



Nidderdale
National
Landscape



A GUIDE TO creating species-rich grassland

Before using this resource, you may want to use our '**types of grassland found in Nidderdale National Landscape**' guide to better understand what type of grassland you currently own/manage. With this knowledge you will be better equipped to create a species-rich grassland suited to your field.

You may have identified the grassland you currently own/manage as being species-poor, with only a few species of plant present. Not to worry, while your grassland may not be species-rich now, it could be in future if you follow the steps below. This resource sheet provides information on how to create a species-rich grassland, from preparing the ground to sourcing wildflower seed.

IS CREATING A SPECIES-RICH GRASSLAND ACHIEVABLE?

High soil nutrient levels reduce the success of species-rich grassland restoration as they favour fast growing competitive plants such as Yorkshire fog or dock who access excess nutrients easily and then dominate. To have a species-rich grassland, lots of plants need to live together, and many of these are less competitive, comparably smaller and require low soil fertility. Removing nutrients from the soil is difficult, and potentially time-consuming, but achievable.

If you have identified your fields as being either improved or semi-improved, it would be a good idea to sample the soil in those fields to assess the nutrient levels. Soil sampling is a relatively easy and cheap thing to do and a good guide to soil sampling can be found here: [Soil sampling for habitat recreation and restoration](#). Alternatively, the Nidderdale National Landscape team can help with soil sampling.

REDUCING NUTRIENT LEVELS

Appropriate grassland types: All grassland types.

It is important to consider whether you will be able to reduce soil fertility in a reasonable amount of time (2-3 years), otherwise it may be more appropriate to create a different habitat in that area, e.g. woodland or scrubland.

There are several ways in which you can reduce soil fertility, all of which have positives and negatives.

Fertiliser:

It is recommended not to use any fertiliser on

a grassland that is being managed for nature conservation. This includes organic types such as manure and inorganic types such as sprays.

Mowing and removing vegetation:

If a grassland has high soil nutrient levels, and there are no ground nesting birds, then **cutting it 2-3 times a year and removing all the mown vegetation** will help drive nutrient levels down as removal of vegetation will remove nutrients from the soil. Piling the mown vegetation at the edges of your field in 'habitat piles' is a good use of the byproduct; applying it to compost or as a weed suppressant in your garden/allotment is another option. Alternatively, if unable to mow it yourself, ask a neighbouring farmer whether they would like to mow your fields and keep the mown vegetation to feed their livestock.

Topsoil removal:

Please note this is only suitable for small domestic areas such as a garden because it is time consuming. For larger agricultural fields an EIA screening would be required. This is a very invasive method of reducing soil fertility. It simply involves mixing the nutrient rich topsoil with the nutrient depleted soil underneath. This will lower the fertility of the soil at the surface, which you can then sow seeds into.

Depending on the scale of the project, machines are required to dig and remove the topsoil. Topsoil can be redeposited on the land itself to create a feature within the landscape or removed from site. This technique requires specialist machinery and is expensive.

COMBATting UNDESIRABLE PLANT SPECIES

Appropriate grassland types: All grassland types.

The soil can harbour seeds of undesirable plant species that lie dormant for years, and when the opportunity arises, they grow quickly; this issue is particularly present when converting arable fields to grassland. Small quantities of undesirable species should be tolerated though as they have wildlife value.

Ideally, undesirable plant species can be removed by hand through either pulling them up, selectively mowing or cutting them with secateurs before they set seed. If removal by hand is not possible, allowing undesirable species to grow uninhibited and then treating them with herbicide can be a good way of reducing their density as they would have invested lots of energy into growing, which weakens the root system. If undesirable species are at a high density, then weed wiping with herbicide is an option. If the invasive species are in isolated clumps, then more selective spot spraying is appropriate. Please note that herbicide treatment outside of a domestic garden can only be applied by a licensed professional.

Here is a list of undesirable species you may find and want to control:

- Creeping thistle
- Spear thistle
- Curled dock
- Broad-leaved dock
- Common ragwort
- Common nettle
- Cow parsley

GROUND PREPARATION BEFORE-SEEDING

Appropriate grassland types: All grassland types (including improved grassland where nutrients have declined).

Adding appropriate wildflower seed to a grassland is not as simple as spreading seed onto the ground and waiting for the plants to grow. Preparing the ground before sowing seed, and carefully managing the ground year-on-year after sowing is vitally important and will increase your chances of success.

For seeds to germinate they need a few things. Firstly, they need **contact** with the **soil** and the **sun**, so bare patches of soil surrounded by short vegetation is important. Next, they need to be **sown** at the **right time of year**; lots of species require several months of temperatures that dip below 5 degrees, so **sowing seeds in early Autumn is best**, but a general rule of thumb is before Christmas day. Finally, seeds need **water** to germinate but that shouldn't be an issue if you sow seeds at the right time of year.

CREATING BARE GROUND

Whether you are managing a species-rich grassland already, or are wanting to create one, **creating bare soil to help plants germinate** the following Spring is beneficial. Through either using machines such as a chain harrow, livestock, or simply using a rake in your garden, **breaking up the sward** and creating bare soil allows seeds to have contact with the soil and sun.

