



Gardening with Wildflowers

Why wildflowers?

- Apart from adding aesthetic appeal, wildflowers can invite more wildlife into your garden such as butterflies and birds.
- By creating new wildflower communities you can enjoy the challenge of introducing species that are naturally suited to your garden's micro-environment as well as help to re-populate your local landscape with species that may well be quite scarce.
- Gardens can often provide much needed corridors and oases for wildlife offering food and shelter within urban and intensively cultivated landscapes.
- You might prefer the idea of a 'wilder' look but wildflowers can also work well in more formal settings such as in rockeries herbaceous borders and in pots.
- You will certainly enjoy a lower maintenance style of gardening once your wildflowers are established and be able to propagate your own stock.



A general approach to creating a wildflower meadow

Choose areas with thinner soils rather than those with deeper soils. If you have time, leave an area unmown for a year and see what emerges. You may be surprised at what flowers!

You may be starting with a pre-existing turf. Perennial ryegrass is too vigorous and will smother wildflowers. If perennial ryegrass constitutes no more than 30% of the turf you can choose to introduce wildflowers as plug plants or as seed in small patches of removed turf or raked/hoed gaps rather than removing turf entirely and starting from scratch. If you have a lawn containing a higher proportion of ryegrass, this turf is best removed altogether by rotovating, inverting or spraying off before introducing seeds or plugs. A grass and wildflower seed mix can then be sown on bare ground.

Wild flower seed mixes, normally containing 80% non-invasive grasses and 20% wildflowers can be purchased from a variety of suppliers. Seed mixes can either be designed to suit different soil types and situations or can reflect the species mix of specific habitats you may wish to create. In the first stages of establishment, selection of wildflowers should usually focus on easy-to-grow, widely adaptable species which are attractive in flower and/or known to be food sources for insects and other wildlife. As the meadow or glade develops, more sensitive and demanding species may be introduced, usually with small scale trials followed by more extensive planting.

Avoid fertilisers! These will favour the more vigorously growing grasses and plants such as nettles, docks and thistles which will smother wildflowers.

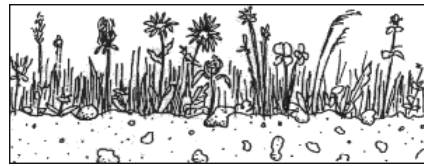
Perennial ryegrass
(*Lolium perenne*)



The soil fertility will largely determine whether your meadow is going to be successful and the types of wildflower seed needed. Some soils are too rich to attempt meadow creation. Garden centres supply inexpensive soil testing kits which will help to assess fertility. Do not despair if the soil is too fertile, you could create a cornfield flower patch instead. Simply sow a mixture of cornfield annuals (such as poppies, cornflowers, corncockles, corn marigolds and corn chamomile) over bare soil for a colourful display. After the flowers have set seed, rake over the soil so that there is open ground for them to grow next year.



Rich soils encourage vigorous grasses and invasive species like thistles, nettles and docks.



Less fertile soils support a greater diversity.

A good rule of thumb is that the larger or taller the plant, the better its ability to compete in the more fertile soils. Plants able to succeed in richer soils include: Meadow Cranesbill (*Geranium pratense*), Black Knapweed (*Centaurea nigra*), Red Campion (*Silene dioica*), White Campion (*Silene latifolia*), Tufted Vetch (*Vicia cracca*), Common Vetch (*Vicia sativa*), Meadow Buttercup (*Ranunculus acris*), Great Burnet (*Sanguisorba officinalis*), Meadowsweet (*Filipendula ulmaria*), Meadow Vetchling (*Lathyrus pratensis*), Oxeye Daisy (*Chrysanthemum leucanthemum*) and Devil's-bit Scabious (*Succisa pratensis*).

Remember ...

