

# BIOFEKTOR HERBARIUM RAUPP



Manfred G. Raupp

Mitarbeit

Peter Hartman

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## Vorwort

Das erste Herbarium mit 100 Unkräutern und Ungräsern wurde von mir 1961 als Student der damaligen Ingenieurschule Nürtingen erstellt. Während meines Studiums an der Universität Hohenheim wurde diese Sammlung erweitert.

Die Bekämpfung von Unkräutern und Ungräsern im Bereich meines Verantwortungsbereiches Zentral-Osteuropa und Zentral-Asien als Marketing- und Vertriebsmanager bei Ciba-Geigy und Novartis war ein wichtiger Aspekt der Nahrungsmittelversorgung. Dabei waren die Herbarien von Geigy und Ciba-Geigy einschließlich deren umfangreicher Beschreibungen von Häfliger und Mitarbeitern ein wichtiges Arbeitsinstrument in der Beratung.

Ab 1990 an der Universität für Lebenswissenschaften in Prague engagiert, hat sich auch in den anderen Ländern der früheren Ostblocks Englisch als Wirtschaftssprache etabliert. Seit 1999 als Unternehmer in der Agrarforschung arbeite ich auf dem Bereich der Biowissenschaften in Wikipedia seit 2006 mit. Mit internationalen Behörden und Universitäten bin ich über das Projekt Biofactor eng verbunden.

Das vorgelegte Herbarium ist die Beschreibung von Pflanzenmerkmalen mit Verlinkung zu Wikipedia und soll Auszubildenden, Studenten, Agrarberatern und Landwirten Orientierungshilfe bei der Beurteilung von Unkrautbesatz geben.

Die speziellen Hinweise auf Vorkommen der Unkräuter in Deutschland wurde der Augustenberger Beratungshilfe von T. Würfel und R. Gerhards et al. entnommen.

Die umfangreichen Übersetzungsarbeiten hat Peter Hartman im Rahmen des Biofactor-Projektes übernommen wofür ich ihm, Markus Weinmann und allen weiteren Informationsgebern ausdrücklich danke.

Manfred Raupp, Stutensee, April 2020

## Foreword

The first herbarium with 100 weeds and weed grasses was created by me in 1961 when I was a student at what was at the time the Engineering School in Nuertingen. This collection was expanded during my studies at Hohenheim University.

The control of weeds and weed grasses was a part of my area of responsibility as marketing and sales manager for Central-Eastern Europe and Central Asia at Ciba-Geigy and Novartis, and was an important aspect of food supply. In this respect the Ciba-Geigy herbaria and the comprehensive description by Haeflinger and co-workers were an important tool for consultation.

From 1990 I was active at the University of Life Sciences in Prague, where English had established itself as the language for economic matters, as it had in other countries of the former Eastern Block. Since 1999 I have been self-employed in the area of agricultural research, and have been working with Wikipedia in the area of biological sciences since 2006. I have close contact with various international agencies and universities in connection with the Biofactor project.

The herbarium presented here is a description of plant characteristics with links to Wikipedia and is intended as an aid for apprentices, students, agricultural advisors and farmers in the evaluation of weed invasion.

The specific information on the occurrence of weeds in Germany was taken from the Augustenberg Advisory Service of T. Würfel and R. Gerhards et al.

The extensive translation work was carried out by Peter Hartman in the frame of the Biofactor project, for which I would like to thank him, Markus Weinmann and all those who have provided information.

Manfred Raupp, Stutensee, April 2020

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## **Abutilon theophrasti - Velvetleaf - Samtpappel**

[https://en.wikipedia.org/wiki/Abutilon\\_theophrasti](https://en.wikipedia.org/wiki/Abutilon_theophrasti)

<https://de.wikipedia.org/wiki/Samtpappel>



Family: Mallow *Malvaceae*

Characteristics:

- upright, mostly unbranched stem with velvety hairs; height up to 100 cm
- cotyledons on stalks, serrated in a heart shape on the stalk, pale green
- large, lime tree leaf shaped leaves on a long stalk, with a heart-shaped base
- single in the leaf axil, single or a few together; petals yellow
- trough-shaped fruit with a pointed calyx

Life Cycle:

annual

Germination:

- spring
- germinated from a depth of up to 5cm

Flowers and Pollination:

- June to August
- predominantly cross-pollination

Reproduction:

- via seeds (100 to 500 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- introduced with contaminated seed supplies, bird seed and animal feed; has become native to North America, North Africa and Australia
- prefers warm, damp, nutrient-rich, sandy loam
- on farmland, on paths, walls and on waste dumps
- in all summer crops, particularly sugar beet, maize, soja and sunflower

#### Population in Germany:

scattered, in some areas increasing

#### Importance in Animal Ecology:

not investigated

#### Use and Harmful Effects:

- edible, used as a tea plant
- overgrows culture crops so the economic damage is great
- not sufficiently controlled by herbicides in sugar beet and soja

#### Integrated Control:

- removal before seed bed preparation
- removal of isolated plants by hand
- hoeing in row culture
- control with herbicides possible in maize

## **Adonis aestivalis - Pheasant's Eye, Summer - Sommer Adonisröschen**

[https://en.wikipedia.org/wiki/Adonis\\_aestivalis](https://en.wikipedia.org/wiki/Adonis_aestivalis) <https://de.wikipedia.org/wiki/Sommer-Adonisröschen>



Family: *Ranunculaceae* (buttercup)

Characteristics:

- root depth ca. 80cm
- firm, upright growth, branched stem, sparse;
- height up to 20cm
- cotyledons (seed leaves) stretched oval to linear, ending in a point
- leaves two- to fourfold pinnatipartite
- long-stalked single flower; miniateous
- seeds triangular wedge-shaped with a beak-like extension; green-yellow to grey-brown, with wrinkly grooves

Life Cycle:

- summer annual

Germination:

- spring, also possible in autumn

Flowers and fertilisation:

- June to August
- pollination by bees

Reproduction:

- via seeds (50-100 seeds per plant)
- seeds need ants to germinate
- germinating ability remains for 15 years in the ground

#### Occurrence and Location:

- native; in all Europe
- warm location in summer
- prefers moderately dry, nutrient-rich, mostly stony clay and loamy soil
- particularly in cereals, but also in root crops

#### Associated Plants:

- other cereal-associated weeds on chalky soil

#### Population in Germany:

- scattered, becoming rare; in danger of extinction

#### Importance in Animal Ecology:

- associated species include sawflies, leaf beetles, thrips, bees, cicada, leafminers, bedbugs, nematodes

#### Harmful Effects:

- contains poisonous alkaloids
- does not cause damage on farmland

#### Integrated Control:

- not worth control measure as it is rare in farmland; protective measures desirable

## Adonis flammea - Pheasant's Eye, Adonis - Flammen Adonisröschen

[https://en.wikipedia.org/wiki/Adonis flammea](https://en.wikipedia.org/wiki/Adonis_flammea) [https://de.wiki](https://de.wikipedia.org/wiki/Flammen-Adonisröschen) [ki/Flammen-Adonisröschen](https://de.wikipedia.org/wiki/Flammen-Adonisröschen)



Family: *Ranunculaceae* (buttercup)

Characteristics:

- stem single or branched in the lower third, slightly hairy
- height 20 – 50 cm
- leaves alternating, three- or fourfold pinnatipartite
- single terminal flowers; sepals short with long hairs; 3-8 crown leaves, scarlet to blood red, infrequently yellow
- seeds triangular-cuneiform with a black beak; brown, with wrinkly grooves

Life Cycle:

summer and winter, annual

Germination:

mainly in spring, in autumn also possible

Flowers and fertilisation:

- May to July
- cross-pollination (bees)

Reproduction:

by seeds



#### Occurrence and Location:

- native; occurs in Europe and western Asia
- warm location in summer
- prefers moderately dry, nutrient-rich, mostly stony clay and loamy soil
- particularly in cereals, but also in root crops

#### Associated Plants:

- other cereal-associated weeds on chalky soil

#### Population in Germany:

- has almost totally disappeared; in danger of extinction

#### Importance in Animal Ecology:

- associated species include sawflies, leaf beetles, thrips, bees, cicada, leafminers, bedbugs, nematodes

#### Harmful Effects:

- contains toxic alkaloids

#### Integrated Control:

- not worth control measure as it is rare in farmland; protective measures desirable

## **Aegopodium podagraria - Ground Elder, Bishop's Weed - Giersch**

[https://en.wikipedia.org/wiki/Aegopodium\\_podagraria](https://en.wikipedia.org/wiki/Aegopodium_podagraria)

<https://de.wikipedia.org/wiki/Giersch>



Family: Umbellifer *Apiaceae* (carrot/parsley family)

Characteristics:

- long underground offshoots (rhizomes)
- angular hollow stems; grows up to 80cm tall
- tripartite (three-part) lobed stem leaves with pointed ends
- white flowers in umbels (umbrella shapes)
- light brown, cumin-like seeds

Life Cycle:

perennial

Germination:

- spring
- vegetative shoots the whole year

Flowers:

May to September

Reproduction:

- via seeds (100 to 1,000 per plant)
- vegetative via rhizomes

### Occurrence and Location:

- native to Europe, Asia and North America
- prefers nutrient-rich, heavy soil and damp locations
- often occurs on riverbanks, on the edges of woods and in pasture; seldom on farmland

### Associated Plants:

root crop weed communities in deep, nutrient-rich locations and in fringe and riverbank communities

### Population in Germany:

widespread; not endangered

### Importance in Animal Ecology:

visited by ichneumon flies

### Use and Harmful Effects:

- can be eaten as a wild vegetable
- almost impossible to control in the garden because of its strong regeneration potential via the rhizomes
- tolerates shade, but then does not flower
- the rhizomes have an unpleasant smell and retard the growth of other plants

### Integrated Control:

- shading with feed crops and catch crops
- intensive working of the soil and repeated stubble work destroys the rhizomes
- difficult to control with chemicals

## **Aethusa cynapium - Fool's Parsley - Hundspetersilie**

[https://en.wikipedia.org/wiki/Aethusa\\_cynapium](https://en.wikipedia.org/wiki/Aethusa_cynapium)

<https://de.wikipedia.org/wiki/Hundspetersilie>



Family: Umbellifer *Apiaceae*

Characteristics:

- roots 35 to 70cm deep
- half-rosette plant, upright growth; hardly branched at all; 50 to 150cm tall
- small, elongated

Life Cycle:

mostly summer annual, rarely biennial

Germination:

early to late spring, also in the autumn

Flowers:

June to October

Reproduction:

- via seeds (500 to 600 per plant)
- germinable after more than 10 years in the soil

### Occurrence and Location:

- native to the whole of Europe
- prefers nutrient- and humus-rich, loose soil with a high chalk content; nitrogen indicator
- on farmland, in gardens, under bushes and in ruderal areas
- particularly in sugar beet, maize, summer cereals and vegetables

### Associated Plants:

farmland weeds of basic, nitrogen-rich locations, and field edges

### Population in Germany:

widespread; not endangered

### Importance in Animal Ecology:

associated species are aphid, gall midge, bugs, nematode, etc.; an important nectar and pollen plant

### Harmful Effects:

- lowers yields and makes harvesting more difficult
- contains strongly toxic ingredients; if present in large amounts can destroy the vegetable harvest
- control in sugar beet and maize is hindered by its late germination
- host plant for radish nematode

### Integrated Control:

- planting winter crops
- stubble working and turning the soil
- late application of herbicides

## **Agrostemma githago - Common corn-cockle - Kornrade**

<https://en.wikipedia.org/wiki/Agrostemma>

<https://de.wikipedia.org/wiki/Kornrade>



Family: Carnation *Caryophyllaceae*

Characteristics:

- roots 90cm deep
- taut, upright growth; single stem with upright branches from the middle up; grow to 90cm tall
- sturdy cotyledons; narrow elliptical
- leaves opposed, elongated to a point, grey-green
- the plants are hairy
- single flowers; petals crimson
- seeds triangular-roundish, flattened, matt black-brown, with concentric warts

Life Cycle:

annual and biennial

Germination:

mostly in autumn, overwinters as a rosette with few leaves

Flowers and Pollination:

- June to August
- cross-pollination

Reproduction:

- via seeds (ca. 200 per plant)
- germinable only for a short time in the soil

#### Occurrence and Location:

- native worldwide due to being carried by poorly cleaned up seeds
- no particular demands on pH, moisture or nutrient
- in cereals

#### Associated Plants:

- cereal weed communities

#### Population in Germany:

has more-or-less disappeared; in danger of extinction

#### Importance in Animal Ecology:

evidence for association with 10 plant-eating species including scale insects, aphid, thrips, sawfly, nematode; flowers visited by butterflies, bees and hoverflies

#### Use and Harmful Effects:

- has reappeared in crops crops (and gardens) via commercial „wild flower mixtures“
- wild form non-toxic; makes flour inedible because of the saponin in the seeds

#### Integrated Control:

not worth purifying seed supplies to remove it; protective measures desirable

## **Ajuga chamaepitys - Yellow Bugle or Ground Pine - Gelber Günsel**

[https://en.wikipedia.org/wiki/Ajuga\\_chamaepitys](https://en.wikipedia.org/wiki/Ajuga_chamaepitys)

[https://de.wikipedia.org/wiki/Gelber\\_Günsel](https://de.wikipedia.org/wiki/Gelber_Günsel)



Family: Mint or *Deadnettle*

Characteristics:

- root up to 40cm deep
- branched, low growing, sprawling
- leaves very dense, leaf blade split into three long linear tips which often roll downward , the whole plant is thickly haired
- flowers lemon yellow with red-brown markings; very small upper lip
- seeds oval elongate, brown, reticular pitted

Life Cycle:

annual, less often biennial to perennial

Germination:

autumn and spring

Flowers:

May to September

Reproduction:

via seeds



#### Occurrence and Location:

- native to middle Europe
- warmth-loving
- on basr- and nutrient-rich loam and sandy loam (loess)
- on farmland and in vineyards, on fallow land
- in cereals

#### Associated Plants:

farmland weed communities in warm, chalky locations

#### Population in Germany:

strongly decreasing, extinct in many places; (severely) endangered

#### Importance in Animal Ecology:

bee meadow

#### Integrated Control:

control not necessary on farmland because of its rarity in crops; protective measures desirable

## **Alopecurus myosuroides - Blackgrass - Acker-Fuchsschwanzgras**

[https://en.wikipedia.org/wiki/Alopecurus\\_myosuroides](https://en.wikipedia.org/wiki/Alopecurus_myosuroides)

<https://de.wikipedia.org/wiki/Acker-Fuchsschwanzgras>



Family: Sweetgrass *Poaceae*

Characteristics:

- roots sparsely branched and with filamentous roots down to 35cm
- upright, loosely bushy growth; blades growing upwards in a curve or straight; 50 to 80cm tall
- cotyledon has a small blade twisted like a corkscrew
- irregularly deeply toothed ligule with no auricle
- leaves narrow, bare, not rotating
- upright ovate panicle thick with blooms and with an elongated beard; increasingly red as it grows

Life Cycle:

annual or persistent

Germination:

- mostly in autumn
- from up to 8cm deep

Flowers and Pollination:

- May to June
- predominantly cross-pollination

Reproduction:

- via seeds (50 to 300 per plant)
- germinable after ca. 10 years in the soil

#### Occurrence and Location:

- native to Western Europe, the mediterranean area, Asia and North America
- on moderately fresh, nutrient- and base-rich loam; loam and clay indicator
- on farmland, on paths and on wasteland
- in winter cereals and rape, seldom in summer crops

#### Associated Plants:

cereal weed communities

#### Population in Germany:

widespread; nor endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, yellow swarming fly, bugs, nematode, etc.