Aim for up to 50% bare ground distributed evenly across an area; don't create fully bare areas as you are likely to have more soil erosion during wetter months. Also, some plants, such as yellow rattle, need a grass partner to grow and won't establish in completely bare soil.

Chain harrow:

This is a blanket made of metal chains that is dragged behind a vehicle. It bounces across the surface, snagging on tufts and ripping up the sward. While this sounds invasive, it is an important process that increases the chances of successful seed germination.

Livestock:

Cows, ponies and horses are all great choices to help break up the sward and create bare soil. Remember though, too much bare ground is detrimental, so big and heavy animals can poach the ground too much. Rare native breeds such as Dexter cattle and Exmoor ponies have big hooves and a small body mass, allowing for them to create just the right amount of bare ground.

Raking:

This is a method for smaller areas of grassland, such as a garden or community space. While time consuming, a group of people can rake over a decent area in one sitting. Using a metal rake with strong teeth (tines) is recommended as the process can be hard on tools.

ADDING AN EXTERNAL SEED SOURCE

Appropriate grassland types: All grassland types.

Using an external seed source to increase the number of plant species within a grassland is a widespread practice. Existing species-rich grasslands being usually small, isolated and disconnected from one another, and it is hard for species to disperse across the landscape into favourable habitats. Often an external seed source will be needed to bring wildflowers into your grassland.

There are multiple ways to add seed to your grassland:

Green hay:

This method requires there to be a species-rich donor site nearby to a receptor grassland. Vegetation that set seed at a species-rich donor site is mown, collected, transported and then spread across a pre-prepared donor site. A golden rule is the ratio of 1:3 – 1 hectare of green hay from a species-rich donor site can be spread on 3 hectares of a receptor site. The green hay should be harvested and spread at the receptor site in less than one an hour, otherwise the vegetation can get considerably hot and make seeds sterile. After a few days, livestock can then be put on the receptor grassland to eat the mown vegetation and trample seeds into the soil.

If, for example, you currently manage/own a species-rich grassland, you could use green hay from this to help restore a species-poor grassland. Be careful not to take too much green hay from the species-rich grassland as this can damage it. **Take 1/3 of the area every 3 years to prevent damaging your precious resource.**

Brush harvested seed:

Seed is collected from a species-rich donor site using a brush harvester (seed collector) usually mounted on a quadbike. Only seeds and a small amount of vegetation

is collected, unlike with green hay where all the vegetation is removed and transported.

Seeds can be sown fresh or dried and spread at a later date. **Spread seed at a rate of 2-3g per meter squared which equals 20-30kg per hectare.** When sowing fresh seed make sure to do it on the same day. When drying seed to be used another time (ideally within 12 months), dry and store them in somewhere dark, cool and well ventilated.

Much like when using green hay, the seeds collected while brush harvesting are specially adapted to living in the local area, have greater genetic diversity, and are more suited to the local climate.



Brush harvested seed with chaff needing to be removed.
© Elizabeth Bishop.

Bought seed from suppliers:

It is important to purchase seed from a supplier that is as local to a receptor grassland site as possible. This will mean the seed is adapted to growing in a similar climate as the receptor site and will have a greater chance of successfully colonising. Ask for native seed only as some wildflowers can be sold as agricultural cultivars, e.g. red clover. Spread at the rate which is indicated on the seed packet.

Here is a list of seed suppliers based in and around Yorkshire:

- Heritage Wild Flowers, Bramhope. ([Heritage Wild Flowers - The North of England's Leading Wild Flower Specialist](#))
- Forest of Flowers, Huby. ([About | Forest of Flowers](#))
- Mires Beck Nursery, East Yorkshire. ([Our Wildflowers](#))

Collecting seed yourself:

Collecting seed either by-hand or using a motorised seed vacuum (a leaf blower on suck with the blades removed) is an enjoyable process allowing individual species to be targeted. It is really important to get a landowner's permission before collecting seed on

someone else's land. Only take seed from up to 1/3 of a plant or a plants area.

Seeds can be sown fresh or dried. **Spread seed at a rate of 2-3g per meter squared which equals 20-30kg per hectare.** When sowing fresh seed make sure to do it on the same day spread thinly. When drying seed to be used another time (ideally within 12), dry and store them in somewhere dark, cool and well ventilated. Storing seeds in paper bags, rather than plastic, once they have dried helps to prevent them from sweating.

FUNDING

To help fund grassland management, try and take advantage of agri-environment schemes. These can help fund restoration works and ongoing management. Below are two funding schemes which you may be eligible for:

Sustainable Farming Incentive (SFI):

[Sustainable Farming Incentive: guidance for applicants and agreement holders – this is currently unavailable and will become available in April 2026.](#)

Countryside Stewardship Higher Tier (CSHT):

[Countryside Stewardship Higher Tier](#)

Contact us

If you have any questions about managing your grasslands, please get in touch with our team:

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