- It is important to always use locally sourced seed and plants to if you wish to help conserve the local varieties of wildflower best adapted to your area. This will also increase your chances of success. Never use imported seed or plants grown from unreliable sources.
- There are a growing number of suppliers specialising in wildflowers, from whom you can choose your mix. Supplier lists provided by websites like www.floralocale.org can help you to check for 'local provenance' before buying (see last page).

Plants versus seeds

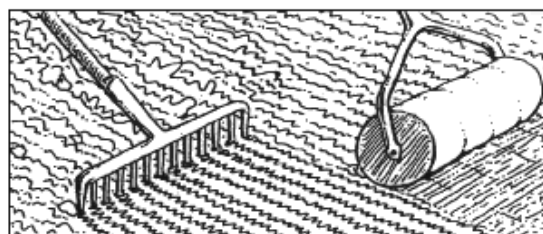
If you are able to start with large areas or patches of bare soil, seeds offer the cheapest option; but germination of wild seeds tends to be erratic and for perennials you should not expect flowering in the first season. Using plants rather than seeds provides a more reliable option giving complete control over the planting arrangement. Plug plants can be bought or propagated from seed and inserted into turf if you do not wish to disturb an established lawn. They can be effective in high visibility locations and for introducing species such as Harebell (*Campanula rotundifolia*) and Meadow Cranesbill (*Geranium pratense*) which are difficult to establish from seed or slow to flower. Sloping sites can make seeds vulnerable to erosion so such locations may be plug planted to ensure better results. Plug plants can be used to augment seed-sown areas to achieve faster effect. The two options are discussed overleaf.

Starting from scratch

This is the best way to create a wildflower meadow if vigorous grasses and invasive plants have taken over and no special species are already present. Good ground preparation is essential for success. The conventional use of fertile topsoil in landscaping is not only expensive but damaging to meadow establishment. Establishing and maintaining a naturally low soil fertility will be the key to success, as well as the control of invasive weeds in the early stages.

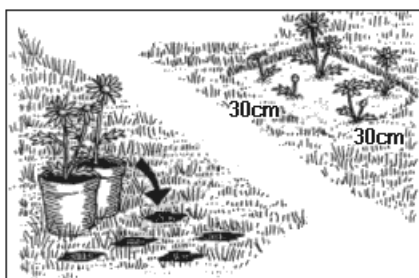
You can reduce fertility by stripping off the top 5-10cm of topsoil or by burying vegetation and the top layer of soil with a rotavator or excavator leaving mineral soil at the surface. After allowing the seed bank of weed species to germinate and letting weed seedlings begin to grow, you can then rake or spray with glyphosate. By repeating this process you will exhaust the weed seed bank and reduce any residual problems in future. If you are working with only a small area, patches of turf can be removed with a spade and emerging weed seedlings can be hand weeded.

The best time to sow your wildflower seed is in early autumn. You can sow in April, but many seeds need the cold winter months to break their natural dormancy. Before spring sowing, leave seeds in moist sand in a freezer between - 4 and +4 °C for between 4-6 weeks.



For best results sow a suitable wildflower+grass seed mix or sow patches of specific wildflower seed into an area which is lightly seeded with a natural grass mix at the same time. The sowing rate should be very low to avoid overcrowding. Seeding rates of between 2-4g of wildflower+grass mix per square metre can be used depending on your budget. A lower density will cause a meadow to establish more gradually. To achieve an even spread of seed, mix it with sand or sawdust. Immediately after sowing, rake the surface only lightly and firm with a small roller to ensure good seed-soil contact but do not bury the seed deeply. Wildflower plug plants can be introduced subsequently.

Converting an existing grassy area into a meadow



When starting with a pre-existing turf, plants can be inserted directly into the sward, preferably into bare patches after physical removal of small turfs. Simply scattering wildflower seed over grass will not be successful. You will have to make gaps to give the flowers a chance to grow. An effective way to do this is to remove small squares of turf and topsoil or by hoeing small gaps in the turf then seeding these gaps with a few carefully chosen types of wildflower in the autumn.