#### Harmful Effects:

- reduces tillering
- transmits fungal disease to the cereal
- hinders threshing
- increasingly resistant to herbicides

#### Integrated Control:

- stubble work and turning the soil
- planting catch-crops
- late sowing of winter cereals
- less winter cereal in crop rotation
- earlier use of harrow
- varying active ingredient of herbicide

## **Amaranthus blitoides - Prostrate Amaranth - Westamerikanischer Amarant**

[https://en.wikipedia.org/wiki/Amaranthus\\_blitoides](https://en.wikipedia.org/wiki/Amaranthus_blitoides)

[https://de.wikipedia.org/wiki/Westamerikanischer\\_Amarant](https://de.wikipedia.org/wiki/Westamerikanischer_Amarant)



Family: Foxtail *Amaranthaceae*

Characteristics:

- usually spread out flat on the ground, abundantly branched, bare or with only short hairs towards the top; up to 50cm long
- leaves and stem bare, slightly reddish, leaves inversely egg-shaped to spatulate
- flowers in the leaf axel, green or reddish
- fruit spherical; seeds somewhat sharp-edged, black, shiny

Life Cycle:

- summer annual

Germination:

- late spring
- requires a temperature above ca. 15C

Flowers and fertilisation:

- July to September
- mostly cross-fertilisation

Reproduction:

- via seeds (1,000 to 5,000 seeds per plant)
- in some cases can germinate after more than 10 years in the soil

#### Occurrence and Location:

- introduced from North America with seeds; occurs in warmer areas of south and east Europe
- thermophilic (prefers warmth)
- on dry and nutrient-rich soil
- in ruderal (rubble) areas, occasionally on farmland
- with all summer crops, particularly maize, sugar beet, soya and vegetables

#### Associated Plants:

- hoe weeds and ruderal plants

#### Population in Germany:

- scattered

#### Importance in Animal Ecology:

- associated species are aphids, thrips, nematodes

#### Harmful Effects:

- a strong competitor for water and nutrients
- often not affected by herbicides because of late seed production
- in practice little economic damage

#### Integrated Control:

- intensive working of the soil
- planting winter and feed crops
- can be well controlled by early use of harrow and hoe
- soil and trailing herbicides are effective

## **Amaranthus retroflexus - Amaranth, Rough Haired - Zurückgebogener Amaranth**

[https://en.wikipedia.org/wiki/Amaranthus\\_retroflexus](https://en.wikipedia.org/wiki/Amaranthus_retroflexus)

[https://de.wikipedia.org/wiki/Zurückgebogener\\_Amaranth](https://de.wikipedia.org/wiki/Zurückgebogener_Amaranth)



Family: Foxtail *Amaranthaceae*

Characteristics:

- taproot up to 120cm deep
- firm growth, upright or slightly spread; stem with thick, downy hairs; up to 100cm high
- cotyledons long to oval on a stalk
- leaves egg-shaped on long stems, often red-violet on the underside
- greenish flowers in terminal bundles; seeds lentil-shaped, black, shiny

Life Cycle:

- summer annual

Germination:

- late spring
- flat germinate

Flowers and fertilisation:

- July to September
- mostly cross-fertilisation

Reproduction:

- via seeds (10,000 to 150,000 seeds per plant)
- in some cases can germinate after more than 10 years in the soil

#### Occurrence and Location:

- introduced from South America, robustly naturalised; occurs globally
- requires light and warmth
- on humus- nitrogen- and nutrient-rich, well aerated soil
- on paths and in fields
- in all summer cereals

#### Associated Plants:

- hoe weeds and ruderal (rubble) plants

#### Population in Germany:

- widely distributed

#### Importance in Animal Ecology:

- associated species are aphids, thrips, nematodes

#### Harmful Effects:

- a strong competitor for water and nutrients
- often not affected by herbicides because of late seed production

#### Integrated Control:

- intensive working of the soil
- planting winter and feed crops
- can be well controlled by early use of harrow and hoe
- soil and trailing herbicides are effective

## **Amaranthus blitum - Ascending Amaranth - Aufsteigender Fuchsschwanz**

[https://en.wikipedia.org/wiki/Amaranthus\\_blitum](https://en.wikipedia.org/wiki/Amaranthus_blitum)

[https://de.wikipedia.org/wiki/Aufsteigender\\_Fuchsschwanz](https://de.wikipedia.org/wiki/Aufsteigender_Fuchsschwanz)



Family: Foxtail *Amaranthaceae*

Characteristics:

- lying to upright growth, branched, completely bare, up to 80cm long
- small leaves on stalks, round to diamond-shaped, notched at the tip and with a thorny tip, edges sometimes wavy
- flowers in balls in leaf axils, drawn together as terminal false spikes
- seeds lenticular (lens shaped), dark brown to black, shiny

Life Cycle:

summer annual

Germination:

- late spring
- requires a temperature above ca. 15C

Flowers and fertilisation:

- July to September
- mostly cross-fertilisation

Reproduction:

- via seeds (1,000 to 5,000 seeds per plant)
- in some cases can germinate after more than 10 years in the soil



#### Occurrence and Location:

- originated from the mediterranean area
- thermophilic (prefers warmth)
- grows on reasonably fresh, nutrient-rich, loose sandy and loamy (clay) soil; indicator of ripeness Tilth
- in fields, gardens, vineyards and on the wayside
- in all summer crops, particularly suga beet, maize, soya and vegetables

#### Associated Plants:

- with hoe weeds and ruderal (rubble) plants

#### Population in Germany:

- scattered

#### Importance in Animal Ecology:

- associated species are aphids, thrips, nematodes

#### Harmful Effects:

- a strong competitor for water and nutrients
- often not affected by herbicides because of late seed production
- in practice little economic damage

#### Integrated Control:

- intensive working of the soil
- planting winter and feed crops
- can be well controlled by early use of harrow and hoe
- soil and trailing herbicides are effective

## **Ambrosia artemisiifolia - Common ragweed - Beifußblättriges Traubenkraut**

[https://en.wikipedia.org/wiki/Ambrosia\\_artemisiifolia](https://en.wikipedia.org/wiki/Ambrosia_artemisiifolia)

[https://de.wikipedia.org/wiki/Beifußblättriges\\_Traubenkraut](https://de.wikipedia.org/wiki/Beifußblättriges_Traubenkraut)



Family: Aster; composite *Asteraceae*

Characteristics:

tap root up to 150cm deep

- upright growth up to 120cm
- round-oval cotyledons on a stalk and with an entire rim
- lower leaves hairy, pinnate, upper leaves double pinnate
- flowers dioecious (distinct male and female organs); male blooms in the terminal clusters, female in the leaf axil
- seeds have a short beak, are elliptical and are slightly pointed with a short thorn at both ends; bare or with fine hairs; brown

Life Cycle:

summer annual

Germination:

- late spring
- germination requires a temperature of ca. 15C

Flowers and Pollination:

- August to October
- predominantly cross-pollination (wind)

Reproduction:

- via seeds (3 to 6 thousand per plant)
- germinable after more than 35 years in the soil

#### Occurrence and Location:

- introduced with birdseed and became native; very widespread in southern Europe
- warmth-loving
- on moderately dry, nutrient-rich, well aerated sandy and gravelly soil
- on farmland, on paths and wasteland
- in all summer crops, particularly in sugar beet, maize and vegetables

#### Associated Plants:

root crop weed communities in warm areas and in ruderal communities

#### Population in Germany:

scattered

#### Harmful Effects:

- the pollen is strongly allergenic
- very competitive in maize
- herbicide-resistant population have developed

#### Integrated Control:

- intensive working of the soil
- well controlled mechanical in early growth stages
- soil and late development herbicides are partly effective

## **Anagallis arvensis - Scarlet Pimpernel - Acker-Gauchheil**

[https://en.wikipedia.org/wiki/Anagallis\\_arvensis](https://en.wikipedia.org/wiki/Anagallis_arvensis)

<https://de.wikipedia.org/wiki/Acker-Gauchheil>



Family: *Primula Primulaceae*

Characteristics:

- root ca. 10 to 40cm deep
- sprawling growth; quadratic creeping stem; grows about 15 cm high
- cotyledons spatulate to triangular
- leaves round-oval to broad ovulate, entire, hairless
- Cotyledons and leaves both with brown spots on the underside
- leafy, loose flowered inflorescence; individual flowers on long stalks; bright red bloms, rarely sky blue
- seeds broad ovate, slightly angular, brown to dark brown, delicately warty

Life Cycle:

summer annual

Germination:

late spring

Flowers and Pollination:

June to October

Reproduction:

- via seeds (ca. 150 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- global
- prefers loose, nutrient and base-rich neutral soil
- on farmland, in gardens and on paths
- particularly in summer cereals, maize and sugar beet

#### Associated Plants:

- farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include aphid, sawfly, beetle, small butterflies, nematodes, etc.

#### Use and Harmful Effects:

- once used as a medicinal plant
- because of its low growth and late germination is hardly any competition for the crop
- control only necessary when it occurs in large quantities

#### Integrated Control:

- planting winter crops
- early hoeing and harrowing
- well controlled by chemicals

## **Anchus officinalis - Common bugloss - Gemeine Ochsenzunge**

[https://en.wikipedia.org/wiki/Anchusa\\_officinalis](https://en.wikipedia.org/wiki/Anchusa_officinalis)

[https://de.wikipedia.org/wiki/Gemeine\\_Ochsenzunge](https://de.wikipedia.org/wiki/Gemeine_Ochsenzunge)



Family: Borage *Boraginaceae*

Characteristics:

- long tap root up to 120cm deep
- thickly leaved stem with thickly haired leaves; first forms a rosette, then alternate leaves; grows up to 100cm tall
- leaves lanceolate to tongue shaped, curved, with a notably prominent middle rib
- flowers in double tubular clusters; blue-violet with a white star in the middle
- seeds lopsided ovate, delicately warty, brown

Life Cycle:

annual to triennial

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- May to September
- self-pollination and by insects

Reproduction:

- via seeds (ca. 400 to 1,500 per plant)
- vegetative through root cuttings

#### Occurrence and Location:

- native to all Europe
- somewhat warmth-loving
- on moderately dry, nutrient- and base-rich sandy soil and gravel
- on farmland, in vineyards or by the wayside
- in root crops

#### Associated Plants:

- root crop weed and pioneer communities

#### Population in Germany:

scattered to rare; in some regions endangered

#### Importance in Animal Ecology:

nectar plant for bees and host plant for at least 29 plant-eating species

#### Use and Harmful Effects:

- formerly used as a medicinal plant
- causes significant loss of harvest yield only when present in large quantities, when it competes for water, light and nutrients

#### Integrated Control:

well controlled mechanically and chemically in its early development stage; worth preserving at field margins

## **Anchusa arvensis - Small bugloss - Acker-Ochsenzunge**

[https://en.wikipedia.org/wiki/Anchusa\\_arvensis](https://en.wikipedia.org/wiki/Anchusa_arvensis)

<https://de.wikipedia.org/wiki/Acker-Ochsenzunge>



Family: Borage *Boraginaceae*

Characteristics:

- tap root up to 60cm deep
- half-rosette plant; upright, fleshy, bristly; grows 10 to 50cm tall
- cotyledons ovate-lanceolate
- first forms rosettes, then alternate leaves which are lanceolate to tongue-shaped and curved
- flowers in tubular clusters; blue crown, with a curved tube
- seeds lopsided ovate with bulging ribs, light brown, delicately warty

Life Cycle:

annual or returning for several years

Germination:

spring or autumn

Flowers and Pollination:

- May to September
- pollination by insects

Reproduction:

- via seeds (200 to 1,200 per plant)
- germinable after more than 5 years in the soil



#### Occurrence and Location:

- native to all Europe
- somewhat warmth-loving
- prefers light, moderately damp, porous sandy soil and gravel with little chalk; sand indicator
- on paths and wasteland, occasionally on farmland
- in root crops

#### Associated Plants:

root crop weed communities in rather acid areas and ruderal communities

#### Population in Germany:

widespread, but decreasing; not endangered

#### Importance in Animal Ecology:

host plant for at least 8 plant-eating species (47 found on the *Anschusa* genus), such as thrips, weevils, beetles; wild bees visit the flowers

#### Integrated Control:

control not necessary because of its rarity

## **Anthemis arvensis - Field Chamomile - Acker-Hundskamille**

[https://en.wikipedia.org/wiki/Anthemis\\_arvensis](https://en.wikipedia.org/wiki/Anthemis_arvensis)  
<https://de.wikipedia.org/wiki/Acker-Hundskamille>



Family: Aster; composite *Asteraceae*

Characteristics:

- roots 15 to 35cm deep
- loosely spreading growth, upright; branched stem; grows to ca. 50cm high
- broad-ovate cotyledons with no stlk
- leaves single or double pinnate with irregular lanceolate-toothed tips
- leaves and stem lightly haired
- long-stalked heads; flower base sperical and filled; tubular florets yellow
- no or only slight chamomile odour
- seeds conical, slightly flattened to square, ligitudinally ribbed, yellow-brown

Life Cycle:

summer and winter annual

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- May to September
- self-pollination and by insects (flies, wasps)

Reproduction:

via seeds (1 to 10 thousand per plant)

#### Occurrence and Location:

- native to almost the whole world
- prefers weakly acid loam and light, sandy soil
- on farmland, in gardens and vineyards, also by the wayside
- particularly in maize and summer cereals, sometimes also in winter cereals

#### Associated Plants:

cereal weed communities

#### Population in Germany:

population reducing in some areas; endangered in some states

#### Importance in Animal Ecology:

associated species are plum leaf aphid, gall midges, leaf miner, boring flies, butterflies, wild bees, etc.

