The encyclopaedia of arable weeds (Common names Q to Z only)
Ragwort
*Senecio jacobaea*

**Seed statistics**
- Seed longevity: >5 years
- Seed weight: 0.2 mg
- Seeds/head or capsule: 100
- Seeds/plant: 50,000–60,000

**Location**

**Geographic location**
Ragwort is commonly found on grasslands and neglected land, headlands and verges. Growing to an altitude of nearly 700 m.

**Soil type**
It grows in a wide range of soils, between pH 5 and 7.
**Description**
It is a medium-tall, hairless biennial, not very branched, with a basal rosette of grey-green, roundly divided leaves. The flowerhead has groups of yellow daisy-like flowers.

**Key features**
**Plant:** The plant contains the poison jacobine, which is fatal to livestock.

**Biology**
Ragwort can be abundant in poor pasture and wasteland, particularly on sandy free-draining soils. It is rarely found as an arable weed, but does establish in fallows and field margins. Seedlings germinating in autumn can overwinter as leafy plants. The plant may take more than two years to flower. Seed is not dispersed far from the parent plant, but can survive grazing and can be transported by sheep. The flowering shoots die by winter.

**Management**
Dense grass swards which are not over-grazed reduce establishment. In grass, MCPA or 2,4-D may be used at full dose on the rosettes in late spring or early autumn.
Red dead-nettle
*Lamium purpureum*

**Seed statistics**
- Seed longevity: >5 years
- Germination depth: 0.9mg
- Seed weight: 0.9mg
- Seeds/flower: 4
- Seeds/plant: 0–1,000

**Life cycle**

**Location**

**Geographic location**
Red dead-nettle mainly grows on sites with bare soil, such as arable land, gardens, soil heaps and demolition sites. It is generally a lowland species growing up to an altitude of 300m, but has been found at 600m.

**Soil type**
It prefers relatively fertile soils, sandy loams with moderate organic matter and rich in nutrients.
**Description**

It is a downy, purplish-tinged bushy annual dicotyledon 10–40cm tall. The leaves are heart-shaped with toothed edges. The flowers are purplish pink and cluster in conspicuous whorls round the stem.

**Key features**

**Young plant:** The first true leaves are more triangular than those of henbit dead-nettle.

**Plant:** The foliage is often tinged with purple.

**Lookalikes**

Red dead-nettle may be confused with henbit dead-nettle; dead-nettles can be difficult to distinguish at the seedling and young plant stages.

**Biology**

Red dead-nettle is common on arable land; it may be encouraged by minimal cultivation techniques. The plants may overwinter with green leaves but it is mainly annual. It can set seed before the canopy is developed. Non-flowering shoot tips can also re-root after spring cultivations and can go on to establish and set seed. Seeds can be locally moved by ants.

**Management**

Although it occurs in both winter and spring crops, it is more common in early sown winter crops, suggesting it may be controlled by spring cropping. A large range of herbicides suitable for broad-leaved weeds may be used.
Red fescue
*Festuca rubra*

**Location**

**Geographic location**
Red fescue grows over the whole of the British Isles in many grassy habitats such as road verges, meadows and pastures up to an altitude of 1,080m. It has many varieties.

**Soil type**
It grows in alkaline-rich soils and even rocky habitats, but is not usually found where there is a large amount of exposed soils.

**Seed statistics**
- Seed longevity: 1–5 years
- Seed weight: 1mg
- Seeds/head: 100
- Seeds/plant: 10

**Life cycle**

- Seed shed
- Flowering
- Germination

**Value to biodiversity**
- WOSR
- WW
- Spring crops
- Resistance

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148
Description
It is a densely tufted perennial grass, 15–90cm tall. It spreads by rhizomes. The leaves are green or greyish-green and bristle-like. The flowerhead tapers to a point but is rather one-sided.

Key features
Plant: Stems are red at the base.

Biology
Red fescue can establish in arable land but does not persist with cultivation. It is commonly found in field edges and many other relatively undisturbed habitats. Red fescue grows rapidly in spring after overwintering. It can also reproduce vegetatively when the rhizomes which attach child plants die.

Management
It is relatively tolerant of foliar-acting herbicides because of its bristle-like leaves reducing uptake, so high doses are generally required.
**Redshank**  
*Persicaria maculosa*

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### Life cycle

- **Seed shed**: Not present
- **Flowering**: More likely
- **Germination**: Very likely

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### Seed statistics

- **Seed longevity**: >5 years
- **Germination depth**: 1.5cm
- **Seed weight**: 2.05mg
- **Seeds/flower**: 2–4
- **Seeds/plant**: 200–800

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### Location

**Geographic location**

Redshank is a lowland weed growing to an altitude of up to 200m. It is found on disturbed bare soils, such as arable land and soil heaps.

**Soil type**

It is found on a wide range of soil types but prefers sandy soils rich in nutrients and organic matter and well aerated, in the pH range 5–7.

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![Map of Redshank distribution in the UK](map.png)

- **Not present**: [Shaded region]
- **Unlikely**: [Green region]
- **More likely**: [Yellow region]
- **Very likely**: [Green region]
Description
It is a sprawling hairless annual which may have an upright stem. It has dark spotted tapering leaves. The flower spike is small but dense with pink flowers. The loose sheaths over the leaf stem base have long hairs.

Key features
Plant: The stem is hairless and the leaves have a characteristic blotch.

Flowers: The flowering spike is less dense than that of pale persicaria.

Lookalikes
Redshank may be confused with pale persicaria: pale persicaria has silvery hairs on the first true leaves, but redshank is not hairy. The first leaf of redshank is broad but that of pale persicaria is long and narrow.

Biology
Redshank is a common weed of spring crops. Seeds are retained on the plant and can contaminate grain at harvest. During cultivations plant fragments can root at the nodes. Plants are frost susceptible.