Alternatively or additionally, wildflowers can be introduced into grassy areas as pot grown plants. Local stock can often be bought from nurseries or grown from seed. Plant them in groups into the turf. Autumn planting is best to allow the roots to become established before competition from other plants builds up in the spring. The soft ground conditions also facilitate planting. Planting in spring is next best. To help reduce nearby competition, replace the turf upside down around them and space at 6-10 per m². Toilet rolls can be used instead of pots and will biodegrade in soil so that the roots need not be disturbed by planting. Peat free compost is far better for the environment and can be sieved in the top 1/3 for seedlings.

Aftercare

The grass management program during the first year is critical for success. During this season the vegetation should be cut down to around 5 cm whenever the sward reaches 10-20 cm or every 6-8 weeks. This will knock back unwanted 'weeds' such as groundsel and chickweed. Any thistles and docks should be pulled up. This will help the perennial meadow plants to become established. The number of cuts required will depend on the soil's fertility. Always rake off the cuttings to prevent a build up of dead plant material and fertility.



Options for your mowing regime after the first year:

- Generally...
Mowing and clearing of cuttings once each year after mid-July is the minimum requirement for survival of a wider range of species. If the soil is fertile, or the growing season is especially good, strong grass growth will result. This can swamp wild flowers and cause lodging (falling over) which can appear untidy in the late summer. The management regime can be modified accordingly. One, and possibly two additional cuts (if the site is especially fertile) in the spring and early summer (i.e. April/May) can be introduced. Cutting at this time reduces the grass's vigour and will result in a shorter sward and a later flowering period.
- If your soil is infertile and/or you have a brushcutter/strimmer...
Mowing in September/October ensures the maximum time for plants to flower and set seed but large volumes of standing or flattened vegetation (with its attendant fire risks) may then need to be removed.
- If children will want to use your lawn as a play area...
A July cut enables many Spring and early Summer species to seed; the vegetation remains quite short and tidy during the later Summer months (useful for recreation in the school holidays) and some species will flower a second time in the Autumn.
- If tidiness is important...
May-June cuts will selectively weaken the most vigorous grasses, leaving a tidy appearance in summer and giving the maximum period for late flowering species to set seed. See 'Flowering Lawns' on page 7.
- If you want to put wildlife first...
Cutting a whole meadow in one go can take away all the food and shelter needed by insects and destroy larvae, so leave some areas uncut for them. The best way to do this is to cut parts of your grassland in rotation (every 2-4 years). For example, cutting only one 4m margin each year is an example of how you can maintain neatness but also important habitat. The cuttings must be removed. When using a strimmer, please make sure that you are not injuring or killing small animals such as amphibians, lizards and small mammals.

Types of natural community you could create...

As with all plants in the garden, wildflowers need to be chosen to suit the micro-environment of their situation. Key factors are: soil type, acidity, drainage and the levels of soil nutrients. Garden suppliers often stock soil testing kits which can help you assess what strengths to play to. Below is a list of plant communities that may give you ideas to suit your location.

Fertile Grassland Meadow:

In a fertile grass area the taller and more vigorous wild flowers must be used. Possible choices are Oxeye Daisy (*Leucanthemum vulgare*), Greater Knapweed (*Centaurea scabiosa*), Black Knapweed (*C. nigra*), Meadow Cranesbill (*Geranium pratense*), Musk Mallow (*Malva moschata*), Field Scabious (*Knautia arvensis*), Devil's-bit Scabious (*Succisa pratensis*), Red Campion (*Silene dioica*), White Campion (*Silene latifolia*) and Yarrow (*Achillea millefolium*). Plants such as Yellow Rattle (*Rhinanthus minor*) and Red Bartsia (*Odontites verna*) paratise vigorous plants around them and can hold their own if the growth is not too tussocky. Scrambling plants such as Tufted Vetch (*Vicia cracca*), Common Vetch (*Vicia sativa*), Meadow Vetchling (*Lathyrus pratensis*) and Hedge Bedstraw (*Galium mollugo*) can also do well. Mixed planting can create an attractive blend of white, blue, yellow, pink and purple capable of maintaining appeal from May to September.