#### Harmful Effects:

- reduced yield due to its strong competition for water, light and nutrients
- young plants are easily controlled, but larger plants only with great difficulty

#### Integrated Control:

turning the soil

## **Anthemis cotula - Stinking Chamomile - Stinkende Hundskamille**

[https://en.wikipedia.org/wiki/Anthemis\\_cotula](https://en.wikipedia.org/wiki/Anthemis_cotula)

[https://de.wikipedia.org/wiki/Stinkende\\_Hundskamille](https://de.wikipedia.org/wiki/Stinkende_Hundskamille)



Family: Aster; composite *Asteraceae*

Characteristics:

- roots 15 to 45cm deep
- upright growth, stem somewhat branched; 15 to 45cm high
- broad-ovate cotyledons
- stem and underside of leaves hairy; two- to three-fold pinnate
- long-stalked head; flower head coniform and filled; disc florets yellow
- seeds coniform with string-of-pearls-spotted longitudinal ribs, yellow to brown

Life Cycle:

summer annual, seldom winter annual

Germination:

spring, autumn

Flowers:

May to october

Reproduction:

- via seeds (1 to 10 thousand per plant)
- germinable after up to 30 years in the soil

Occurrence and Location:

- native to Europe and North Africa
- prefers damp, heavy, base-rich soil, clay and mellowness indicator
- on farmland and in gardens, by the wayside
- in maize, sugar beet, winter and summer cereals

Associated Plants:

farmland weeds and ruderal communities

Population in Germany:

scattered; endangered to strongly endangered

Importance in Animal Ecology:

associated species are plum louse, weevil, gall midge, leaf miner, boring fly, butterfly, wild bees, etc.

Harmful Effects:

- can sometimes occur in massive quantities and then causes high loss of crop yield
- water and nutrient competitor because of its deep root system

Integrated Control:

- turning the soil
- the young plant can be well controlled mechanically and chemically
- a species worthy of protection

## **Anthriscus caucalis - Burr Chervil - Hunds-Kerbel**

[https://en.wikipedia.org/wiki/Anthriscus\\_caucalis](https://en.wikipedia.org/wiki/Anthriscus_caucalis)

<https://de.wikipedia.org/wiki/Hunds-Kerbel>



Family: Umbellifer *Apiaceae*

Characteristics:

- round upright stem, often purple at the base; grows 15 to 80cm high
- leaves 3 to 4-fold pinnatisect, dark green
- umbel opposite, triple of quintuple radial which are almost bare and without an envelope, bracts with 1 to 5 leaves; small flowers; greenish-white
- seeds thick, hooked-bristly with a beak, almost no style
- unpleasant smell when plant parts are rubbed

Life Cycle:

summer annual

Flowers and Pollination:

- May to June
- self-pollination

Reproduction:

- seeds
- germinable after more than 5 years in the soil

Occurrence and Location:

- native to Europe, North Africa and the near East
- warmth loving
- on fresh, nutrient-rich, mostly chalk-poor, sandy loam or soil
- on farmland, paths and fallow land

Associated Plants:

root crop weed communities

Population in Germany:

- not endangered in Germany; previously was rare and endangered but due to high nitrogen content (in the soil) now more strongly spread in some regions

Integrated Control:

control not generally necessary

## **Anthemis tinctoria - Yellow Camomile - Färberkamille**

[https://en.wikipedia.org/wiki/Cota\\_tinctoria](https://en.wikipedia.org/wiki/Cota_tinctoria)

<https://de.wikipedia.org/wiki/Färberkamille>



Family: Aster; composite *Asteraceae*

Characteristics:

- primary root narrow, stake-like, many side roots; roots 25 to 40cm deep
- loose, upright growth or spread
- stem from the basal axles; the upper section has longer side-branches; grooved, woolly-grey felted; 30 to 80cm tall
- cotyledons reverse ovate to elongate
- leaves bare on the upper side, underneath with thick grey hairs, regularly pinnate
- terminal flower head on a long stalk; tubular and ray florets golden yellow
- seeds coniform, flattened to square

Life Cycle:

perennial, but sometimes only annual or biennial

Germination:

mid-spring to early summer and mid to late autumn

Flowers and Pollination:

- July to September
- pollination by insect (bees)

Reproduction:

- via seeds (ca. 3,000 per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native to Europe, Western Asia and North America
- loves light and warmth
- on dry, base-rich, flat, stony ground and sandy fields
- in vineyards, fruit plantations, by the wayside, on fallow land, seldom on farmland

#### Associated Plants:

cereal weeds in basic locations, in quecke (quackgrass) pioneer communities

#### Population in Germany:

scattered to widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, nematode, bees

#### Use:

previously used as a source on dyestuff

#### Integrated Control:

control not necessary on farmland

## **Anthoxanthum aristatum - Awned vernalgrass - Grannen-Ruchgras**

[https://en.wikipedia.org/wiki/Anthoxanthum\\_aristatum](https://en.wikipedia.org/wiki/Anthoxanthum_aristatum)

<https://de.wikipedia.org/wiki/Grannen-Ruchgras>



Family: Sweetgrass *Poaceae*

Characteristics:

- roots sparsely branched and with plentiful filamentous roots; roots down to 40cm deep
- loosely spreading growth, bending upwards; leaves also branched in the upper part, slender, smooth and bare; appears bushy; grows 30cm tall
- ligule is present as a 1.5 to 3mm long, membranous seam
- leaves pale green, bare or hairy
- loose to moderately thick, lanceolate to ovate panicle; ears on a short stalk, elongated ovate, pressed together with a somewhat lengthened beard
- a coumarin-like odour (woodruff)

Life Cycle:

annual

Germination:

early autumn

Flowers:

May to June

Occurrence and Location:

- introduced all over the world and has become native
- in humid climates
- on moderately dry, nutrient-rich, base-poor sandy soil
- on farmland, on paths, on wasteland
- in cereals

Associated Plants:

- cereal weed communities in areas with acid soil and ruderal communities

Population in Germany:

occasional Occurrence of single plant in the north, middle and south of Germany

Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

Integrated Control:

control on farmland not necessary because of its rarity; protective measures desirable

## **Apera spica-venti - Common windgrass - Gemeiner Windhalm**

[https://en.wikipedia.org/wiki/Apera\\_spica-venti](https://en.wikipedia.org/wiki/Apera_spica-venti)

[https://de.wikipedia.org/wiki/Gemeiner\\_Windhalm](https://de.wikipedia.org/wiki/Gemeiner_Windhalm)



Family: Sweetgrass *Poaceae*

Characteristics:

- bushes of roots massed around the basal leaf nodes; roots down to 60cm deep
- upright growth as single stalks or loose bunches; leaf mostly bent at the base, unbranched; height up to over 100cm
- irregularly, deeply toothed ligule, no leaf auricle
- leaves rolled and slightly rotated
- loose, many-branched, elongate-ovate or contracted panicle with many small, bearded ears

Life Cycle:

annual or perennial

Germination:

- mostly in autumn
- flat germinator

Flowers and Pollination:

- June to July
- predominantly cross-pollination

Reproduction:

- via seeds ( 1 to 10 thousand per plant)
- germinable for 1 to 3 years in the soil

#### Occurrence and Location:

- native to Europe, central Asia and north-west Africa
- on moderately fresh, nutrient-rich, chalk-poor, sandy loam; acid indicator
- on farmland and wasteland
- predominantly in winter cereals, seldom in summer cereals

#### Associated Plants:

cereal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- strongly competitive
- if present in large quantities strongly reduces yield
- there are herbicide-resistant population

#### Integrated Control:

- stubble working and turning the soil
- planting summer crops
- late sowing of winter cereals
- earlier use of harrow
- care to vary active ingredient (of herbicides)

## **Aphanes arvensis - Parsley-Piert - Gewöhnlicher Ackerfrauenmantel**

[https://en.wikipedia.org/wiki/Aphanes\\_arvensis](https://en.wikipedia.org/wiki/Aphanes_arvensis)

[https://de.wikipedia.org/wiki/Gewöhnlicher\\_Ackerfrauenmantel](https://de.wikipedia.org/wiki/Gewöhnlicher_Ackerfrauenmantel)



Family: Rose *Rosaceae*

Characteristics:

- roots ca. 25cm deep
- stem grows upright, branches lying or upright, with hairs
- plant often lying; height up to 30cm
- cotyledons egg-shaped
- leaves hand-shaped, split into two or three, roughly haired, toothed spitules
- knawels from the leaf axis, enclosed by spitules; missing crown; inconspicuous green-yellow flowers
- seeds egg-shaped, pointed, flattened, yellowish, with fine-grained dots

Life Cycle:

Summer and Winter annual

Germination:

Autumn and Spring

Flowers:

May to October

Reproduction:

- via seeds (150 to 300 per plant)
- germinable after considerably longer than 10 years in the soil

#### Occurrence and Location:

- native to the whole of Europe
- prefers damp, heavy, chalk- and humus-poor loam
- on farmland and in vineyards
- particularly in cereals

#### Associated Plants:

cereal weed communities in somewhat acid environment

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

few associated species

#### Harmful Effects:

- small growth, poorly competitive
- when present in large quantities can significantly lower yields

#### Integrated Control:

- alternating winter and summer crops
- repressed by stubble processing and flat seed bed preparation
- young plants well controlled by mechanical means and herbicides

## **Arabidopsis thaliana - Thale cress, mouse-ear cress - Acker-Schmalwand**

[https://en.wikipedia.org/wiki/Arabidopsis\\_thaliana](https://en.wikipedia.org/wiki/Arabidopsis_thaliana)

<https://de.wikipedia.org/wiki/Acker-Schmalwand>



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- roots up to 40cm deep
- upright stem from a rosette at the base, hairy; frows up to 40cm tall
- leaf rosette with fork-like hairs, leaves elongated spatulate, entire rin, hairless
- small white flowers in thick clusters
- pod narrow, elongated, upright, round to square; seeds longish, brown

Life Cycle:

summer, sometimes winter, annual

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- April to May
- self-pollination and by insects

Reproduction:

- via seeds (ca. 100 to 1000 per plant)
- germinable after a long time in the soil



#### Occurrence and Location:

- pioneer plant native to all Europe
- prefers dry, quickly warming, chalk free sandy fields
- on farmland, on paths and field margins

#### Associated Plants:

pioneer and farmland weed communities on acid soil

#### Population in Germany:

scattered; not endangered

#### Importance in Animal Ecology:

limited visits by insects, solitary bees, dipterans

#### Use and Harmful Effects:

- a plant with a simple genome which is ideal for molecular genetic studies
- small growth and weak competitiveness
- host for and carrier of numerous animal pathogens such as cyst nematode, flea beetle, weevil

#### Integrated Control:

control not necessary

## **Arenaria serpyllifolia - Thyme-leaf sandwort - Quendel-Sandkraut**

[https://en.wikipedia.org/wiki/Arenaria\\_serpyllifolia](https://en.wikipedia.org/wiki/Arenaria_serpyllifolia)

<https://de.wikipedia.org/wiki/Quendel-Sandkraut>



Family: Carnation *Carophyllaceae*

Characteristics:

- roots up to 20cm deep
- stem prostrate/ascending with short downy hair; up to 20cm long; multiply branched from the ground up; height 5 to 30cm
- ovate cotyledons
- leaves ovate-lanceolate
- quintuple blossoms, singly on long, thin, hairy stalks from the leaf axil; petals white with an entire rim
- kidney-shaped, dark brown seeds, finely warty, with grooves at the edge

Life Cycle:

summer annual and biennial

Germination:

- spring and autumn
- flat germinator

Flowers and Pollination:

- May to October
- self-pollination and by insects

Reproduction:

- via seeds (several thousand per plant)
- germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to the whole world
- light- and warmth-loving; warmth indicator
- on dry, sandy but nutrient-rich soil
- on sunny field margins, in gardens and vineyards, on farmland and in ruderal areas

#### Associated Plants:

farmland weed communities; also with sandy and rocky plant communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

- associated species are aphid, mirid bug, nematode

#### Use:

ground cover, especially in dry spring weather

#### Integrated Control:

control on farmland not necessary

## Argentina anserina - Geese cinquefoil - Gänsefingerkraut

[https://en.wikipedia.org/wiki/Argentina\\_anserina](https://en.wikipedia.org/wiki/Argentina_anserina)

also known as silverweed and silver cinquefoil

<https://de.wikipedia.org/wiki/Gänsefingerkraut>



Family: rose; rosaceous plants *Rosaceae*

Characteristics:

- roots up to 60cm deep
- stem rooted on the nodules where it forms new plants; trailing, up to 80cm long, only leaves and flower stem upright; grows up to 10cm
- cotyledons elliptical to elongated egg-shaped
- leaves feathered oval, toothed, silver haired underneath
- yellow single flowers on a stalk coming from the leaf bush
- seeds egg-shaped globular, furrowed

Life Cycle:

perennial

Germination:

early to mid spring, early to mid autumn

Flowers:

May to August

Reproduction:

- via seeds
- via offshoots

#### Occurrence and Location:

- native to the whole of Europe
- on moist, nutrient-rich, compacted soil: nutrient and soil-compaction indicator
- by the wayside, less often on farmland

#### Associated Plants:

farmland weed communities in soggy areas and damp-loving ruderal and pasture communities

#### Population in Germany:

common, not endangered

#### Importance in Animal Ecology:

associated species include aphids, leaf miner, beetles, weevils. Various species of butterfly, etc

#### Uses:

formerly used as a medicinal plant

#### Integrated Control:

control only necessary in limited locations

## **Arnoseris minima - Lamb's succory - Lämmersalat**

<https://en.wikipedia.org/wiki/Arnoseris>

<https://de.wikipedia.org/wiki/Lämmersalat>



Family: Aster; composite *Asteraceae*

Characteristics:

- roots ca. 10 to 35cm deep
- rosette plant; stem leafless, lower part with a red nuance, upper part noticeably claviform, mostly branched; upright growth 5 to 25cm tall
- cotyledons elliptic to spatulate
- leaves reverse ovate, roughly toothed
- simple (flower) head on a long stalk, singly, with a bell-shaped envelope; ray floret yellow; no pappus
- five-sided seeds, dark (brown) with lighter ribs