Management
Redshank is controlled by a range of hormonal and sulfonylurea herbicides in cereals and by many residual herbicides in most spring sown-crops.
Rough-stalked meadow-grass
*Poa trivialis*

**Seed statistics**
Seed longevity: 1–5 years
Seed weight: 0.14mg
Seeds/head: 1–10

**Location**

**Geographic location**
Rough-stalked meadow-grass occurs in damp, fertile and sometimes disturbed land with large amounts of bare soil. It is most frequent in lowland areas but has been identified at an altitude of 760m.

**Soil type**
It grows on all but the most acidic soils but is usually found at pH> 5. It prefers moisture-retentive soils.
**Description**

It behaves like an annual in cereal crops or can grow as a semi-rosette with creeping leafy stolons. Stems may reach 90cm, but are usually prostrate. The leaf blade is folded with a curved tip. The flowerhead is a conical shape.

**Key features**

**Plant:** The leaf sheath is rough and the lower leaf surface is glossy with a prominent ridge.

**Biology**

Rough-stalked meadow-grass is palatable to stock and is useful for hay. It tends to flower in winter cereals, but spreads by stolons and does not produce flowerheads in spring cereals. Although plants can overwinter they do not grow before April. Growth in spring is fast, but leaves are short-lived. Seedlings generally germinate immediately after seeds are shed, although some remain dormant. Vegetative reproduction can also occur from stolon fragments.

**Management**

Ploughing reduces populations so that plants tend to be more frequent in minimum tillage. A wide range of herbicides is available for controlling rough meadow-grass. Although it is harder to control than annual meadowgrass, some residual grass herbicides are reasonably effective. In winter rape, propyzamide and carbetamide are also effective.
Round-leaved fluellen
*Kickxia spuria*

**Location**

**Geographic location**
Round-leaved fluellen is a lowland species which often grows with the sharp-leaved species in cornfields and other arable fields and gardens.

**Soil type**
It likes weakly acid to weakly alkaline soils low in nutrients, including light soils over boulder clay. It prefers light conditions.

**Seed statistics**
- Seed longevity: >5 years
- Seed weight: 0.39mg
- Seeds/flower: 25
- Seeds/plant: 2,000

**Life cycle**

- Seed shed
- Flowering
- Germination

**Value to biodiversity**

- Not present
- Unlikely
- More likely
- Very likely

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Not present  More likely
Unlikely  Very likely

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WW  WOSR  Spring crops  Resistance  Value to biodiversity
**Description**

It is a sprawling dicotyledon, growing to 20–40cm, with glandular hairs.

**Key features**

**Young plant:** The first true leaves are rounder than those of sharp-leaved fluellen.

**Plant:** The leaves are almost circular.

**Flowers:** The flowers resemble those of snapdragon and are bright yellow with a brown upper lip.

**Lookalikes**

Round-leaved fluellen is difficult to distinguish from sharp-leaved fluellen: the cotyledons are smaller and rounder while the first true leaves are also rounder.

**Biology**

Round-leaved fluellen needs warmer conditions than sharp-leaved fluellen so it is more common in southern Britain. It is a poorly competitive species found in uncompetitive crops, particularly perennial and row crops. Seeds germinate in spring and set seed usually after harvest. Plants often grow lower than the combine cut, so can set seeds in late-ploughed fields.

**Management**

It is readily controlled by cultivation and seldom found in competitive winter crops or grass ley rotations.
Rye brome
*Bromus secalinus*

**Seed statistics**
Seed longevity: <1 year
Seed weight: 3.33mg
Seeds/plant: 10–100

**Life cycle**
Unknown

- Seed shed
- Flowering
- Germination

**Location**
**Geographic location**
Rye brome is a lowland weed, found in cereal fields, and waste ground and some improved leys.

**Soil type**
It is usually found in areas on soils with average moisture and reasonable but not high nitrogen, pH about 5.
Description
It is a rather variable robust annual grass with stems usually 50–100cm tall. Leaf blades have rough surfaces and are pointed.

Key features
Flower: The leaf sheaths are usually hairless or the lower ones can be sparsely hairy.
Flowers/fruit: It has flattened spikelets with short awns.

Biology
Rye brome was most probably introduced to the UK as a contaminant of cereal seeds. It was once grown as a grain crop and was very common as a weed in the past, often dominating fields of wheat. With improved methods of cereal grain cleaning, it is now uncommon to rare, generally found in headlands of winter-sown crops. It propagates only by seed and can be found in large patches.

Management
Shed seed should be kept on the surface for 4 weeks before cultivation to allow ripening and killed with a glyphosate application before sowing subsequent crops. Deep cultivations or mouldboard ploughing, to bury seeds below 20cm, will reduce numbers in following years. Spring cropping is effective for control, as is fallow land, as long as emerging plants are controlled before setting seed.

Moderate control can be achieved by a variety of herbicides in cereals. Greater control may be achieved in broad-leaved crops.
Scarlet pimpernel
*Anagallis arvensis*

**Seed statistics**
- Seed longevity: >5 years
- Seed weight: 0.5mg
- Seeds/flower: 12–45
- Seeds/plant: 100–12,000

**Location**
**Geographic location**
Scarlet pimpernel is a common annual weed of cultivated and waste ground with a widespread distribution in arable soils and some semi-natural habitats. The blue form prefers south-facing slopes.

**Soil type**
It grows in many soil types with neutral pH in partial shade to sun.
Description
It is a slender, hairless annual dicotyledon with prostrate, sprawling or upright four-angled stems, 5–50cm long. The flowers are bright scarlet. There is a rare form of scarlet pimpernel with bright blue flowers.

Key features
Young plant/plant: There are tiny brown dots on the undersides of the leaves. All parts are poisonous to poultry and stock.

Flowers: The flowers tend to open in full sunlight and remain closed on dull or rainy days.