Low Fertility Limestone Meadow:

This low-growing, mixed sward can comprise the broadest range of wildflower species. Examples are Cowslip (*Primula veris*), Birds-foot Trefoil (*Lotus corniculatus*), Horseshoe Vetch (*Hippocrepis comosa*), Small Scabious (*Scabious columbaria*), Lady's Bedstraw (*Galium verum*), Clustered Bell Flower (*Campanula glomerata*), Field Scabious (*Knautia arvensis*), Greater Knapweed (*Centaurea nigra*) and Common/Black Knapweed (*Centaurea nigra*), Wild Marjoram (*Origanum vulgare*), Thyme (*Thymus drucei*), Yellow Toadflax (*Linaria vulgaris*), Selfheal (*Prunella vulgaris*), Dropwort (*Filipendula vulgaris*) and Harebell (*Campanula rotundifolia*).

Acid Grassland:

These grasslands generally have less floristic interest but important species include Common Tormentil (*Potentilla erecta*), Heath Bedstraw (*Galium saxatile*) along with Selfheal, Yarrow, Catsear, Birds Foot Trefoil, Harebell, Meadow Buttercup and Sheep Sorrel (*Rumex acetosella*).

Damp and Wet Meadow:

Yellow Flag Iris (*Iris pseudacorus*), Marsh Marigold (*Caltha palustris*), Purple Loosestrife (*Lythrum salicaria*), Bogbean (*Menyanthes trifoliata*), Water Mint (*Mentha aquatica*) and Lesser Spearwort (*Ranunculus flammula*) thrive in wet sites and provide useful feature flowers at water margins. Try planting drifts of the following species in damp grassland areas: Cuckooflower (*Cardamine pratensis*), Meadowsweet (*Filipendula ulmaria*), Meadow Vetchling (*Lathyrus pratensis*), Hemp Agrimony (*Eupatorium cannabinum*), Bugle (*Ajuga reptans*), Selfheal (*Prunella vulgaris*) and Ragged Robin (*Lychnis flos-cuculi*).

Woodland Ground Layer:

The shade level of the site should be sufficient to at least severely weaken grass growth. No site preparation is necessary in weed free, semi-shaded or shaded areas. If vegetation levels are high some initial ground pre-treatment is necessary with herbicide or mulch to control weeds. Seed may be distributed by hand in late September/October or February/March. Some of the species require a period of cold for germination. The seeding rate is about 1 gram/m². In small areas it may help to rake the seed in a little but do not bury it. In large scale seeding operations good results are obtained without raking. Most species will germinate in the first season. Red Campion is usually the first plant to establish itself. Bluebells are slower germinating, requiring a warm and a cold treatment to germinate. They may not germinate until the second season. Thereafter it can take 4 or 5 seasons to produce flowering bluebell plants. Ensure the bluebells you introduce are native bluebells NOT Spanish Bluebells or their hybrids. Depending on light levels, an annual cut may be necessary in mid-summer.

Wetter soils suit Wild Garlic (*Allium ursinum*), Lesser Celandine (*Ranunculus ficaria*), Bugle (*Ajuga reptans*) and Yellow Archangel (*Lamium galeobdolon*). Drier soils suit Red Campion (*Silene dioica*), Wood Anemone (*Anemone nemorosa*), Bluebell (*Hyacinthoides non-scriptus*) and Snowdrop (*Galanthus nivalis*).

Cornfield Annuals

Cornfield annuals seed may be sown onto poor, medium or fertile soils at 1 to 2 grams per square metre. The optimum sowing period is autumn to early spring and flowering will occur in 3-9 months, reaching a peak in June. A late spring sowing will shift flowering into middle and late summer. Cornfield annuals can be re-established each year by rotovating the dead plants. Cornfield annuals can be sown in addition to a perennial meadow seed mix to produce some colour interest in the first year. Once the cornfield annuals have flowered the area should be cut and the cuttings removed so that this lush growth does not smother the emerging perennial seedlings. In this way, the annuals will give way to perennials over several growth seasons.