Life Cycle:

summer and winter annual

Germination:

mid spring and into the summer, to a lesser extent in autumn

Flowers and Pollination:

- June to September
- pollination by insects

Reproduction:

- via seeds (50 to 200 per plant)
- germinable after up to 5 years in the soil

#### Occurrence and Location:

- native to almost the whole world
- on chalk- and nutrient-poor, moderately fresh sand or sandy loam; indicator plant for areas with poor soil
- on wasteland and on farmland
- in winter cereals

#### Associated Plants:

cereal weed communities of areas with acid soil

#### Population in Germany:

reasonably widespread to rare, declining; strongly endangered, locally in danger of extinction

#### Importance in Animal Ecology:

pollination by wax-flower bees, hoverflies and other small species of fly

#### Integrated Control:

control not necessary due to its rarity; protective measures desirable

## **Artemisia vulgaris - Common Mugwort - Beifuß**

[https://en.wikipedia.org/wiki/Artemisia\\_vulgaris](https://en.wikipedia.org/wiki/Artemisia_vulgaris)

<https://de.wikipedia.org/wiki/Beifuß>



Family: Composite Plants *Asteraceae*

Characteristics:

- roots 60-150 cm deep
- upright growth; stem strongly branched with downy hairs, a reddish colour
- height up to 150cm, but on farmland smaller
- cotyledons oval with a round point; inverted egg shape
- pinnate (feathered) leaves, green on the top and with a white, felt-like underside; feathery parts lance-shaped
- small head, grape-like to clustered with a bell-shaped envelope; tubular flowers yellow to red-brown, strongly fragrant
- long, egg-shaped seeds, slender-conical, with fine longitudinal ribs, light brown to brown

Life Cycle:

- perennial, on farmland annual without flowers

Germination:

- spring

Flowers and fertilisation:

- July to September
- predominantly cross-fertilisation

Reproduction:

- from seeds (50,000 to 70,000 per plant)



#### Occurrence and Location:

- native to Europe and North America, also to be found in Asia
- on nutrient-rich, well aerated, warm, chalky soil
- on the wayside, banks, in permanent crops and on fallow land
- on farmland

#### Associated Plants:

- other roadside plants, occasionally together with other crop weeds

#### Population in Germany:

- widespread; not endangered

#### Importance in Animal Ecology:

- 181 types of plant-eating insects have been shown inhabit the plants

#### Use and Harmful Effects:

- once used as a natural remed
- an important plant for beneficial insects
- a troublesome weed in orchards
- seldom found in large quantities on farmland

#### Integrated Control:

- intensive working of the soil
- planting winter and feed crops
- the young plants can be well controlled by mechanical or chemical means

## **Asperula arvensis - Blue woodruff - Acker-Meier**

[https://en.wikipedia.org/wiki/Asperula\\_arvensis](https://en.wikipedia.org/wiki/Asperula_arvensis)

<https://de.wikipedia.org/wiki/Acker-Meier>



Family: Madder *Rubiaceae*

Characteristics:

- upright, bare, branched stem, often still with cotyledons at ground level; height 10 to 50cm
- round cotyledons with on very short stalks
- the lowest leaves in 4-fold, the middle and upper in 6 to 8-fold twirls; inverse elongated-ovate to linear: raw-haired little spikes at the edge and on the middle veins, otherwise bare
- fourfold blooms without a stalk, light blue, occasionally white; petals longer than the corolla lobes; in terminal bunches surrounded by fringed upper leaves
- seeds brown, very fine-grained, bare or sparsely haired

Life Cycle:

summer and winter annual

Flowers and Pollination:

- May to August
- self-pollination and by insects

Reproduction:

- via seeds

Occurrence and Location:

- native to southern Europe (common) and middle Europe (occasional)
- on warm, sunny, dry, mostly chalk-riheavy soil; loam indicator
- in cereals and in vineyards

Associated Plants:

cereal weed communities in base-rich areas

Population in Germany:

very rare; extinct in many states

Integrated Control:

no control necessary because of its rarity; protective measures desirable

## **Atriplex patula - Common orache - Spreizende Melde**

[https://en.wikipedia.org/wiki/Atriplex\\_patula](https://en.wikipedia.org/wiki/Atriplex_patula)

[https://de.wikipedia.org/wiki/Spreizende\\_Melde](https://de.wikipedia.org/wiki/Spreizende_Melde)



Family: Goosefoot *Chenopodiaceae*

Characteristics:

- tap root ca. 80cm
- stem upright or rising, branched, grooved; grows to about 90cm tall  
, long, narrow, fleshy cotyledons, rounded at the tip
- leaves alternate, spear-shaped, slightly toothed, upper leaves linear-lanceolate without teeth
- very small white flowers; female and male blooms separate
- seeds red-brown to black, dull to shiny, with fine longitudinal grooves

Life Cycle:

summer annual

Germination:

late spring

Flowers:

July to october

Reproduction:

via seeds (100 to 5, 000 per plant)

germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe, Asia and North America
- prefers nutrient- and humus-rich, neutral loam and clay soil; salt tolerant; indicator of loamy and mellow soil
- on farmland and in gardens, on paths, motorways, rubbish dumps
- particularly in maize and sugar beet, sometimes in summer cereals

#### Associated Plants:

farmland and ruderal weed communities and those of riverbanks

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid and psyllid, butterflies, thrips, bugs, weevil, etc.

#### Harmful Effects:

- strongly competitive; high nitrogen consumption
- can sometimes occur in massive amounts and then causes considerable loss of harvest

#### Integrated Control:

- planting winter cereals and rape
- stubble working and turning the soil
- well controlled by herbicides

## **Avena fatua - Common wild oat - Flug-Hafer**

[https://en.wikipedia.org/wiki/Avena\\_fatua](https://en.wikipedia.org/wiki/Avena_fatua)

<https://de.wikipedia.org/wiki/Flug-Hafer>



Family: Sweetgrass *Poaceae*

Characteristics:

- branched root up to 100cm deep
- upright growth up to 120cm
- irregularly deeply serrated ligule without leaf ears
- youngest leaves rolled anti-clockwise, hairy leaf edge
- loose rispe, which can turn in all directions, with overhanging ears which are on a long stalk with a sharp bend and a beard

Life Cycle:

annual

Germination:

- in spring
- from a depth of up to 20cm

Flowers and Pollination:

- June to August
- preominantly cross-pollination

Reproduction:

- via seeds (50 to 600 per plant)
- germinable after 3 to 8 years in the soil

#### Occurrence and Location:

- native to all temperate and sub-tropical areas of the world
- prefers fresh, nutrient- and base-rich, loamy to clay with basic to weakly acid pH
- particularly in summer cereals and maize

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, plant mite, thrips, bugs, nematode, etc.

#### Harmful Effects:

- causes considerable loss of yield if it grows in large quantities
- reduces tillering (sprouting from roots) in cereals
- is a strong competitor for light as it grows higher than the cereal crop
- present as impurities in seed supply and harvest if the seeds are collected with the grain

#### Integrated Control:

- alternating summer and winter cereals
- turning the soil
- planting seeds that have had impurities carefully removed
- early mowing of field edges
- early use of the harrow
- use of different chemicals in treatment

## **Barbarea vulgaris - Bittercress - Winterkresse**

[https://en.wikipedia.org/wiki/Barbarea\\_vulgaris](https://en.wikipedia.org/wiki/Barbarea_vulgaris)

<https://de.wikipedia.org/wiki/Winterkresse>



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- upright stem branched from the ground up, angular; grows 30 to 90cm tall
- cotyledons round-oval, noticeably stalked
- lower leaves rosette-like, lyre-shaped, feathered, with 2 to 5 pairs of elongated-lanceolate, curved-toothed sections and a small, round end often heart-shaped at the base; leaves on the upper stem single, dentate, almost heart-shaped; all leaves are thick and deep green
- flowers golden yellow, buds bare, small, inverted ovate petals, wedge-shaped at the base
- pods roundish-tetragonal; seeds finely meshed

Life Cycle:

biennial to perennial

Germination:

- autumn
- flat germinator

Flowers:

April to June

Reproduction:

via seeds (1 to 10 thousand per plant)



#### Occurrence and Location:

- native to all Europe
- prefers nutrient-rich, damp, sandy and loam soils rich in humus
- in ruderal areas, in meadows, on river banks, and also in gardens and on farmland

#### Associated Plants:

root crop weed communities in nutrient-rich regions and ruderal and pioneer communities

#### Population in Germany:

nationwide; not endangered

#### Importance in Animal Ecology:

host plant for at least 56 species including wild bees

#### Uses:

the leaves are edible

#### Integrated Control:

control not necessary

## **Bidens pilosa - Blackjack, Spanish needle – Beharter Zweizahn**

[https://en.wikipedia.org/wiki/Bidens\\_pilosa](https://en.wikipedia.org/wiki/Bidens_pilosa)

[https://de.wikipedia.org/wiki/Beharter\\_Zweizahn](https://de.wikipedia.org/wiki/Beharter_Zweizahn)



Family: Aster, composite *Asteraceae*

Characteristics:

upright, bare; about 110cm tall

- lanceolate cotyledons
- pinnate leaves with a large terminal leaflet
- flowers heads longer than they are wide; yellow

Life Cycle:

annual

Germination:

spring

Flowers:

summer

Reproduction:

- via seeds (3 to 6 thousand per plant)
- germinable after more than 10 years in the soil

Occurrence and Location:

- invasive; unstable; originated from South America; found worldwide
- warmth-loving
- prefers nutrient-rich, damp soil
- on farmland and on paths
- particularly in maize and sugar beet, sometimes in summer cereals

### Harmful Effects:

- very competitive due to its deep root system
- can regional occur in massive amounts and then causes large reduction in crop yields
- stems very hard and resilient

### Integrated Control:

- turning the soil
- can be repressed by planting winter cereals and rape
- well controlled by herbicides

## **Bidens tripartita - Burr marigold - Dreiteiliger Zweizahn**

[https://en.wikipedia.org/wiki/Bidens\\_tripartita](https://en.wikipedia.org/wiki/Bidens_tripartita)

[https://de.wikipedia.org/wiki/Dreiteiliger\\_Zweizahn](https://de.wikipedia.org/wiki/Dreiteiliger_Zweizahn)



Family: Aster, composite *Asteraceae*

Characteristics:

- tap root up to 50cm deep
- upright, loosely branched growth; single stem with widely spread branches from the middle up; height ca. 130cm
- elliptical cotyledons on a stalk
- stem leaves mostly tripartite
- loose pannicle of long-stalked heads, each surrounded by a double envelope; tubular flowers brownish yellow
- seeds bare, pressed together with two long-toothed beards

Life Cycle:

summer annual

Germination:

- late spring and into the summer
- flat germinator

Flowers and Pollination:

- July to October
- self-pollination and by insects

Reproduction:

- via seeds (100 to 300 per plant)
- germinable after more than 3 years in the soil

### Occurrence and Location:

- native to all Europe
- warmth-loving
- on nutrient- and nitrogen-rich, damp, occasionally flooded, mostly humus-rich mud soils; indicator of waterlogging
- on farmland, in ditches, in ruderal areas
- particularly in maize and sugar beet, sometimes also in summer cereals

### Associated Plants:

root crop weed communities of waterlogged areas and marigold; predominantly on pond edges

### Population in Germany:

widespread; not endangered

### Harmful Effects:

- causes large loss of crop yield if locally growing in massive quantities
- very competitive due to deep root system and tall growth
- stem very hard and resistant

### Integrated Control:

- planting winter crops
- turning the soil
- well controlled by herbicides in early growth stage

## **Bromus arvensis - Field brome - Acker-Trespe**

[https://en.wikipedia.org/wiki/Bromus\\_arvensis](https://en.wikipedia.org/wiki/Bromus_arvensis)

[https://en.wikipedia.org/wiki/Bromus\\_arvensis](https://en.wikipedia.org/wiki/Bromus_arvensis)



Family: Sweetgrass *Poaceae*

Characteristics:

- grows up to 90cm tall
- has a ligule but no leaf auricle
- alternate, smooth leaves, leaf blade hairy on both sides; youngest leaf is rolled
- loose panicle, bearded ears

Life Cycle:

annual

Germination:

autumn and spring

Flowers and Pollination:

- May to June
- predominately cross-pollination

Reproduction:

- via seeds (300 to 200 per plant)

only germinable for less than one year in the soil

Occurrence and Location:

- native to Europe, temperate zones of Asia and in North America
- loves sunny locations; frost tolerant
- prefers well aerated, moderately dry, nutrient- and base-rich loam
- on farmland, on paths, on wasteland
- particularly in winter cereals

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- carrier of cereal viruses
- competes for light as taller than the cereal
- seeds fall out during harvesting, but some are still present as impurities and must be removed

#### Integrated Control:

- repeated shallow stubble working
- turning the soil
- less cereal in crop rotation
- earlier use of harrow
- use of non-selective herbicides
- with care to vary the active ingredient

## **Bromus hordeaceus (*mollis*) - Soft brome - Weiche Trespe**

[https://en.wikipedia.org/wiki/Bromus\\_hordeaceus](https://en.wikipedia.org/wiki/Bromus_hordeaceus)

[https://de.wikipedia.org/wiki/Weiche\\_Trespe](https://de.wikipedia.org/wiki/Weiche_Trespe)



Family: Sweetgrass *Poaceae*

Characteristics:

- leaf blade grows upwards with a kink; hairy beneath the nodes; grows up to 90cm tall
- ligule thickly haired, of middle length; no leaf auricle
- leaf sheath closed,
- leaf blade soft with short hairs
- ligule; stiff, upright inflorescence, only opened in the flower, otherwise the branches and ears lie on the stalk; short-haired top

Life Cycle:

mostly winter annual

Germination:

mostly in autumn

Flowers and Pollination:

- May to June
- predominantly cross-pollination

Reproduction:

- via seeds (300 to 200 per plant)
- germinable for 1 to 2 years in the soil



#### Occurrence and Location:

- native to almost the whole world
- somewhat warmth-loving
- prefers dry, nutrient-rich sandy soil and loam
- in pastures, at field edges, on farmland
- in cereals

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, bugs, nematode, etc.