Lookalikes
Scarlet pimpernel may be confused with common chickweed: the seedlings are similar but chickweed seedlings have a long hypocotyl. The leaves of chickweed have hairy stalks and are light green, while the underside of scarlet pimpernel leaves is spotted.

Biology
Scarlet pimpernel occurs frequently in spring-sown crops. Seed is widely dispersed as a result of agricultural management, particularly as a contaminant of crop seed. Scarlet pimpernel is often associated with rarer arable weeds. Plants regenerate by seed which requires light for germination. Plants can overwinter and summer-shed seeds can give rise to a second generation.

Management
Control by using a stale seedbed.
Scented mayweed
*Matricaria recutita*

### Location

**Geographic location**
Scented mayweed is a lowland plant or arable cereal fields and waste places.

**Soil type**
It is usually found on light soils, but also occurs on heavy clays and loams.

### Seed statistics

- Seed longevity: >5 years
- Germination depth: 0.5cm
- Seed weight: 0.1mg
- Seeds/plant: 5,000

### Life cycle

- **Seed shed**
- **Flowering**
- **Germination**

### Competitive in

- **WW**
- **WOSR**
- **Spring crops**
- **Resistance**
- **Value to biodiversity**

### Value to biodiversity

- **WOSR**
- **WW**

### Competitive in:

- **Spring crops**
- **Resistance**
- **Value to biodiversity**
Description
It is a branching annual dicotyledon, 60cm tall, with feathery finely divided leaves. The flowers resemble those of daisies.

Key features
Flowers: The flowerheads give off a distinctive chamomile smell when crushed. When the flowerhead is split, the end of the stem where the petals are attached is hollow.

Lookalikes
Scented mayweed may be confused with scentless mayweed. The mayweeds are difficult to distinguish in their nonflowering stages.

Biology
Scented mayweed is locally abundant on arable land and causes yield loss in cereals and oilseed rape. It emerges in winter and early spring; if germinating in autumn, it overwinters as a rosette. It infests both winter and spring crops, which makes long-term management without herbicide difficult. The seedbank can survive short-term grass leys.

Management
A wide range of herbicides is available for scented mayweed control in wheat and as yet no herbicide resistance has been identified in this species though it has been suspected in other *Matricaria* species.
**Life cycle**

- **Seed shed**
- **Flowering**
- **Germination**

**Seed statistics**
- Seed longevity: >5 years
- Germination depth: 5cm
- Seed weight: 0.3mg
- Seeds/flowers: 1
- Seeds/plant: 10,000–200,000

**Location**

**Geographic location**

Scentless mayweed is mainly a lowland species growing to a maximum altitude of 500m, in open habitats such as arable soils and less frequently other disturbed sites.

**Soil type**

It prefers warm, fertile and heavy soils with pH >4.5 and preferably >5.5.
Description
It is a much-branched annual dicotyledon, 10–80cm tall, with finely divided feathery green leaves. Scentless mayweed often sprawls along the ground but may be more upright when supported by a crop.

Key features
Flowers: Scentless mayweed flowers are flat or convex. When the daisy-like flowerhead is split, the end of the stem to which the petals attach is solid.

Lookalikes
Scentless mayweed may be confused with scented mayweed: the mayweeds are difficult to distinguish in their non-flowering stages

Biology
Scentless mayweed is the most widespread of the mayweeds found on arable land. It can be a problem in both winter- and spring-sown crops. It is competitive in wheat and oilseed rape and the seeds can clog sieves and contaminate grain samples.

Plants of scentless mayweed can overwinter from later germination. Newly emerged plants are fairly slow-growing. It reproduces from seed moved by humans, birds or stock.

Management
Scentless mayweed can be controlled by a wide range of herbicides, but because of its long period of emergence it may need repeated treatments.

Populations resistant to 2, 4-D have occurred in cereal crops in the UK.
Sharp-leaved fluellen

*Kickxia elatine*

### Location

**Geographic location**

Sharp-leaved fluellen is found in arable fields, field margins, gardens and waste ground.

**Soil type**

It likes weakly acid to weakly alkaline soils, including light soils, over boulder clay. It can tolerate poorly aerated soils as it is shallow-rooted, but prefers fairly light conditions.

### Seed statistics

- Seed longevity: >5 years
- Seed weight: 0.4mg
- Seeds/flower: 17
- Seeds/plant: 1,800

### Life cycle

- **Seed shed**
- **Flowering**
- **Germination**

### Value to biodiversity

- Competitive in: Spring crops
- Resistance: Not present
- WW: More likely
- WOSR: Very likely
- Not present: Unlikely

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Not present

Unlikely

More likely

Very likely

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Image of a map showing the distribution of Sharp-leaved fluellen across the UK with different colors indicating the likelihood of presence.
**Description**
It is a hairy, leafy, annual dicotyledon, creeping to 50cm, or weakly upright.

**Key features**
**Plant:** The leaves are arrow-shaped with backward-pointing lobes.

**Flower:** The flowers are like small snapdragon flowers, yellow with a purple upper lip.

**Lookalikes**
Sharp-leaved fluellen may be confused with round-leaved fluellen, although the cotyledons are more oval and notched at the tip, and the first true leaves end in blunt points.

**Biology**
Sharp-leaved fluellen is a poorly competitive species found in uncompetitive crops: it is most successful in perennial crops and row crops. It is seldom found in competitive winter crops or grass ley rotations. Seeds germinate in spring and set seed usually after harvest. Plants often grow lower than the combine cut, so can set seeds in late-ploughed fields.

**Management**
It is readily controlled by cultivations.
Shepherd’s-needle
*Scandix pecten-veneris*

**Seed statistics**
Seed longevity: <1 year
Seed weight: 20mg

**Location**
**Geographic location**
Shepherd's-needle is a rare lowland weed, found up to an altitude of 320m, growing in cultivated areas such as old or current arable land and gardens.