A 'biological lawnmower' ...

Yellow Rattle (*Rhinanthus minor*) is sometimes introduced as part of a wildflower seed mix for neutral soils. Apart from being an attractive wildflower in its own right, the plant is semi-parasitic on grasses, suppressing their growth. This is particularly useful in more vigorous grassland where other wildflower germination and establishment would otherwise be inhibited by competition from the grass. Yellow Rattle is an annual which germinates in early March and its seed ripens in July. The seed needs to over-winter on the soil surface or be 'vernalised' in the freezer for 4-6 weeks before it will germinate. Mowing must not take place before seed has ripened to maintain this annual as part of the sward.

Garden landscape designs using wildflowers

It is possible to create a spectacular display by using restricted colour schemes of one or a few species in clearly defined blocks. Set out below are some design ideas that have proved highly successful:-

Cowslip Meadow

Cowslips (*Primula veris*) can be planted into a lawn which is kept mown at 5 cm until late February/early March. Grass cutting is stopped and the cowslips are allowed to flower for at least six to eight weeks in April and May. Cutting can be started after flowering is finished or in mid June to allow for seed dispersal. Thereafter the lawn is cut as normal.

Flowering Lawns

These are mixed swards made up of grasses and a range of wild flowers that are extremely tolerant of cutting. The grass is cut four to six times during the season. Wildflowers that can be planted include Bird's-foot Trefoil (*Lotus corniculatus*), Cats Ear (*Hypochoeris radicata*), Selfheal (*Prunella vulgaris*), Rough Hawkbit (*Leontodon hispidus*), Hoary Plantain (*Plantago media*) and Ground Ivy (*Glechoma hederacea*).

Red Campion Hedgerow

A particularly effective way to use Red Campion (*Silene dioica*) is to plant along the edge of woodland and hedges. These vivid pink wild flowers can create a solid mass colour in May and June. The plants can be cut back any time after flowering.

Oxeye Daisy Drifts

Oxeye Daisy planted at 10 per m² will, within two years, create a dramatic, highly visible and reliable block of white flowers from June to August. The key to sustainability is to open up the grass sward after the Autumn cut, for example by vigorous raking. Other effective plants to use in solid drifts include Chicory (*Cichorium intybus*) on dry sites, Toadflax (*Linaria vulgaris*), Musk Mallow (*Malva moschata*), Greater and Black Knapweed (*Centaurea scabiosa* and *C. nigra*), Field Scabious (*Knautia arvensis*), Sainfoin (*Onobrychis viciifolia*) and Meadow Cranesbill (*Geranium pratense*).

Primrose Bank

Primroses (*Primula vulgaris*) are shade loving and can be planted into steep north- and east-facing banks. Normal grass management is introduced after flowering.

Wild Flowers for Herbaceous Borders or Pot Displays

Dense plantings of wildflowers will provide a long flowering season, attract butterflies, require no weeding and will only need to be cut down at the end of the season. At the front of the bed spring flowering and the lower species are planted such as Cowslips, Wild Thyme, Harebell, Birds Foot Trefoil, Common Toadflax, Primrose, Lady's Bedstraw, Cuckoo Flower and Small Scabious. In the middle of the border are planted Self Heal, Musk mallow, Yarrow, Red Campion, White Campion, Ragged Robin, Vipers Bugloss, Water Avens, Purple Loosestrife, Clustered Bellflower, Agrimony, Beton, Devils Bit Scabious and Meadow Cranesbill. At the back of the border the tallest plants are planted such as Oxeye daisy, Greater and Black Knapweed, Field Scabious, Chicory, Sainfoin, Meadowsweet. Tufted Vetch and hedge bedstraw will clamber over other species and make excellent climbers of low fences.