#### Harmful Effects:

- carrier of cereal viruses
- reduces tillering of the cereal crop and is a strong competitor for light
- can also grow in meadowland and strongly reduce the yield and feed value, because the leaves soon go yellow

#### Integrated Control:

- stubble working and turning the soil
- less cereal crop rotation
- earlier use of the harrow
- use of non-selective herbicides
- care to vary the active ingredient

## **Bromus inermis - Smooth brome - Wehrlose Trespe**

[https://en.wikipedia.org/wiki/Bromus\\_inermis](https://en.wikipedia.org/wiki/Bromus_inermis)

[https://de.wikipedia.org/wiki/Wehrlose\\_Trespe](https://de.wikipedia.org/wiki/Wehrlose_Trespe)



Family: Sweetgrass *Poaceae*

### Characteristics:

- deep rooted pioneer plant with creeping roots; rhizome just under the surface; grows up to 120cm tall
- ligule up to 2mm long, slitted
- leaf sheath mostly tubular and closed, smooth; leaf blade also bare
- panicle very flexible, upright; ears have no beard

### Life Cycle:

perennial

### Germination:

mostly in spring

### Flowers and Pollination:

- June to July
- predominantly cross-pollination

### Reproduction:

- via seeds (30 to 200 per plant)
- germinable for 1 to 2 years in the soil
- vegetative through rhizomes

#### Occurrence and Location:

- native to almost the whole world
- in locations warm in the summer
- preferentially on dry, nutrient- and base-rich loam and sandy soil, also on gravel and clay
- in meadowland, infrequently on farmland, on wasteland
- particularly in cereals

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Use and Harmful Effects:

- used as a feed crop in eastern Europe because of its tolerance to drought, although the nutrient value is low
- carrier of cereal viruses
- reduces tillering of cereals and is strongly competitive for light

#### Integrated Control:

- stubble working and turning the soil
- less cereal in crop rotation
- earlier use of harrow
- use of non-selective herbicides
- care to vary the active ingredient

## **Bromus secalinus - Rye brome**

[https://en.wikipedia.org/wiki/Bromus\\_secalinus](https://en.wikipedia.org/wiki/Bromus_secalinus)

Family: Sweetgrass *Poaceae*

Characteristics:



- root somewhat branched and with fine thread-like hairs; roots down to 70cm
- leaf blade grows out of the basal node and has soft hairs; grows up to 90cm tall
- short toothed ligule with no leaf auricle
- in particular young plants wind in a spiral; hairy leaf sheath
- panicle loose, at first upright, later nodding, open to lightly contracted
- a species with many forms, both similar and rare

Life Cycle:

mostly perennial, but also annual

Germination:

mostly in autumn, but also in spring

Flowers and Pollination:

- June to July
- predominantly cross-pollination

Reproduction:

- via seeds (400 to 1500 per plant)
- germinable for 1 to 2 years in the soil

#### Occurrence and Location:

- native to all Europe
- on nutrient-rich sandy soil or pure loam
- in cereal crops

Associated Plants: cereal weed and ruderal communities which prefer acid soil

#### Population in Germany:

reducing in many areas, but not yet endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- was previously found in rye and lent a bitter taste when present as an impurity
- competes for light as it grows taller than the cereals
- carrier of viral disease and ergots

#### Integrated Control:

- repeated shallow stubble working
- less cereal in crop rotation
- earlier use of harrow
- use of non-selective herbicides
- with care to vary the active ingredient

## **Bromus sterilis - Barren brome - Taube Trespe**

[https://en.wikipedia.org/wiki/Bromus\\_sterilis](https://en.wikipedia.org/wiki/Bromus_sterilis)

[https://de.wikipedia.org/wiki/Taube\\_Trespe](https://de.wikipedia.org/wiki/Taube_Trespe)



Family: Sweetgrass *Poaceae*

Characteristics:

- grows up to 80cm tall
- large, deeply fringed ligule, no leaf auricle
- leaf blade and sheath hairy; leaf shiny underneath; youngest leaf rolled
- flowers have a long beard on the back; the panicle has broad overhanging branches in a loose structure

Life Cycle:

mostly perennial, but also annual

Germination:

mostly in autumn, but also in spring

Flowers and Pollination:

- May to July
- predominantly cross-pollination

Reproduction:

via seeds (200 to 1,000 per plant)

- germinable for 1-2 years in the soil

Occurrence and Location:

- native to all of Europe and central Asia
- warmth-loving
- prefers damp, nutrient-rich, loose loam; adapts well to a dry location; nitrogen indicator

- on farmland, in meadows, on path edges and on wasteland
- particularly in winter cereals

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- very competitive through strong tillering
- competitor for light, as it grows taller than the cereal crop
- carrier of cereal viruses
- there is a herbicide resistant population

#### Integrated Control:

- repeated stubble working
- turning the soil
- less cereal in crop rotation
- use of non-selective herbicides
- active ingredient should be varied

## **Bromus tectorum - Drooping brome - Dach-Trespe**

[https://en.wikipedia.org/wiki/Bromus\\_tectorum](https://en.wikipedia.org/wiki/Bromus_tectorum)

<https://de.wikipedia.org/wiki/Dach-Trespe>



Family: Sweetgrass *Poaceae*

Characteristics:

- grows upright at an angle up to ca. 60cm
- panicle and ears are hairy, very dense panicle hang to one side

Life Cycle:

mostly perennial

Germination:

mostly in autumn, but also in spring

Flowers:

May to June

Reproduction:

- via seeds (400 to 1500 per plant)
- germinable for 1 to 2 years in the soil

Occurrence and Location:

- native to almost the whole world
- warmth-loving
- prefers dry, mostly chalky and light soil
- by the wayside, on wasteland, seldom on farmland

Harmful Effects:

- avoided by grazing because of its very rough beard
- spreads into fields of crops if soil working is reduced or care of field edges is insufficient



- large quantities hinder the planting of winter cereals
- carrier of cereal viruses

Associated Plants:

ruderal communities

Population in Germany:

scattered; not endangered

Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

Integrated Control:

- repeated shallow stubble working
- turning the soil
- less cereal in crop rotation
- earlier use of harrow
- use of non-selective herbicides
- with care to vary the active ingredient

## **Buglossoides arvensis - Field gromwell - Acker-Steinsame**

[https://en.wikipedia.org/wiki/Lithospermum\\_arvense](https://en.wikipedia.org/wiki/Lithospermum_arvense)

<https://de.wikipedia.org/wiki/Acker-Steinsame>



Family: Borage *Boraginaceae*

Characteristics:

- taproot up to 60cm deep
- plant is upright , branched on the upper part, roughly haired stem; grows up to 50cm tall
- broad, ovate, hairy cotyledons with a clear central nerve
- elongated, hairy, dirty green leaves
- small white flowers in the terminal leaf axil
- stone hard seeds; ovate, triangular, brown, with warty grooves

Life Cycle:

annual or biennial

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- May to June
- self-pollination and by insects

Reproduction:

- via seeds (50 to 250 per plant)
- germinable after more than 25 years in the soil

#### Occurrence and Location:

- native to all Europe
- in locations warm in the summer
- on fresh to moderately fresh, nutrient- and base-rich, moderately acid to neutral loam and clay soil; loam indicator
- in winter cereals

#### Associated Plants:

cereal weed communities

#### Population in Germany:

scattered, in many places strongly reducing: endangered

#### Importance in Animal Ecology:

host plant for a total of 14 species such as beetle, weevil, mirid bug, aphid, butterfly

#### Use and Harmful Effects:

- the deep red dye in the roots was formerly used as a cosmetic (farmer's make-up)
- dense crops and planting summer crops repress growth

#### Integrated Control:

control not necessary due to rarity; protective measures desirable

## **Bunias orientalis - Turkish warty cabbage - Orientalisches Zackenschötchen**

[https://en.wikipedia.org/wiki/Bunias\\_orientalis](https://en.wikipedia.org/wiki/Bunias_orientalis)

[https://de.wikipedia.org/wiki/Orientalisches\\_Zackenschötchen](https://de.wikipedia.org/wiki/Orientalisches_Zackenschötchen)



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- tap root up to 130cm deep
- half-rosette plant; upright stem with glandular hairs, branched on the upper part; grows up to 120cm tall
- cotyledons elongate
- roughly toothed, lanceolate leaves beginning as a rosette
- a thick cluster of golden flowers
- seedpods a lopsided spindle shape; warty

Life Cycle:

biennial and perennial

Germination:

early spring to autumn

Flowers and Pollination:

- April to July
- self-pollination and by insects

Reproduction:

via seeds (2 to 5 thousand per plant)

#### Occurrence and Location:

- after its introduction became native to Europe, Asia and North America
- warmth-loving
- preferentially on moderately dry to fresh, loose, humus-rich loam and clay soils
- mostly on path edges, wasteland and embankments, seldom on farmland

#### Associated Plants:

communities of cereal weeds, couch-grass pioneer and ruderal weed communities

#### Population in Germany:

scattered, but in many areas, such as south-west Germany, beginning to spread and strongly increase

#### Importance in Animal Ecology:

host plant for 35 insect species including ground-flea and leaf beetle, weevil, gall midge, thrips, aphid, butterfly; pollen and nectar source for many insect species

#### Integrated Control:

control on farmland not necessary

**Bunium bulbocastanum - Black cumin, black caraway - Gewöhnlicher Knollenkümmel**

[https://en.wikipedia.org/wiki/Bunium\\_bulbocastanum](https://en.wikipedia.org/wiki/Bunium_bulbocastanum)

[https://de.wikipedia.org/wiki/Gewöhnlicher\\_Knollenkümmel](https://de.wikipedia.org/wiki/Gewöhnlicher_Knollenkümmel)



Family: Umbellifer *Apiaceae*

Characteristics:

stem branched in the upper part, pithy, bare, base axis forms a spherical, hard, brown bulb under the earth; grows 20 to 60cm tall

- lower leaves on a long stalk, the upper directly on the stem, multiply pinnatifid, triangular in outline, tips of the pinnates crowded, lanceolate
- flowers white; umbel medium sized
- seeds elongated elliptical, black-brown with light ribs

Life Cycle:

perennial

Flowers:

May to July

Reproduction:

- via seeds
- vegetative

Occurrence and Location:

- native to middle Europe
- on dry, stony, chalky loam and clay soil; clay indicator
- on farmland and in dry meadows, on fallow land and path edges
- in cereals

Associated Plants:

cereal weed communities of regions of basic soil

Population in Germany:

rare and in many places the stocks are reducing; regionally endangered

Use:

in the past the bulbs were used as a vegetable, both raw and cooked; leaves used like parsley

Integrated Control:

control on farmland not necessary due to its rarity; protective measures desirable

## **Bupleurum rotundifolium - Hare's Ear - Rundblättriges Hasenohr**

<https://en.wikipedia.org/wiki/Bupleurum>

[https://de.wikipedia.org/wiki/Rundblättriges\\_Hasenohr](https://de.wikipedia.org/wiki/Rundblättriges_Hasenohr)



Family: Umbellifer *Apiaceae*

Characteristics:

- root 30 to 40cm deep
- upright growth, loosely branched in the upper part; blue-green; height 15 to 70cm
- cotyledons linear-lanceolate
- upper stem leaves roundish-ovate, marbled, the lower leaves heart-shaped, umplexicaul
- 5 to 10 radial double umbels, 5 to 6 covering leaves, oval-lanzeolate, length greater than width, the flowers/ fruit clearly outstanding; crown yellowish
- seeds elongated-ovate, brown-black, with 5 finely lined ribs on the reverse side

Life Cycle:

summer annual

Germination:

mid to late spring

Flowers and Pollination:

-June to August

- pollination by insects (flies)

Reproduction:

via seeds (50 to 100 per plant)



#### Occurrence and Location:

- native to middle and southern Europe and the Near East
- prefers dry, nutrient-rich, chalky loam or clay soil
- on farmland, in vineyards, by the wayside
- in winter cereals

#### Associated Plants:

cereal weed communities of chalky locations

#### Population in Germany:

scattered to disappearing, in danger of extinction

#### Importance in Animal Ecology:

associated species are wasp, beetle, psyllid, weevil, butterfly

#### Integrated Control:

control not necessary because of its rarity on farmland; protective measures desirable

## Calendula arvensis - Field marigold - Acker-Ringelblume

[https://en.wikipedia.org/wiki/Calendula\\_arvensis](https://en.wikipedia.org/wiki/Calendula_arvensis)

<https://de.wikipedia.org/wiki/Acker-Ringelblume>



Family: Aster; composite *Asteraceae*

Characteristics:

- prostrate or ascending growth; branched from the ground up, with leaves up to the head; stem angular with short downy hair; grows 10 to 40cm tall
- lower leaves spatulate on short stems; upper leaves elongated lanceolate, directly on the stem
- ray florets pale yellow to orange in several rows
- outer seeds rolled up and markedly prickly on the back, the middle seeds boat-shaped

Life Cycle:

summer and winter annual

Flowers and Pollination:

- April to October
- self-pollination and by insects

Reproduction:

- via seeds
- germinable only for less than 5 years in the soil

#### Occurrence and Location:

- native to Mediterranean areas
- warmth-loving
- on base- and nutrient-rich, ööose, chalky, sandy loam
- in videyards and on farmland, on field edges, on pasture and ruderal areas
- in root crops, less often in cereals

#### Associated Plants:

- root crop weed communities in areas with basic soil and ruderal communities

#### Population in Germany:

rare to disappeared; in danger of extinction

#### Importance in Animal Ecology:

5 plant-eating insects documented

#### Use:

as a medicinal plant

#### Integrated Control:

control on farmland not necessary due to its rarity; protective measures desitrable

## Calystegia sepium - Greater bindweed - Echte Zaunwinde

[https://en.wikipedia.org/wiki/Calystegia\\_sepium](https://en.wikipedia.org/wiki/Calystegia_sepium)

[https://de.wikipedia.org/wiki/Echte\\_Zaunwinde](https://de.wikipedia.org/wiki/Echte_Zaunwinde)



Family: Bindweed *Convolvulaceae*

Characteristics:

- roots up to 70cm deep; rhizomes under the soil surface from which new shoots and roots are formed
- bare stem prostrate or with a twisting, climbing growth; up to 300cm long
- , cotyledons very large, almost square, a little indented at the stem end
- pointed, heart-shaped leaves on a stalk, with smooth edges
- leafy cluster of blooms on the leaf axil; white, funnel-shaped
- seeds ovate, cone-shaped with a blunt tip, black to dark brown, wrinkled

Life Cycle:

perennial

Germination:

mid spring to summer

Flowers and Pollination:

- June to August
- pollination by insects

Reproduction:

- via seeds (200 to 300 per plant)
- germinable after more than 30 years in the soil
- predominantly vegetative

#### Occurrence and Location:

- native to almost the whole world
- somewhat warmth-loving
- on fresh, nutrient- and base-rich, moderately acidic loam and clay soil
- on farmland, on fences and at the edge of paths
- particularly in maize and sunflower