**Soil type**
It likes warm, preferably chalky clay soils which are dry in summer and nutrient-rich.

**Life cycle**

Seed shed
Flowering
Germination

**Competitive in**
- WW
- WOSR
- Spring crops
- Resistance
- Value to biodiversity

Not present
Unlikely
More likely
Very likely

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166
**Description**

It is a short, almost hairless annual, growing up to 30cm tall, with finely divided and subdivided leaves. When supported by the crop it may grow to 60cm. The flowerheads are groups of up to ten tiny white four-petalled flowers.

**Key features**

**Young plant:** The cotyledons are pointed and very long.

**Flowers:** As the fruits mature and extend, the flowers appear to be on top of ‘needles’.

**Lookalikes**

Shepherd’s-needle may be confused with wild carrot as young plants: the first true leaves of wild carrot are hairy and coarser than those of shepherd’s-needle, which has few hairs. Shepherd’s-needle cotyledons are much longer and thinner than those of wild carrot.

**Biology**

Shepherd’s-needle is highly competitive in spring cereal crops and open crops of winter wheat, even when high levels of nitrogen are applied. It has reappeared in some areas of the country in the last few years, preferring light soils. It can reduce combine efficiency when the stems and long seeds can become trapped. Shepherd’s-needle reproduces only by seed. Seeds are dispersed mechanically from the parent plant and can also hook onto hair or clothing.

**Management**

The re-appearance of shepherd’s-needle in cereals may be due to the reduction in the use of 2, 4-D and MCPA at high doses, but combinations of sulfonylureas with contact herbicides and hormones can be effective.
Shepherd’s-purse
*Capsella bursa-pastoris*

**Location**

**Geographic location**
Shepherd’s-purse is usually a lowland weed but may grow to an altitude of 400m. It is found on disturbed, especially fertile ground, with areas of bare soil and is usually associated with broad-leaved crops rather than cereal crops.

**Soil type**
It generally grows in nutrient-rich soils, with pH >5, such as humus-rich loams and nitrate-rich sandy soils. Shepherd’s-purse avoids wet soils.

**Seed statistics**
- Seed longevity: >5 years
- Seed decline: 22–36% per year
- Germination depth: 0.5cm
- Seed weight: 0.11mg
- Seeds/flower: 30
- Seeds/plant: 2,000–40,000

**Life cycle**

**Competitive in**
- WW
- WOSR
- Spring crops
- Resistance
- Value to biodiversity

**Seed shed**
- Not present
- Unlikely
- More likely
- Very likely

**Flowering**

**Germination**

**Value to biodiversity**
WOSR

**Resistance**

168
Description
It is a very variable annual or biennial dicotyledon, growing to 5–60cm. Most of the leaves grow as a rosette at the base. The flowerhead is covered with small four petalled white flowers, developing into a characteristic heart-shaped seed head.

Key features
Young plant: The hairs on the young leaves are unbranched (a hand lens is required).

Lookalikes
As it is so variable, shepherd’s-purse can resemble several other species, particularly early stages of common poppy. Note the simple unbranched hairs of shepherd’s-purse.

Biology
Shepherd's purse is widespread in crops in all seasons in the UK and throughout most of the world. It is more of a problem in oilseed rape or other brassica crops, so this weed should be controlled in the cereal crop. Germination can occur throughout the year and plants are able to overwinter. Plants have a short life span. The sticky-coated seeds may be transported on footwear or agricultural machinery.

Management
It is susceptible to a wide range of herbicides.
Small nettle

*Urtica urens*

**Location**

**Geographic location**
Small nettle is found up to an altitude of 500m on well-cultivated arable land, especially in leaf crops as it germinates in spring, and in gardens, farmyards and other cultivated soils.

**Soil type**
It likes well-drained neutral soils high in nitrogen.

**Seed statistics**
- Seed longevity: >5 years
- Seed weight: 0.4mg
- Seeds/flower: 1
- Seeds/plant: 100–1,000

**Life cycle**

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**Value to biodiversity**

<table>
<thead>
<tr>
<th>WW</th>
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**Soil type**
It likes well-drained neutral soils high in nitrogen.
Description
It is an annual dicotyledon, 10–60cm tall. The plant is compact in habit, with dark-green pointed toothed leaves, covered in stinging hairs.

Key features
Plant: The leaves are rounder and more pointed and toothed than those of common nettle.

Flower: The male and female flowers are borne on the same plant in little clusters close to the stems.

Biology
Small nettle is more common in broad-leaved crops than in cereals and in spring rather than winter crops. It is poorly competitive in vigorous cereal crops. Plants are susceptible to frost but seeds can germinate at low temperatures and plants can overwinter in sheltered areas. Seeds can be transported by ingestion by animals or in soil. The seedbank is persistent.

Management
Small nettle can be controlled by a wide range of herbicides in cereal crops. It is susceptible to hoeing in row crops.
Smooth sow-thistle
*Sonchus oleraceus*

**Location**

**Geographic location**
Growing to an altitude of 365m, smooth sow-thistle is found on arable fields, verges, roadsides, gardens, waste lands and manure heaps.

**Soil type**
It likes nitrogen-rich loams or nutrient-rich sandy and stony soils which are not too dry.

**Seed statistics**
- Seed longevity: >5 years
- Germination depth: 2cm
- Seed weight: 0.22mg
- Seeds/head: 100
- Seeds/plant: Up to 100,000

**Life cycle**
- Seed shed
- Flowering
- Germination

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**Value to biodiversity**
- WOSR
- WW
- Spring crops
- Resistance
- Value to biodiversity

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Not present
- More likely
- Very likely

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Not present
- Unlikely
- Very likely

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Not present
- Unlikely
- Very likely

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Not present
- Unlikely
- Very likely

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Description
It is a branched and upright annual dicotyledon, 30–120cm tall, sometimes tinged with red or purple. The yellow flowers are flask-shaped and grow in loose clusters.

