover in your improved pasture, as it's a nitrogen-fixer and so improves soil without the need for fertiliser, plus it's good for bees. Meat from pasture-fed animals is better for human health as it's lower in fat and richer in vitamins and minerals than meat from grain-fed animals. Also, animals fed on pasture don't require grain to be transported (and often imported), and their dung goes back to the land without the need for machinery or fuel. The animals themselves also tend to be healthier due to their less-intensive management, and so vets bills are generally lower.



Cattle on improved pasture; animals allowed to graze outdoors are healthier, and produce better meat than animals fed on grain and largely kept indoors.

what can I do?

Unimproved: it's important not to plough up, overgraze or fertilise unimproved grassland. If you have it, it's best to receive the grants to preserve it. In fact in England, it's illegal to plough more than 2Ha of unimproved grassland without an Assessment from Natural England. So the first thing to do for a smallholder is to get a survey by an ecological consultant to identify unimproved areas of best habitat. It's difficult to create species-rich grassland from improved pasture, as the soil is full of nutrients. Stop fertilising and take off repeated hay or silage crops over 5-10 years to reduce the nutrients; or you could strip the topsoil - a drastic step that would need heavy machinery. Unimproved pasture can be cut for hay in July/August – later than with improved pasture. Then it can be grazed again – this is called aftermath grazing. It makes good hay – the range of species means a large range of nutrients – just not big yields. Grants provide good compensation – comparable to what would have been made from intensive grazing. Plus there are supplements for grazing with cows - resulting in varied sward height, which gives more diversity of species. The key to diversity is reducing nutrients, which prevents domination by grasses that respond to high nutrient status. The key thing to reduce is phosphates. Nitrates are leached from the soil but phosphates are bound up in soil and vegetation. Removing vegetation reduces phosphates and promotes diversity. Sheep are not good on unimproved pasture, as they graze tightly, which can reduce diversity. The

exception is on chalk grassland, where sheep are traditionally used, and the sward has adapted to be short but very diverse.

Improved: land that is not unimproved can be improved - on grass, add manure, and on arable, add manure then plough in autumn or early spring. Work the ground down to a fine bed, then drill or sow a mixture of productive grass seed - mostly ryegrass but Timothy and cocksfoot are also productive. For organic farmers there are specialist, self-fertilising ley mixes that are high in red or white clover and/or other legumes – nitrogen-fixers that improve soil fertility.

A productive pasture needs good drainage, so field drains (backfilled with gravel to prevent blockages) will have to be added to wet spots. Weed control can be achieved via good husbandry rather than with herbicides. Weeds such as nettles or thistles need to be topped (cut) before they flower - it encourages grass and discourages weeds. There are special dock spades to dig out the roots of docks, and ragwort is poisonous so needs to be pulled out and burnt.

Fields can be harrowed in spring (using a tractor or horse/pony); the spikes remove dead grass, break up and spread dung piles, and let air and light into the sward to promote growth.

Overstocking can produce compacted, muddy fields, but understocking is bad too, as pasture needs to be grazed. Stocking is reduced in winter to prevent poaching (fields becoming a muddy mess). Bracken is cut or crushed to prevent it becoming dominant. Wet ground is usually grazed with cattle or ponies, as sheep tend to get foot problems. We appeal to people not to use productive land for pony paddocks, as it reduces the land available to produce food and pushes up land prices for smallholders.

resources

- see lowimpact.org/meadows-grass-pasture for more info, courses and books, including:
- Yvette Verner, *the English Meadow*
- J Newton, *Organic Grassland*
- Jo Chatterton, *Grasses*
- britishgrassland.com, British Grassland Society
- orgprints.org/8107/1/6.pdf, organic grassland – cornerstone of organic livestock farming
- pastureforlife.org, Pasture for Life
- britishgrassland.com – Grass & Forage Farmer Magazine

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