#### Associated Plants:

farmland weed communities in areas influenced by ground water, shrubs on nitrogen-rich soil, riverbank communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for gall mite, beetle, leaf miner, seed beetle, aphid, nematode; flowers visited by masonry bee, butterfly and hoverfly

#### Harmful Effects:

- very competitive
- causes problems in harvest storage
- difficult to control

#### Integrated Control:

- working the stubble and turning the soil
- planting winter crops and feed crops
- hoeing in row culture

## Campanula rapunculoides - Creeping Bellflower - Acker-Glockenblume

[https://en.wikipedia.org/wiki/Campanula\\_rapunculoides](https://en.wikipedia.org/wiki/Campanula_rapunculoides)

<https://de.wikipedia.org/wiki/Acker-Glockenblume>



Family: Bellflower *Campanulaceae*

Characteristics:

- taproot over 80cm deep
- semi-rosette plant; loose growth with thin underground offshoots; numerous rosettes with few leaves
- stem mostly unbranched; offshoots over 100cm long; grows 20 to 80cm high
- cotyledons elliptic-ovate
- base leaves heart-shaped to triangular, pointed, notched, on long stalks; leaves on upper part of stalk without a stalk, ovate-elongated to lanceolate
- small, unilateral flower cluster, seldom branched; crown blue-violet, rarely white
- seed ovate, flattened; grooved lengthwise

Life Cycle:

perennial

Germination:

- mid to late spring and autumn
- flat germinator

Flowers and Pollination:

- July to September
- pollination by insects (bees)

### Reproduction:

- via seeds (2 to 5 thousand per plant)
- germinable for only a short time in the soil
- via offshoots

### Occurrence and Location:

- native to the whole of Europe
- on loose, deep, neutral to alkaline loam soil that is warm in summer
- on farmland, in gardens, by the wayside

### Associated Plants:

cereal weed communities on basic soils

### Population in Germany:

widespread; not endangered

### Importance in Animal Ecology:

associated species are leaf miner, gall midge, aphid, weevil, many wild bees and other nectar and pollen eaters

### Use:

- bulbs and leaves edible, in past centuries used as food
- nowadays an ornamental plant

### Integrated Control:

control not necessary on farmland, but can grow copiously in gardens

## Capsella bursa-pastoris - Shepherd's Purse - Gewöhnliches Hirtentäschel

[https://en.wikipedia.org/wiki/Capsella\\_\(plant\)](https://en.wikipedia.org/wiki/Capsella_(plant))

[https://de.wikipedia.org/wiki/Gewöhnliches\\_Hirtentäschel](https://de.wikipedia.org/wiki/Gewöhnliches_Hirtentäschel)



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- tap root ca. 90cm deep
- half-rosette plant: upright stem, either single or multiple from the rosette at ground level; grows to 50cm high
- cotyledons elliptical
- leaf rosette with very varied, spoon-shaped to elongate, lobed or pinnatifid leaves
- elongated, many-bloomed flower cluster; crown white
- seeds elliptical to ovate, reddish-brown, finely meshed

Life Cycle:

- summer annual and biennial
- sometimes several generations per year

Germination:

- practically the whole year, but predominantly in autumn
- flat germinator

Flowers and Pollination:

- March to October
- predominately cross-pollination

Reproduction:

- via seeds (2 to 30 thousand per plant)
- germinable after more than 20 years in the soil



#### Occurrence and Location:

- native to the whole world (ubiquitous)
- prefers fresh, nutrient- and nitrogen-rich, sandy and clay loam; nitrogen and mel-  
lowness indicator
- on farmland, gardens and paths
- in root crops, winter cereals and rape

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, wasp, weevil, gall midge, butterfly, etc.

#### Harmful Effects:

- loss of harvest yield due to occasional massive growth
- transmits pests (e.g. flea beetle, nematode) in vegetable crops and rape

#### Integrated Control:

- stubble working and turning the soil
- early seed bed preparation
- early harrowing
- - can be well controlled in maize and cereals with herbicides, but sometimes diffi-  
cult in rape

## Cardamie hirsuta - Hairy bittercress - Behaartes Schaumkraut

[https://en.wikipedia.org/wiki/Cardamine\\_hirsuta](https://en.wikipedia.org/wiki/Cardamine_hirsuta)

[https://de.wikipedia.org/wiki/Behaartes\\_Schaumkraut](https://de.wikipedia.org/wiki/Behaartes_Schaumkraut)



Family: cruciferous plant *Brassicaceae*

Characteristics:

- roots up to 35cm deep
- stem knottily branched on the ground, with few leaves; mostly bare; 7 to 30cm tall
- basal leaf rosettes until the fruit is ripe; rosette leaves with 3- to 7-fold pinnae with diamond or kidney shaped terminal leaflets; upper surface bare or hairy, sparsely hairy at the edge
- leaflets of the stem leaves round or pointed with smooth or dentate edge
- flowers on long upright stalks; white to pale violet in thick, richly blooming clusters
- pods linear, narrowing at the end; seeds rectangular with slender wings, brown

Life Cycle:

annual, occasionally biennial

Flowers and Pollination:

- March to June; also a second time in autumn
- mostly self-pollination

Reproduction:

- via seeds
- germinable after more than 5 years in the soil

#### Occurrence and Location:

- native to all European areas with a mild winter
- somewhat warmth-loving
- on fresh, often shady, moderately acid, nutrient rich, sandy loam
- on paths, in gardens and vineyards, also on farmland

#### Associated Plants:

annual and biennial root crop and ruderal and herbaceous communities

#### Population in Germany:

reasonably widespread; not endangered

#### Integrated Control:

control on farmland not necessary due to its scarcity

## Carduus acanthoides - Spiny Plumeless Thistle - Weg-Distel

[https://en.wikipedia.org/wiki/Carduus\\_acanthoides](https://en.wikipedia.org/wiki/Carduus_acanthoides)

<https://de.wikipedia.org/wiki/Weg-Distel>



Family: Aster Plants *Asteraceae*

Characteristics:

- branched stem, decurrent with long thorns; strong; yellowish; height 30 to 120cm
- cotyledons oval on short stems
- leaves alternating, narrow, bare on the upper surface with lobed, abundantly thorny pinnae; on the underneath hairs along the nerves; upper leaves small, narrow to lance-like, pointed with long thorns
- inflorescence small, spherical, light red-violet; in dense groups or single
- seeds flattened, slightly curved, bald, olive green

Life Cycle:

biannual

Flowers and fertilisation:

- June to October
- pollination by bees and bumble bees

Reproduction:

via seeds

Occurrence and Location:

- native to the Mediterranean and Eastern Europe, also in the Near East; pioneer plant (will grow anywhere)
- prefers light and summer warmth
- on dry, nitrogen-rich and basic locations, mostly on sand
- often on roadsides and by paths; seldom on farmland, when found mostly as rosettes

Associated Plants:

- biannual ruderal communities of nitrogen-herb corridors

Population in Germany:

widespread in the north, more seldom in the south; not endangered

Importance in Animal Ecology:

source of pollen and nectar for many wild bees, flies, beetles, butterflies and other insects. Seeds provide food for birds in winter. Control on farmland not necessary

## **Carduus crispus - Curly Plumeless Thistle - Krause Ringdistel**

[https://en.wikipedia.org/wiki/Carduus\\_crispus](https://en.wikipedia.org/wiki/Carduus_crispus) [https://de.wikipedia.org/wiki/Krause\\_Ringdistel](https://de.wikipedia.org/wiki/Krause_Ringdistel)



Family: Aster Plants *Asteraceae*

Characteristics:

- upright stem, branched, decurrent (extending downwards), winged with thorns; height 50 to 80cm
- cotyledons round-oval
- leaves alternate, lower leaver with short stalks, upper direct on the stem; elongated leaf blade, pinnate, sometimes merely toothed, prickly on the edges, sparsely haired on the upper side, white hairs underneath
- inflorescence half-spherical, protected by a covering of leaves, purple in colour
- yellow-brown, somewhat flattened seeds

Life Cycle:

biannual

Flowers and fertilisation:

- July to September
- pollination by bees and bumblebees

Reproduction:

- via seeds
- seeds, spread by the wind
- germinable after more than 40 years in the soil

#### Occurrence and Location:

- native to Europe and Asia
- on dewy to moist, nutrient-rich humus and sandy loam or clay soil; nutrient and moist soil indicator
- on the edges of fields, woods and roads, seldom on farmland

#### Associated Plants:

- found in herb plots in nitrogen-rich soil

#### Population in Germany:

virtually nationwide; not endangered

#### Importance in Animal Ecology:

a source of pollen and nectar for many wild bees, flies, beetles, butterflies, etc.; seeds provide food for birds in winter

#### Integrated Control:

control on farmland seldom necessary

## Caucalis platycarpus - Carrot Bur Parsley

<https://en.wikipedia.org/wiki/Caucalis>

Family: Umbellifer *Alpiaceae*



Characteristics:

- roots 30 to 45cm dep
- upright growth, little and loosely branched,; grows to 10 to 40cm tall
- cotyledons linear-lanceolate
- leaves ovate, single or double fingered
- 2 to 5 radial double umbels each with 3 long-stalked male flowers and 3 short-stalked hermaphrodite blooms; petals white or reddish
- seeds elongated to ovate, flattened, yellow-brown, reverse side with 4 longitudinal ribs and hooked bristles

Life Cycle:

summer and winter annual

Germination:

mid-spring to early summer and mid-autumn

Flowers:

May to July

Reproduction:

- via seeds (ca. 60 per plant)
- germinable after up to 10 years in the soil



#### Occurrence and Location:

native to middle Europe and Asia

- loves warm, chalk and clay containing soil
- on farmland, in vineyards, by the wayside
- in cereals

#### Associated Plants:

cereal weed communities in basic locations

#### Population in Germany:

strongly reduced, has disappeared in many areas; endangered

#### Importance in Animal Ecology:

associated species are gall midge, aphid

#### Harmful Effects:

only weakly competitive

#### Integrated Control:

control not necessary on farmland because of its rarity in crops; protective measures desirable

## **Centaurea cyanus - Cornflower**

[https://en.wikipedia.org/wiki/Centaurea\\_cyanus](https://en.wikipedia.org/wiki/Centaurea_cyanus)

Family: Aster; composite *Asteraceae*



Characteristics:

- roots 20 to 50cm deep
- half-rosette plant; upright growth; branched hairy stem; grows up to 100cm tall
- cotyledons large, broad oval with very noticeable centre rib, narrowed towards the leaf stem
- leaves with felty hair, lanceolate, emarginately toothed
- panicle of long-stalked heads with a semi-spherical envelope; ray florets blue, disc florets violet on the inside
- seeds elongated-elliptic with fine longitudinal grooves and bristles, whitish to pale blue

Life Cycle:

summer and winter annual

Germination:

mostly in autumn, sometimes also in spring

Flowers and Pollination:

- June to September
- predominantly cross-pollination

Reproduction:

via seeds (700 to 1600 per plant)

#### Occurrence and Location:

- native to the whole world
- loves loose, somewhat damp, chalk- and humus-poor loam and sandy soil
- on farmland, fallowland and by the wayside
- predominantly in winter cereals and rape

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread but declining; not endangered

#### Importance in Animal Ecology:

known to be associated with 8 plant-eating species including aphid, weevil, gall midge, bees, flies, butterflies as bloom visitors

#### Harmful Effects:

very competitive in cereals and rape

#### Integrated Control:

- turning the soil
- early seed bed preparation and mechanical control with a follow-on crop
- mechanically well controlled by early use of harrow
- well controlled by herbicides

## **Cerastium holosteoides - Mouse-Ear Chickweed**

[https://en.wikipedia.org/wiki/Cerastium\\_fontanum](https://en.wikipedia.org/wiki/Cerastium_fontanum) <https://de.wikipedia.org/wiki/Quellen-Hornkraut>



Family: Pink family

Characteristics:

- taproot and branched system of thin roots ca. 20cm deep
- low growth, loosely spreading to arched upright; stalk branched at the base and with glandular hairs; grows to ca. 50cm tall
- cotyledons elliptical to lanceolate
- leaves opposite, the lower with short stalks, the upper directly on the stem; reverse ovate.lanceolate
- umbel; white crown
- seeds roundish kidney-shaped to ovate, flattened, yellow-brown, warty
- other *Cerastium* species grow on farmland mostly on sand) which are difficult to tell apart

Life Cycle:

perennial

Germination:

early spring and into early summer, and in mid to late autumn; plants from offshoots the whole year round

Flowers and Pollination:

- April to October
- self-pollination or by insects

Reproduction:

- via seeds
- via offshoots

#### Occurrence and Location:

- native to all temperate zones
- loves nutrient-rich, acidic, fresh loam and clay soils; loam indicator
- on farmland, in meadows and by the wayside

#### Associated Plants:

farmland weed and meadow communities in fresh soil areas

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, psyllid, butterfly, gall midge, nematode

#### Use and Harmful Effects:

- can be served with salad and soup
- reproduces en masse and forms extensive nests
- an inferior fodder plant in meadows

#### Integrated Control:

- on farmland by harrow or hoe
- in meadowland by increasing the grass growth

## Chaenorhinum minus - Dwarf snapdragon

[https://en.wikipedia.org/wiki/Chaenorhinum\\_minus](https://en.wikipedia.org/wiki/Chaenorhinum_minus)



Family: Figwort *Scrophulariaceae*

Characteristics:

- deep-rooting, 20 to 40cm deep
- growth upright to loosely spread; round stem, mostly with glandular hairs, branched from the bottom up; grows 5 to 40cm tall
- cotyledons rhombic-elliptical with an elongated, blunt, tip
- leaves linear-lanceolate, somewhat fleshy, on a short stalk or directly on the stem
- a cluster of 20 to 30 flowers with long-stalked single blooms in the axil; light violet, light yellow swelling on the lower lip and a short, conical, cropped spur
- capsule unsymmetrical ovate with a shallor lateral groove; seeds elongated-cylindrical with 10 parallel longitudinal ribs; black-brown

Life Cycle:

summer annual

Germination:

mid spring to early summer

Flowers and Pollination:

- June to October
- self-pollination

Reproduction:

- via seeds (500 to 2,500 per plant)
- germinable after more than 30 years in the soil

Occurrence and Location:

- native to the whole of Europe
- somewhat warm-loving
- on moderately fresh, nutrient- and base-rich, stony loam
- on farmland and in vineyards, on wasteland