Key features
Plant: The leaves are glossy and softly prickly with a wide triangular lobe at the tip, clasping the stem.

Biology
Smooth sow-thistle is increasing in arable rotations, particularly in winter crops. Autumn-germinating plants can overwinter as rosettes and flower in May; spring-germinating plants flower in June.

Management
In row crops, hoeing is an alternative to herbicide use. Control in uncropped land to reduce seed return. Smooth sow-thistle does not persist in grassy rotations. There is a wide range of herbicides available for control in cereal crops.
Soft brome
*Bromus hordeaceus*

**Location**

**Geographic location**
Soft brome prefers disturbed, damp and grassy habitats, but is not found in waterlogged ground. It usually grows at altitudes of up to 400m.

**Soil type**
Prefers neutral to alkaline soils, pH >5.

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**Seed statistics**
Seed weight: 5mg
Seeds/head: 100

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**Life cycle**

- Seed shed
- Flowering
- Germination

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**Competitive in**
- WW
- WOSR
- Spring crops
- Resistance
- Value to biodiversity

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**Value to biodiversity**
- WOSR
- WW

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**Resistance**

- More likely
- Very likely
**Description**
It is a tufted annual grass which hybridises with related species. It grows to a height of 10–100cm. Mature plants have dense soft hairs on the leaf sheaths. The leaf blades are greyish-green and the flowerhead is upright and compact.

**Key features**
**Plant:** The stems are very hairy and more upright than those of meadow brome.

**Biology**
Soft brome is found in grass and arable crops and field margins and is often a contaminant in rye and fescue seeds. Seeds germinate rapidly in autumn and young plants can grow rapidly in cooler months; plants may remain green over winter. Vegetative growth occurs in autumn and spring. Compact flowerheads occur in early summer.

**Management**
Shed seed should be kept on the surface for 4 weeks before cultivation to allow ripening and killed with a glyphosate application before sowing subsequent crops. Deep cultivations or mouldboard ploughing, to bury seeds below 20cm, will reduce numbers in following years. Spring cropping is effective for control, as is fallow land, as long as emerging plants are controlled before setting seed.

Moderate control can be achieved by a variety of herbicides in cereals. Greater control may be achieved in broad-leaved crops.
**Spear thistle**
*Cirsium vulgare*

### Seed statistics
- Seed longevity: >5 years
- Seed weight: 2.5mg
- Seeds/head or capsule: 100
- Seeds/plant: 8,000

### Life cycle
- Seed shed
- Flowering
- Germination

### Location
#### Geographic location
Spear thistle is found all over the British Isles up to an altitude of 850m, in many habitats including hedgerows, field margins pastures and arable fields.

#### Soil type
It prefers fertile and well-drained disturbed soils.
Description
It is a biennial dicotyledon, usually 30–150cm tall, though occasionally taller. It is very spiny and has a very deep tap root. The thistle flowers are reddish purple and usually occur singly on the flower stalk.

Key features
Plants: The stems have spiny wings and the young leaves have a hairy upper surface.

Lookalikes
Spear thistle may be confused with creeping thistle; the young plants of thistles are often difficult to tell apart. Spear thistle has a large and densely hairy leaf second, creeping thistle has fewer marginal spines.

Biology
Spear thistle is common in arable fields. The plant dies in the autumn after flowering. It reproduces only from seeds, which have little dormancy and germinate in autumn or spring; the immature plants can overwinter as a rosette. Most of the seeds (up to 93%) are eaten by birds or small mammals.

Management
Being a biennial, it does not persist in arable rotations or routinely cultivated soils, but is encouraged by fallow or grass breaks or perennial crops. Seedlings are controlled by harrowing. Established plants are not easily controlled by mechanical means. MCPA herbicides can be used in cereal crops.
Spreading hedge-parsley
*Torilis arvensis*

**Seed statistics**
Seed longevity: Short lived

**Location**

**Geographic location**
Spreading hedge-parsley is found in lowland areas, usually in field margins and late-sown crops or in waste and disturbed ground. It is increasingly rare and geographically isolated in small pockets in the south of England.

**Soil type**
It is found on chalky clay soils of low moisture and fertility but can grow on sands and gravels.

---

**Life cycle**

- Seed shed
- Flowering
- Germination

---

**Value to biodiversity**

- WOSR
- WW

---

**Competitive in**

- WW
- WOSR
- Spring crops
- Resistance
- Value to biodiversity

---

**Not present**

**Unlikely**

**More likely**

**Very likely**
Description
It is a much-branched hairy annual that grows close to the ground, 10–20cm tall. The leaves are feathery like those of carrot, divided into three separate leaflets which are further divided. The small white flowers are in little clusters of 3 to 5. The fruit is covered with hooked spines.

Key features
Young plant: It is slightly hairy.
Plant: The stem is finely grooved.

Biology
Spreading hedge-parsley germinates in autumn, suggesting that the seed is short-lived. The fruit is transported by hooking on to fur or clothing.

Management
Spreading hedge-parsley is not competitive to modern crops, and its late flowering disadvantages it in early harvested and early-ploughed crops.
Sugar beet

*Beta vulgaris*

**Life cycle**

- **Competitive in:**
  - WW
  - WOSR
  - Spring crops
  - Resistance
  - Value to biodiversity

**Seed statistics**
Seeds/flower: 1
Seeds/plant: 10,000

**Location**

**Geographic location**
Sugar beet is found usually in lowland areas as a volunteer from previous cropping.

**Soil type**
It is found on light arable soils
Description

It is a large biennial that grows to 1.8m tall, but in the first year has a rosette of large dark-green oval leaves. The cultivated form of beet has a large tap root.

Key features

Fruit: It is distinguished from other beets by thicker leaves and a large bulbous tap root.