Supporting your local ecosystem

Benefiting pollinators:

By growing wildflowers that overlap in flowering period throughout the year you can provide a much needed continuity of nectar supply for pollinating insects. Most flowers appear mid-season so to spread out the food supply ensure you have both early and late season nectar sources.

Early Season:

Cuckooflower, Garlic Mustard, Apple / Cherry blossom, Blackthorn, Lesser Celandine, Red dead nettle, Ground Ivy, Common Daisy, Primrose, Germander Speedwell.

Late season:

Ivy (especially on south-facing walls), Devil's-bit Scabious, Hedge and Lady's Bedstraw, Clustered Bellflower, Wild Carrot, Harebell, Wild Marjoram, Wild Basil, Sedum, Common Restharrow, St John's-worts, Selfheal, Creeping Cinquefoil, Ragwort, Yarrow.

Inviting butterflies and moths:

Flowers that suit the tongue length of butterflies and moths include the Greater and Black Knapweed; Field, Small and Devil's-bit Scabious; thistles, Red Valerian, Wild Marjoram, Purple Loosestrife and Honeysuckle. As well as nectar for adult insects, butterfly and moth larvae often need specific food plants. Just by leaving grass uncut you will be supporting Ringlet, Speckled Wood, Meadow Brown and the Large, Small and Essex Skippers as well as many moths. Cuckooflower and Garlic Mustard are vital for the Orange-tip and Green-veined White. The Common Blue depends upon Common Bird's-foot Trefoil and Black Medick. Common Sorrel or Broad-leaved Dock will encourage the Small Copper. Holly and Ivy are required by the Holly Blue. In sunny spots, fresh growth of Common Nettle will support Peacock, Small Tortoiseshell, Red Admiral, Comma and many moths. Allowing some thistles to grow will provide for Painted Lady. Among shrubs and trees, Willows, Oaks, Hawthorn and Blackthorn together support the majority of moth caterpillars. By adding Purging or Alder Buckthorn the Brimstone is also encouraged.

Feeding birds:

Garden birds are supported either directly by providing seeds and fruits or indirectly by supporting the above food plants for their insect prey. Nesting birds will require protein-rich caterpillars for rearing young in spring. Over-wintering birds and winter visitors will need to maintain energy reserves to cope with the cold. Annuals, thistles & knapweeds provide a supply of seeds for finches in autumn. Fruits from native shrubs such as roses, Hawthorn, Blackthorn, Wild Privet, Elder, Guelder Rose, Bramble, Honeysuckle, Cherry and Crab Apple are especially vital to thrushes, blackbirds, waxwings, redwing and fieldfare over winter.

Keeping ponds native:

In any areas of wetland avoid introducing exotic plant species – these can become invasive in your pond without natural predators and can easily spread elsewhere to natural water courses and still waters. Establishing a variety of depths in your pond will allow different plants and animals to find their niche. Planting water mint provides a good source of seed for birds.

Contacts and websites:

Wild meadow creation factsheets:

- The Lincolnshire Wildlife Trust : www.lincstrust.org.uk/factsheets/meadow/
- Flora Locale for a list of recommended seed suppliers (marked with a flower logo) www.floralocale.org

A recommended Book:

“Where have all the flowers gone?” Charles Flower, Papadakis, ISBN 978-1901092820.

Suggested seed and plant suppliers for Lincolnshire:

- British Wildflower Plants: www.wildflowers.co.uk
- BSH Amenity: www.bshamenity.com
- Growing Wild (with stock from LWT reserves): Dave Jenkins, growingwild@postmaster.co.uk 07901535354 01205359935

Credits:

Dixie G. (H.V. Horticulture) and Bisgrove, R. (Reading University) – (1996)

Lincolnshire Wildlife Trust: www.lincstrust.org.uk

Flora Locale: www.floralocale.org

“Where have all the flowers gone?” Charles Flower, Papadakis.