Associated Plants:

farmland weed communities in basic areas and ruderal communities

Population in Germany:

widespread; not endangered

Importance in Animal Ecology:

host plant for a variety of weevil species

Integrated Control:

control not necessary

## **Chelidonium majus - Greater celandine, nipplewort**

[https://en.wikipedia.org/wiki/Chelidonium\\_majus](https://en.wikipedia.org/wiki/Chelidonium_majus)



Family: Poppy *Papaveraceae*

Characteristics:

- branched rhizome
- branched stem; a plant with milky yellow sap; grows 30 to 50cm tall
- leaves dentate pinnate, upper leaves pinnatifid; oval feathers, unsymmetrically lobed and notched; blue-green underneath
- umbel with few flowers; yellow petals
- pod-like fruit, knotty, growing double-lobed from the ground; seeds ovate, black, with a pitted network with a pectinate stalk

Life Cycle:

biennial to perennial

Flowers and Pollination:

- May to September
- self-pollination and by insects

Reproduction:

- via seeds
- vegetative through rhizomes



#### Occurrence and Location:

- native to all Europe
- on fresh, nutrient-rich, moderately acid, loose, stony sandy soil or pure loam; nitrogen indicator
- on paths, in gardens, hardly at all on farmland

#### Associated Plants:

field edge communities in nitrogen-rich areas

#### Population in Germany:

extensively widespread, usually not endangered

#### Use and Harmful Effects:

- medicinal use against warts
- toxic because of its alkaloid content

#### Integrated Control:

control not necessary because of its rarity

## Chenopodium album - White Goosefoot

[https://en.wikipedia.org/wiki/Chenopodium\\_album](https://en.wikipedia.org/wiki/Chenopodium_album)



Family: Goosefoot *Chenopodiaceae*

Characteristics:

- tap root up to 100cm longitudinal – upright branched stem powdered with floury dust, grow up to 200cm
- cotyledons long, slender, rounded at the tip, underside often red-violet
- leaves lanceolate, narrowing in a wedge shape, toothed, powdered with floury dust
- upright to protruding, loose flower cluster, whitish-green
- seeds discus shaped brown to black, fine-meshed, shiny

Life Cycle:

summer annual

Germination:

- spring to summer, also the whole year

Flowers and Pollination:

- spring to summer
- pollination by wind

Reproduction:

- via seeds (over 3 thousand per plant)
- germinable after more than 20 years in the soil

#### Occurrence and Location:

- all over the world
- on loose, damp, nitrogen-containing loam and sandy soil
- in gardens and on farmland
- in sugar beet, maize and vegetables

#### Associated Plants:

root crop and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include leaf miner, weevil, nematodes, etc.

#### Harmful Effects:

- water and nutrient competitor
- woody stems make harvesting more difficult

#### Integrated Control:

- turning the soil
- early seed bed preparation
- harrowing while the plants are young
- well controlled by chemicals

## Chenopodium ficifolium - Fig-Leaved Goosefoot - Feigenblättriger Gänsefuß

[https://en.wikipedia.org/wiki/Chenopodium\\_ficifolium](https://en.wikipedia.org/wiki/Chenopodium_ficifolium)

[https://de.wikipedia.org/wiki/Feigenblättriger\\_Gänsefuß](https://de.wikipedia.org/wiki/Feigenblättriger_Gänsefuß)



Family: Goosefoot *Chenopodiaceae*

Characteristics:

- root up to 85cm deep
- blunt-edged stem, upright, branched; grows up to 150cm tall
- cotyledons straight
- leaves elongated with two large teeth on the lower third; lightly floured
- small, pyramidal, loose panicle, from the leaf axis; light green flowers
- seeds discus-shaped, shiny black with a honeycomb structure

Life Cycle:

summer annual

Germination:

- Spring
- flat germinator

Flowers and Pollination:

- July to September
- predominantly cross-pollination

Reproduction:

- via seeds (3 to 20 thousand per plant)
- seeds germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to Europe, Africa and Asia
- on damp, nitrogen-rich soil
- on farmland and in gardens, by the wayside
- particularly in sugar beet, maize and vegetable crops, seldom in cereals

#### Associated Plants:

root crop and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include leaf miner, weevil, aphid, moth, small butterflies, nematodes, etc.

#### Harmful Effects:

- nutrient competitor due to the strong shoot and root growth
- harvesting difficulty because of the woody stems

#### Integrated Control:

- turning the soil
- early seed-bed preparation
- early use of harrowing, when plants are young
- well controlled by chemical means

## **Chenopodium hybridum - Maple-Leaved Goosefoot - Bastard-Gänsefuß**

<https://en.wikipedia.org/wiki/Chenopodioideae>

<https://de.wikipedia.org/wiki/Bastard-Gänsefuß>



Family: Goosefoot *Chenopodiaceae*

Characteristics:

- strong tap-root ca. 130cm deep
- upright stem, partly branched, bald; grows to 100cm tall
- cotyledons long and slender, somewhat rounded at the end
- large leaves on long stalks, ovoid to triangular, irregularly, roughly toothed
- leaves emit an unpleasant odour when rubbed
- wide pyramidal inflorescence of long, disconnected, green flower heads
- disc-like shiny black seeds, finely pitted

Life Cycle:

summer annual

Germination:

Spring to Summer

Flowers and Pollination:

- May to August
- predominantly by cross-pollination

Reproduction:

- via seeds (1 to 15 thousand per plant)
- seeds germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to all Europe
- mostly on warm, nitrogen-rich, loose soil
- on farmland, in gardens and by the wayside
- particularly in sugar beet, maize and vegetable crops

#### Associated Plants:

root crop weed communities in nitrogen-rich locations and ruderal communities

#### Population in Germany:

widely dispersed; nor endangered

#### Importance in Animal Ecology:

associated species include leaf miner, weevil, aphid, psyllid, moths and small butterflies, nematodes, etc.

#### Harmful Effects:

- large loss of yields due to the strong shoot and root growth
- harvesting difficulty because of the woody stems
- nitrogen competitor

#### Integrated Control:

- turning the soil
- early seed-bed preparation
- early use of harrow, when plants are young
- use of post-emergence herbicides

## Chenopodium polyspermum - Manyseed Goosefoot

<https://en.wikipedia.org/wiki/Lipandra>

Family: Goosefoot *Chenopodiaceae*

Characteristics:



- taproot ca. 70cm deep
- stem broadly branched, often streaked with red, upright; grows up to 100cm in height
- cotyledons narrow ovate on short stalks
- leaves ovate to lanceolate, smooth edges, with a noticeable stalk and a red edge
- slender panicle of short, loose clusters; flowers green-brown to reddish

Life Cycle:

summer annual

Germination:

spring to early summer

Flowers and Pollination:

- July to September
- predominantly cross-pollination

Reproduction:

- via seeds (2 to 5 thousand per plant)
- germinable after a long time in the soil



#### Occurrence and Location:

- has become globally spread
- on nutrient-rich, well aerated and watered loam
- on farmland, in gardens and vineyards
- often in sugar beet, vegetable crops and maize

#### Associated Plants:

root crop and river bank communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include leaf miner, weevil, nematodes, etc.

#### Harmful Effects:

- sometimes grows in massive quantities
- competitor for water and nutrients
- woody stems make harvesting more difficult

#### Integrated Control:

- turning the soil
- early seed bed preparation
- harrowing while the plants are young
- well controlled by chemicals

## Chenopodium vulvaria - Stinking Goosefoot

[https://en.wikipedia.org/wiki/Chenopodium\\_vulvaria](https://en.wikipedia.org/wiki/Chenopodium_vulvaria)



Family: Goosefoot *Chenopodiaceae*

Characteristics:

- small, upright to sprawling, spreading branched, 15 to 40cm tall
- leaves alternate, stalked; leaf blade rhombic to oval with entire margins
- all parts covered in a floury dust; glandular hairs
- characteristic ghastly smell (of rotten fish)
- small flowers, without a leafy bract, on the end of the stem and the branches, balled in masses
- seeds lenticular; brown-black, smooth seed dish

Life Cycle:

summer annual

Germination:

Spring

Flowers and Pollination:

- May to September
- pollination by the wind, rarely by insects

Reproduction:

via seeds

Occurrence and Location:

native to the Mediterranean, middle- and Eastern Europe; also occurs in parts of Asia

- on warm, dry, nitrogen-rich loam and sandy soil
- on farmland, by the wayside, in extensive vineyards, on rubbish and other dumps
- in root crops

Associated Plants:

root crop weed communities in basic locations and in paving cracks

Population in Germany:

rare; very much endangered

Use and Harmful Effects:

- once used as a medicinal plant
- slightly toxic, skin irritant

Integrated Control:

control unnecessary because of its rarity; protective measures desirable

## **Cirsium arvense - Creeping thistle, field thistle**

[https://en.wikipedia.org/wiki/Cirsium\\_arvense](https://en.wikipedia.org/wiki/Cirsium_arvense)

Family: aster; composite *Asteraceae*



Characteristics:

- roots can be over 300cm deep
- upright stem branched in the upper part; grows 60 to 120cm tall
- cotyledons broad oval
- leaves wavy, upper surface shiny, hairy underneath, leaf edge thorny
- many-headed panicle; light violet flowers
- seeds elongated-elliptical to coniform, flattened, with fine longitudinal grooves, olive green, smooth

Life Cycle:

perennial

Germination:

- spring
- flat germinator

Flowers and Pollination:

- July to August
- predominantly cross-pollination

Reproduction:

- via seeds (3 to 5 thousand per plant)
- germinable after more than 15 years in the soil
- deep, horizontal root offshoots

#### Occurrence and Location:

- native to all temperate zones
- on nutrient-rich farmland
- occurs in clumps in cereals, maize and other summer crops

#### Associated Plants:

- all farmland weed communities and in border, rubble and pioneer plant communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for at least 108 insect eating species; pollen and nectar source for many wild bees, flies, beetles and butterflies

#### Harmful Effects:

- water and nutrient competitor due to the strong shoot and bud formation
- loss of quality and difficulty in harvesting where there are nests of the plant

#### Integrated Control:

- turning the soil
- early seed bed preparation

## **Cirsium vulgare - Common thistle**

[https://en.wikipedia.org/wiki/Cirsium\\_vulgare](https://en.wikipedia.org/wiki/Cirsium_vulgare)



Family: Aster; composite *Asteraceae*

Characteristics:

- grows up to 150cm tall
- cotyledons roundish-oval
- leaves lanceolate, pinnatifid, leaf edges decurrent and with spines
- the plants have wooly hair
- light purple flowers in small heads

Life Cycle:

biennial

Germination:

spring

Flowers:

July to September

Reproduction:

via seeds (3 to 5 thousand per plant)

Occurrence and Location:

- native to the whole of Europe
- in ruderal areas, in meadows and on river banks, seldom on farmland

Associated Plants:

rubble and ruderal plants

Population in Germany:

nationwide; not endangered

Importance in Animal Ecology:

pollen and nectar source for wild bees, flies and butterflies; host plant for ca. 126 plant-eating species

Harmful Effects:

- plants are strongly competitive due to the very strong bud and root formation
- little damage on farmland because they do not spread too much

Integrated Control:

- deeply turning the soil and repeated stubble working in dry weather reduces the store of seeds in the soil and disturbs the roots
- well controlled in cereals by hormone weed killers

## Conium maculatum - Hemlock

[https://en.wikipedia.org/wiki/Conium\\_maculatum](https://en.wikipedia.org/wiki/Conium_maculatum)



Family: Umbellifer *Apiaceae*

Characteristics:

- round, densely branched, bluish stem with red spots underneath, finely grooved; grows 50 to 250cm tall
- cotyledons lanceolate on a long stalk
- bare featherd leaves, triangular or ovate; 2 to 4-fold pinnate (feathered), long triangular tip, deeply sawed, narrowing above
- 10 to 20-rayed whitish umbel
- seeds ovate, grey-green, bare
- repellent mousy smell when rubbed

Life Cycle:

winter annual, sometimes biennial

Germination:

autumn and spring

Flowers:

June to September

Reproduction:

- via seeds (500 to 600 per plant)
- germinable after more than 10 years in the soil



### Occurrence and Location:

- native to Europe, Asia and America
- summer warmth loving
- on seasonally damp, nutrient-rich loam and clay soil; loam and nitrogen indicator
- by the wayside, on wasteland, on farmland
- in winter rape and root crops

### Associated Plants:

farmland and ruderal weed communities

### Population in Germany:

widespread in the north, scattered in the south, now spreading along traffic routes; not endangered

### Importance in Animal Ecology:

host plant for dovetail (swallowtail) and shield bug; important as a source of nectar

### Use and Harmful Effects:

- contains strongly toxic alkaloids
- used as a medicinal plant
- occasionally a troublesome weed
- difficult to control in winter rape

### Integrated Control:

- intensive stubble working
- higher proportion of cereals in crop rotation
- hoeing in row cultures
- herbicide as post-emergence treatment

## **Convolvulus arvensis - Field bindweed**

[https://en.wikipedia.org/wiki/Convolvulus\\_arvensis](https://en.wikipedia.org/wiki/Convolvulus_arvensis)

Family: Bindweed or morning glory *Convolvulaceae*



Characteristics:

- taproot up to 300cm deep
- stem has a prostrate or twisting growth; grows to over 100cm
- cotyledons heart-shaped or spatulate with a definite stalk and noticeable veining
- ovate leaves on a stalk
- bunches of funnel-shaped blooms in the leaf axil, white or pale red
- seeds ovate, conical with a blunt tip, round to triangular, black to dark brown, very warty

Life Cycle:

perennial

Germination:

mid to late spring; also the whole year

Flowers and Pollination:

May to September

- pollination by insects (bees, flies)

Reproduction:

- via seeds (ca. 500 per plant)
- germinable after more than 20 years in the soil
- via deep horizontal offshoots

#### Occurrence and Location:

- native to the whole world
- on fresh to moderately dry, nutrient- and base-rich loam and clay soil; indicator for loam and warmth
- on farmland, in gardens and vineyards, on paths and on wasteland
- particularly in summer crops

#### Associated Plants:

many weed communities, also ruderal and pioneer communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for gall mite, beetle, leaf miner, butterfly (including the hawk moth), seed beetle, aphid, nematode

#### Harmful Effects:

- high regeneration potential from a considerable depth from pieces of root offshoots
- competitor for light and nutrient
  - harvesting difficulty near nests of the weed

#### Integrated Control:

- turning the soil and stubble working
- treatment of field edges
- difficult to control with herbicides