Biology

Weed beet are any unwanted sugar beet growing within and between the rows of sown beet or other crops. They grow from groundkeepers or from seed shed by bolting crop plants or other weed beets. As seedlings, they are indistinguishable from sugar beet. Sugar beet which germinates in spring usually overwinters as a leafy rosette before flowering in the following year. However in some cases the plants flower in the first year (in a crop these beets are known as bolters) and are prolific seed producers.

Management

Crops containing bolters should be harvested as early as possible to reduce the production of viable seeds. The sulfonylurea group of herbicides is particularly active on weed beet.
Sunflower

*Helianthus annuus*

### Location

**Geographic location**

Sunflower grows mostly in the Midlands and south of England, mainly as a volunteer from previous sunflower crops, bird-seed etc., on wasteland and banks.

**Soil type**

It requires nutrient-rich and moist soils to grow.

### Seed statistics

Seed weight: 6.67mg

Seeds/plant: <1 year

### Life cycle

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- Seed shed
- Flowering
- Germination

### Value to biodiversity

- WOSR
- WW
- Spring crops
- Resistance
- Value to biodiversity

- Not present
- Unlikely
- More likely
- Very likely
Description
It is a sturdy annual dicotyledon, growing 1–3m tall. At all stages the plant is very large, with sturdy stems and large bright, yellow flowers.

Key features
Flowers: Flowerheads face the sun and sometimes track it. They dip as they ripen.

Biology
Sunflower seeds germinate in late spring and plants flower and set seeds in the same growing season. The seeds are eaten by birds and small mammals.

Management
Although it may occur as a volunteer in the two years following a crop it rarely persists for longer. It is easily cleaned out from most other crop seeds. It is controlled by a range of herbicides suitable for broad-leaved crops.
Timothy
*Phleum pratense*

**Seed statistics**
Seed longevity: >5 years
Seed weight: 0.5mg
Seeds/flower: 1

**Life cycle**

**Location**

**Geographic location**
Timothy is found in a range of grasslands including meadows and rough grassland up to an altitude of 450m.

**Soil type**
It prefers heavy slightly damp soils.
Description
It is a coarse tufted grass growing to 150cm tall. Leaves are pale green and pointed. The flowerhead is packed with tiny spikelets so it looks smooth like fur.

Key features
Plant: The plants have an upright habit.

Biology
Timothy is a common component of pastures and other sown grassland and can be found in cereal crops in grassy rotations. Timothy emerges from both seed and tussock fragments. Tillering occurs in spring and autumn and stems remain green over winter and grow in the spring; a second period of growth may occur in July.

Management
In winter cereals, some control with herbicides may be possible. It does not persist into spring crop breaks or if soils are routinely cultivated.
Venus’s-looking-glass
*Legousia hybrida*

**Life cycle**

- **Seed shed**
- **Flowering**
- **Germination**

**Seed statistics**
- Seed longevity: >5 years
- Seed weight: 0.335mg
- Seeds/flower: 40

**Location**

**Geographic location**

Venus’s-looking-glass is a lowland weed found in arable fields, or on disturbed soils such as motorway embankments.

**Soil type**

It prefers chalky soils and low nitrogen conditions.
Description
It is an upright, roughly hairy annual dicotyledon, growing up to 30cm tall. The leaves are wavy with short stalks. It has tubular pink flowers. The ovary starts to extend as the flower becomes fertile and looks like three touching cylinders.

Key features
Fruit: Only two of the three seed head ‘cylinders’ are visible from one side.

Biology
Venus’s-looking-glass can germinate from autumn through to spring. It is insect-pollinated. It is rarely a problem in competitive crops but can be found in newly emerged crops.

Management
It does not persist in winter cropping rotations and is readily controlled in early spring by cultivation.
Wall speedwell
*Veronica arvensis*

### Seed statistics
- Seed longevity: 1–5 years
- Seed weight: 0.25mg
- Seeds/flower: 15
- Seeds/plant: 0–17,000

### Location

#### Geographic location
Wall speedwell grows to an altitude of 800m and is usually found on arable land, tracks, waste ground, heaths, grasslands and gravelled paths.

#### Soil type
It likes nutrient-rich moderately acidic loose loams or sandy loams with some humus.

### Life cycle

#### Competitive in
- Not present
- Unlikely
- More likely
- Very likely

#### Seed shed

#### Flowering

#### Germination

### Value to biodiversity
- WOSR
- WW
Description
It is a short plant 3–15cm tall, branched and stiffly upright with small oval leaves. The stem is hairy. The very small, intensely blue flowers are borne on short stalks in the leaf axils.

Key features
Plant: The leaves are small and long, oval in shape.
Fruit: It is heart-shaped.

Biology
Wall speedwell is very common on arable land, particularly in winter cereals, but is not competitive in vigorous cereal crops. It does not persist in grass leys. Although it can root from stem fragments, this does not occur in the field. Seeds shed in the summer can germinate in the following autumn, giving rise to overwintering plants, or germinate in the following spring. Seeds are moved by humans or cattle or air currents.

Management
Wall speedwell does not thrive in dense crops. It is not affected by minimum tillage. Cereal crops may be harrowed early in the season and row crops can be hoed.

It can be controlled by a range of herbicides suitable for broad-leaved weeds in cereal crops.
Wheat
_Triticum aestivium_

**Seed statistics**
- See longevity: 1 year
- Seed weight: 55mg
- Seeds/ear: 40–50
- Seeds/plant: 120–150

**Location**

**Geographic location**
Wheat grows as volunteers in subsequent crops, so tends to be found in arable areas.

**Soil type**
It prefers a soil which holds together well with good water retention. It prefers a high nitrogen input.

![Map of Wheat distribution in the UK](image-url)
Description
It is an annual tufted grass which may grow up to 1.2m in short-strawed varieties or 1.8m in long-strawed. It has hollow or pithy stems with flat broad leaves and a stiff appearance. The flower spike appears square in cross section.

Key features
Fruit: It has large grains.

Biology
Volunteer wheat can occur as a weed in the subsequent crop. It can germinate in early autumn or spring and has one generation a year. It seldom persists for more than one season if controlled; seed buried for two years is unlikely to remain viable.

Management
Where wheat seeds have been shed during harvest, light harrowing will encourage germination, to allow control before sowing the next crop. Wheat cannot be controlled by herbicides in other cereals but a wide range of herbicides can control wheat in other crops.
White campion
Silene latifolia

Seed statistics
Seed longevity: >5 years
Germination depth: 5cm
Seed weight: 7.3mg
Seeds/flower: 230
Seeds/plant: 6,000

Location
Geographic location
White campion grows to an altitude of 425m and is found on arable fields, waste ground and road verges.

Soil type
It prefers deep well-drained soils.

Life cycle

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Not present
Unlikely
More likely
Very likely
**Description**
It is a softly hairy, biennial or short-lived perennial dicotyledon, 30–100cm tall. The leaves are pointed and reasonably broad. Male and female flowers are white with five deeply notched petals.

**Key features**
**Young plant:** First true leaves are bluntly pointed.
**Flowers:** White, deeply notched petals.

**Biology**
White campion is common on arable land, emerging largely in spring crops, but it can persist to produce large plants in perennial/biennial crops. About half of overwintering adult plants can survive a hard winter.

**Management**
It is seldom a problem in winter rotations, or where there are grass ley breaks. Large plants can be pulled in some crops or cut before flowering to prevent seeding.
**Wild carrot**

*Daucus carota*

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**Location**

**Geographic location**

Wild carrot is found up to an altitude of 400m in England and the warmer coastal areas of Scotland, Wales and Ireland. It prefers disturbed or waste ground, or open turf on chalky downland.

**Soil type**

It prefers infertile but well-drained chalky soils.

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**Seed statistics**

Seed longevity: >5 years
Seed weight: 1mg
Seeds/floret: 2
Seeds/plant: 1,000–40,000

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**Seed statistics**

Seed longevity: >5 years
Seed weight: 1mg
Seeds/floret: 2
Seeds/plant: 1,000–40,000
**Description**

It is usually a biennial or short-lived perennial dicotyledon, though it can also flower in the first year. It grows up to 80cm tall. The basal rosette leaves are hairy and coarsely divided, with triangular leaf stalks. The flat flowerheads are densely packed with white flowers.

**Key features**

**Plant:** It smells of carrot when bruised. The flowering stem appears to zigzag. The buds and dried flowerheads are cup-shaped.

**Lookalikes**

Wild carrot may be confused with shepherd’s-needle as young plants: the first true leaves of wild carrot are hairy and coarser than shepherd’s-needle which has few hairs.

**Biology**

Wild carrot is usually found in field margins and seldom encroaches far into arable land, but it can be a problem in perennial crops.

It reproduces by seed. Autumn-germinating plants remain green overwinter. The flowering stem dies in the autumn while often retaining seed. It is capable of interbreeding with cultivated carrot.

**Management**

It does not persist where there is routine cultivation. Herbicides are available for use in cereal crops.
Wild-oat
*Avena fatua*

**Seed statistics**
- Seed longevity: >5 years
- Seed decline: 50% per year
- Seed weight: 30mg
- Seeds/spikelet: 2
- Seeds/plant: Up to 200

**Location**

**Geographic location**
Wild-oat is found mainly to the south of Northumberland and in Scottish arable areas. It is a grass of lowland areas but it can grow up to an altitude of 300m.

**Soil type**
It prefers highly fertile, moist and weakly acid to weakly alkaline soils.

**Life cycle**

**Value to biodiversity**
- WOSR
- WW
- SPRING CROPS
- RESISTANCE
- VALUE TO BIODIVERSITY

---

**Seed statistics**
- Seed longevity: >5 years
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Wild-oat is found mainly to the south of Northumberland and in Scottish arable areas. It is a grass of lowland areas but it can grow up to an altitude of 300m.

**Soil type**
It prefers highly fertile, moist and weakly acid to weakly alkaline soils.
**Description**

It is a tall, stout, annual tufted grass. The leaf blade is broad and flat with an anti-clockwise twist. The flowerhead is spreading with drooping spikelets.

**Key features**

**Plant:** The leaf margins are hairy towards the base.

**Fruit:** There is a tuft of tawny hairs at the base, when ripe, the spikelets break apart with visible scars.

**Lookalikes**

All the oat species are difficult to tell apart at the seedling stage. It is difficult to tell the different oats apart as plants: winter wild-oat germinates in the autumn while wild-oat usually germinates in spring. The leaf margins of wild-oat are hairier near the base and the spikelets are smaller than those of winter wild-oat. The lemmas of wild-oat are broader than those of winter wild-oat and end in two small teeth. These two species are easiest to tell apart when the fruit is ripe. Wild-oat seeds separate in the spikelet with no scar.

**Biology**

Wild-oats reproduce only from seed. Although some germinate in autumn, tiller in early spring and are resistant to frost, most germinate in the spring. One wild-oat plant per square metre can reduce yields by up to 1t/ha in winter cereals and up to 0.6t/ha in spring cereals.

**Management**

It is cheaper to control wild-oat in break crops. Delay cultivation as long as possible after harvest to allow mice and birds to eat the freshly shed seeds. Burial will increase seed dormancy. Hand rogueing is possible. Clean the combine between fields to prevent seeds being spread.
**Wild pansy**

*Viola tricolor*

---

**Seed statistics**
Seed longevity: >5 years
Seed weight: 0.4mg

**Life cycle**
- Seed shed
- Flowering
- Germination

---

**Location**

**Geographic location**
Wild pansy can grow to an altitude of 575m and is found in slightly acidic habitats and cultivated ground, gardens and wasteland. It is most often found in damp cool climates.

**Soil type**
It grows on sandy, stony and infertile soils, pH range 5–7.
**Description**
It is an annual or perennial dicotyledon, larger and more robust than field pansy. Leaves are oblong, lobed or toothed with projections at the base. The flowers are five-petalled and blue violet with the lower petals flushed with bright yellow.

**Key features**

**Plant:** Wild pansy is larger and more robust than field pansy.

**Flowers:** The petals are larger than the sepals.

**Biology**
Wild pansy is less commonly seen in fields than field pansy. It is found on stony arable land in both winter and spring crops; seeds may contaminate grain and be difficult to clean. Wild pansy is not as competitive as field pansy, but has a similar life cycle; autumn-germinating plants can overwinter and flower early in the following season. The seeds are dispersed from an exploding seed head.

**Management**
Residual herbicide treatments are generally effective in autumn and spring sown crops.
Wild radish
*Raphanus raphanistrum*

**Seed statistics**
- Seed longevity: >5 years
- Germination depth: 5cm
- Seed weight: 6.67mg
- Seeds/head: 3–10
- Seeds/plant: 160

**Life cycle**

**Location**

**Geographic location**
Wild radish is found in arable fields, waste ground and paths up to an altitude of 380m.

**Soil type**
It prefers lime-free but nutrient-rich sandy and loam soils.
**Description**

It is an annual, growing to 1m tall, with roughly hairy stems. The leaves have toothed lobes near the stem and a large lobe at the tip. There is a branched tap root.

**Key features**

**Plant:** The teeth on the edges of the upper leaves are blunt.

**Fruit:** The pod appears beaded as it shrinks around the seeds. It has a long beak and breaks easily at the joints.

**Lookalikes**

It is similar to charlock, as both have roughly hairy stems.

**Biology**

Wild radish, also called runch, is one of the commonest weeds worldwide. It emerges mostly in spring and therefore in spring crops, but it germinates also in early-sown winter oilseed rape. These autumn-germinating seedlings are generally killed by frosts but can persist in a mild winter. The seed can be transported as a seed contaminant and can remain viable in manures. Statutory seed regulations for the UK and for England (2002) specify that the seeds must not be found in cereal grain samples. It is a particular problem in oilseed rape crops where the seed cannot be separated.

**Management**

Wild radish is controlled by residual herbicides, hormones and sulfonylureas in cereals and residual herbicides in most spring crops. However it is very difficult to control in brassica crops.
Winter wild-oat
*Avena sterilis*

**Location**

*Geographic location*

The range of winter wild-oat has grown from its focus in Oxfordshire into East Anglia and the Midlands. It is a lowland plant found on waste ground.

*Soil type*

It grows on heavy clay soils.

**Seed statistics**

Seed longevity: 1–5 years
Seed weight: 66.67mg

**Life cycle**

- **Seed shed**
- **Flowering**
- **Germination**

**Value to biodiversity**

- **WOSR**
- **Resistance**
- **Spring crops**
- **Very likely**
- **Unlikely**
- **Not present**

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202
Description
It is a tall, stout, annual grass similar to cultivated oat. The leaf blade is broad and flat with an anti-clockwise twist. The flowerhead is spreading with drooping spikelets.

Key features

Fruit: Winter wild-oat has a narrower lemma than that of wild-oat and a shorter awn. The seeds are joined in the spikelet and require pressure to prize apart, leaving a scar.

Lookalikes
All oat species are difficult to tell apart at both seedling and adult stages: winter wild-oat germinates in the autumn whilst wild-oat usually germinates in the spring. Wild-oat differs from winter wild-oat in the following areas; leaf margins are hairier near the base, spikelets are smaller, lemmas are broader and end in two small teeth. The two species are easier to tell apart when ripe, wild-oat seeds separate from the spikelet with no scar.

Biology
Wild-oat reproduces only by seed; it germinates in autumn and persists over winter. One wild-oat plant per square meter can reduce yields by up to 1t/ha in winter cereals and up to 0.6t/ha in spring cereals.

Management
Control is cheaper in break crops; use of stale seedbed in autumn or spring will help. Delay cultivation after harvest to allow seed predation. Hand roguing is possible when plants are visible above the crop. Clean the combine between fields to prevent seeds being spread.
**Yorkshire-fog**

*Holcus lanatus*

**Location**

**Geographic location**
Yorkshire-fog occurs as seedling in every type of habitat, with the greatest abundance in meadow and pasture. It can grow at altitudes of up to 600m. It prefers damp sites, shady areas and low ground. In ditches it can become dominant to the extent of excluding other species.

**Soil type**
It grows in a wide range of weakly acidic soils, preferring moist conditions and high fertility, in the pH range 5–7.

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**Seed statistics**
Seed longevity: 1–5 years  
Seed weight: 0.25mg  
Seeds/head: 1–10

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**Life cycle**

- **Seed shed**
- **Flowering**
- **Germination**

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Description

It is a tufted, very hairy, perennial grass, 20–100cm tall, with loose or compactly tufted stems. The plants look velvety with grey-green leaf blades. The flowerheads start tightly packed like artists’ brushes, but develop into a conical open shape.

Key features

Young plant: There are red/pink strips at the base of the shoots.

Biology

Yorkshire-fog is usually found only in or near field margins. Established plants do not grow over winter although the leaves may stay green. New shoots are formed in the spring, but the leaves are short-lived. Reproduction is usually by seed, which can germinate rapidly in a range of temperatures. Yorkshire-fog is a prolific seeder, with individual plants capable of producing up to a quarter of a million seeds each season. As the seed is small and fine it can travel long distances carried by wind. However, seedling vigour is poor and young plants often fail to establish in dense pasture.

Management

It is seldom a persistent problem within crops and is reduced by spring cropping and ploughing regimes, but is encouraged by grass breaks.
Further information

Available at ahdb.org.uk/knowledge-library

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