## **Coronopus squamatus - Crowfoot; greater swinecress - Niederliegender Krähenfuß**

<https://en.wikipedia.org/wiki/Coronopus>

[https://de.wikipedia.org/wiki/Niederliegender\\_Krähenfuß](https://de.wikipedia.org/wiki/Niederliegender_Krähenfuß)



Family: Cruciferous plant

Characteristics:

- roots 25 to 40cm deep
- half-rosette plant; prostrate, sprawling flat growth; bare stem branched at the base; grows 5 to 30 cm tall
- mid-length cotyledons, linear lanceolate
- leaves 1-2 fols pinnatisect
- inflorescence short, crowded, flower stem shorter as the flowers, petals white
- podlets kidney shaped, with no insertion, spiked; seeds kidney shaped, wrinkled, furrowed, toothed, yellow-brown

Life Cycle:

summer annual

Germination:

mid to late spring

Flowers and Pollination:

- May to August
- self-pollination and by flies

Reproduction:

via seeds (ca. 100 per plant)

- germinable after more than 5 years in the soil

#### Occurrence and Location:

- native to Europe
- warmth-loving
- on intermittently damp, nitrogen-rich loam and clay soil; clay indicator
- on farmland, in gardens and by the wayside

#### Associated Plants:

cereal weed communities and other plants that are often trampled

#### Population in Germany:

scattered and mostly declining; regionally endangered

#### Importance in Animal Ecology:

associated species are beetle, aphid, thrips, weevil, gall midge, butterfly, nematode; also many other insects which feed on nectar and pollen

#### Harmful Effects:

weakly competitive due to its low growth

#### Integrated Control:

control not necessary

## **Cynodon dactylon - Bermuda grass**

[https://en.wikipedia.org/wiki/Cynodon\\_dactylon](https://en.wikipedia.org/wiki/Cynodon_dactylon)



Family: Sweetgrass *Poaceae*

Characteristics:

- roots up to 50cm deep
- loose to thick, grass-like growth with horizontal, creeping surface shoots and underground rhizomes; up to 30cm tall
- stem often a reddish colour
- a very small, lightly haired ligule without leaf auricle
- leaf blade and base have light, white hairs, the central nerve is hardly visible; leaves grey-green, multiple buds on the internodes, from which the new stem is formed
- finger-spike grass; 3 to 7 hand-shaped branched ears at the same height, without a beard

Life Cycle:

perennial

Germination:

spring to summer

Flowers and Pollination:

- May to June
- predominantly cross-pollination

Reproduction:

- via seeds (50 per plant)
- germinable for two years in the soil
- vegetative reproduction via the smallest sections of the stolon / rhizome

### Occurrence and Location:

introduced and has become native over the whole world in semi-arid areas

- in locations that are warm in the summer
- on dry, nutrient-rich, loamy clay or pure sand and loess soils; tolerates acid, salty soil
- on farmland, in vineyards, on paths
- in maize and soya bean

### Associated Plants:

root crop and trodden area communities

### Population in Germany:

scattered

### Harmful Effects:

- grows in nests; rapidly turns sandy soil green
- can be strongly competitive
- buds are relatively frost resistant

### Integrated Control:

- repeated stubble working
- planting catch crops and feed plants
- turning the soil
- cleaning up the field edges
- use of selective herbicides

## **Cyperus esculentus - Yellow nutsedge**

[https://en.wikipedia.org/wiki/Cyperus\\_esculentus](https://en.wikipedia.org/wiki/Cyperus_esculentus)



Family: Sedge *Cyperaceae*

Characteristics:

- rhizomes grow horizontally under the soil; round bulbs at their ends
- strong, triangular stalk with leaves on the lower part; grows 50cm tall
- shony, light green leaf rosette
- inflorescence with 4 to 10 branches with yellow-brownish ears at the tip and frames by 2 to 9 spathaceous bracts

Life Cycle:

perennial

Germination:

- spring and summer
- sprouting in spring
- requires light for budding from the bulbs and germination of the seeds

Flowers and Pollination:

summer and autumn

Reproduction:

- predominantly vegetative through bulbs
- also via seeds



#### Occurrence and Location:

- introduced from the subtropics primarily by trade with pot plants; has now become native
- warmth-loving
- preferentially on light, damp soil
- particularly in maize and soja bean

#### Associated Plants:

root crop weed communities

#### Population in Germany:

in Baden-Wuerttemberg (Rhine Valley) and in Emsland

#### Use and Harmful Effects:

- tiger nuts are edible, contain starch
- bulbs are very resistant to drought and cold
- considerable loss of harvest yield if it grows in large amounts
- causes much damage worldwide as it is hardly controllable by chemical or mechanical means

#### Integrated Control:

- planting perennial feed crops
- preventing spreading

## **Cyperus rotundus - Nut sedge**

[https://en.wikipedia.org/wiki/Cyperus\\_rotundus](https://en.wikipedia.org/wiki/Cyperus_rotundus)



Family: Sedge *Cyperaceae*

Characteristics:

- has horizontally growing rhizomes under the soil at whose ends round bulbs are formed
- triangular stalk; shiny leaf rosette; grows up to 140cm tall
- yellow-brownish umbel

Life Cycle:

perennial

Germination:

- spring and summer
- shoots in spring
- action of light necessary

Flowers:

summer and autumn

Reproduction:

- predominantly vegetative via bulbs
- also via seeds

#### Occurrence and Location:

- invasive species; impermanent; originated in Africa, now spread to all tropical and subtropical zones
- warmth-loving
- preferentially in warm locations on light, moist soil; bulbs are very resistant to drought and cold
- grows in root crops, cereals and maize

#### Use and Harmful Effects:

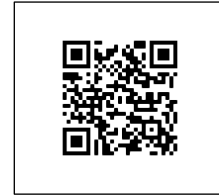
- fruit is edible, contains much starch
- produces substances which hinder the growth of other plants
- very competitive due to its massive Occurrence and rapid establishment
- almost impossible to control by chemical or mechanical means

#### Integrated Control:

- permanent shading of the soil with perennial crops which should be regularly mown
- preventing the spreading of the bulbs by hygiene measures

## **Datura stramonium - Jimsonweed**

[https://en.wikipedia.org/wiki/Datura\\_stramonium](https://en.wikipedia.org/wiki/Datura_stramonium)



Family: Nightshade *Solanaceae*

Characteristics:

- root up to 120cm deep
- half-bushy plant, mostly much branched, bare; grows up to 120cm tall
- cotyledons long, slender, pointed
- ovate leaves on long stalks, pointed, lobed, dark green on the upper side, lower leaves large
- large, radiant white or light blue funnel shaped flowers in the leaf axil
- thorny ovate fruit, upright and four lobed; seeds flat, brown-black, pitted network, spots

Life Cycle:

summer annual

Germination:

- late spring
- germination requires a temperature of ca. 15C

Flowers and Pollination:

- July to September
- predominately cross-pollination

Reproduction:

via seeds (400 to 6,000 per plant)

- germinable after more than 30 years in the soil

#### Occurrence and Location:

- introduced from the USA in contaminated seed supplies and bird seed; has become established all over the world
- prefers nutrient-rich, well-aerated soil; nitrogen indicator
- on farmland, paths and wasteland
- in maize, potato and beet

#### Associated Plants:

- annual root crop and short-live ruderal communities

#### Population in Germany:

rare, in places increasing

#### Importance in Animal Ecology:

moth pant

#### use and Harmful Effects:

- contains highly toxic alkaloids
- formerly used as a medicinal plant
- in crops that cover the ground only late in the season it develop well and is strongly competitive
- difficult to control in maize

#### Integrated Control:

- planting winter crops and feed crops
- can be copntrolled by earl use of harrow and hoe
- individual removal of plants before they bloom

## **Daucus carota - Wild carrot**

[https://en.wikipedia.org/wiki/Daucus\\_carota](https://en.wikipedia.org/wiki/Daucus_carota)

Family: Umbellifer *Apiaceae*



Characteristics:

- tap root 30 to 80cm deep
- half-rosette plant; upright growth, bristly stem, seldom further branched, grows 50 to 100cm tall
- narrow lanceolate cotyledons on long stalks
- bristly leaves, triple-feathered
- white umbels with black-violet flowers in the middle
- seeds elliptical to ovate, flattened, yellow-grey to brown-grey, on the reverse four deep longitudinal ribs with long bristles

Life Cycle:

biennial

Germination:

mid to late spring

Flowers and Pollination:

- June to September
- pollination by insects

Reproduction:

- via seeds (4 to 10 thousand per plant)
- germinable after more than 35 years in the soil

#### Occurrence and Location:

- native to all Europe
- somewhat warmth-loving
- prefers warm, rather dry, light, moderately acid loam
- mostly in meadows, by the wayside and in orchards, less often on farmland

#### Associated Plants:

farmland weed communities, particularly perennial crops, in disrupted meadowland weeds and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for butterflies, flies, hymenoptera, aphid, beetle, psyllid, gall midge, nematodes; flowers important for flies, soldier beetles and parasitic wasps

#### Integrated Control:

control on farmland not necessary

## **Delphinium consolida - Larkspur**

[https://en.wikipedia.org/wiki/Consolida\\_regalis](https://en.wikipedia.org/wiki/Consolida_regalis)



Family: Butercup *Ranunculaceae*

Characteristics:

- root up to 50cm deep
- branched upright stem with short hairs; grows 20 to 50cm tall
- cotyledons roundish ovate on a stalk
- leaves multiply finely feathered with narrow linear tips; bracts in 1 to 3 parts, the upper ones linear
- flowers pale or dark azure, spurred, in loose, ribbed clusters of a few flowers; single flowers on a stalk
- fruit hairless; seeds dark brown with rough scales

Life Cycle:

annual

Germination:

early to late spring

Flowers:

May to August

Reproduction:

- via seeds (ca. 200 per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native to Europe and Asia Minor
- warmth-loving
- on fresh to dry, chalk-rich sandy soil and loam; chalk indicator
- on farmland, in vineyards, seldom by the wayside or on wasteland
- in winter cereals, but also in summer cereals and leaf crops

#### Associated Plants:

cereal weed communities of base-rich, warm areas

#### Population in Germany:

scattered to rare; endangered

#### Importance in Animal Ecology:

host plant for sawfly, beetle, aphid, thrips, cicada, deltoid moth; pollen and nectar plant (bee flower)

#### Use and Harmful Effects:

contains toxic alkaloids; formerly used as a medicinal plant

- a rare weed species which causes hardly any damage to crops

#### Integrated Control:

control not necessary because of its rarity; protective measures desirable

## Descurania sophia - Common Flixweed - Gewöhnliche Besenrauke

[https://en.wikipedia.org/wiki/Descurainia\\_sophia](https://en.wikipedia.org/wiki/Descurainia_sophia) [https://de.wikipedia.org/wiki/Gewöhnliche\\_Besenrauke](https://de.wikipedia.org/wiki/Gewöhnliche_Besenrauke)



Family: Crucifer *Brassicaceae*

Characteristics:

- ca. 60cm deep taproot
- half rosette plant; thickly feathered leaves covered with fine hair; upright growth; ca. 50cm high
- small, claviform (club-shaped) cotyledons
- egg-shaped leaves with feathery blade
- inconspicuous flowers, yellow-green; petals as long as the calyx; terminal blossom; pods bend upwards
- seeds slender egg-shaped elliptical

Life Cycle:

winter annual, sometimes summer annual

Germination:

- autumn and spring
- flat germinator

Flowers and fertilisation:

- May to September
- self- and cross-pollination

Reproduction:

- via seeds (100,000 per plant)
- germination possible in soil after 2 years

### Occurrence and Location:

native to Europe, Asia and North Africa

- warm loving
- prefers nitrogen-rich, dry to moderately damp sandy or stony loam; sand indicator
- on farmland, paths and fallow land
- particularly in winter rape and cereals

### Associated Plants:

- other field weeds and roadside plants

### Population in Germany:

widespread (in Eastern Germany) to rare; not endangered

### Importance in Animal Ecology:

associated with at least 82 plant-eating insects including beetles, thrips, aphids, weevils, butterflies and other nectar- and pollen-consuming insects

### Harmful Effects:

- a regional problem if it reproduces strongly
- control in winter rape is difficult

### Integrated Control:

- intensive stubble working
- in root crops post-emergence treatment or hoeing at row ends

## **Digitaria ischaemum - Smooth crabgrass**

[https://en.wikipedia.org/wiki/Digitaria\\_ischaemum](https://en.wikipedia.org/wiki/Digitaria_ischaemum)



Family: Sweetgrass *Poaceae*

### Characteristics:

- roots from basal clumped nodes, little branching, with many fine root filaments; roots down to 40cm deep
- builds clumps; upright, straight or kinked ascending leaf and flower shoots; leaf blades prostrate; sometimes roots grow on the leaf node; grows up to 45cm tall
- short white ligule
- violet leaf sheath, leaves sometimes hairy at the base
- finger-eared grass; inflorescence with 3 to 5 spikes

### Life Cycle:

summer annual

Germination: early summer

- flat germinator

### Flowers and Pollination:

- July to October
- predominantly cross-pollination

### Reproduction:

- via seeds (ca. 1000 per plant)
- germinable for only a few years in the soil

#### Occurrence and Location:

- native to middle and eastern Europe
- warmth-loving; humid climate
- preferentiall on nutrient-poor, moderately to strongly acidic, loamy and pure sandy soil that is dry in summer
- in maize and vegetable crops

#### Associated Plants:

- root crop weed and ruderal communities

#### Population in Germany:

scattered; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, bugs, nematode, etc.

#### Harmful Effects:

- often survives weed control because of its late germination
- strongly competitive if present in large amounts

#### Integrated Control:

- field edge hygiene
- turning the soil
- planting winter crops
- taking care to vary active ingredient of control agents

## **Digitaria sanguinalis - Hairy crabgrass**

[https://en.wikipedia.org/wiki/Digitaria\\_sanguinalis](https://en.wikipedia.org/wiki/Digitaria_sanguinalis)



Family: Sweetgrass *Poaceae*

### Characteristics:

- roots are leaf nodes bunched at the leaf base, branched and with fine filamentous roots; roots down to 45cm deep
- forms clumps; leaf blade loosely hairy, grows upwards with a kink; grows up to 60cm tall
- cotyledons broad lanceolate
- no leaf auricle, ligule of middle length
- reddish leaf sheath; leaves shiny, hairy; central nerve on the lower surface of the leaf
- finger-eared grass; inflorescence with up to 10 ears

### Life Cycle:

summer annual

### Germination:

- early summer
- flat germinator

### Flowers:

July to October

### Reproduction:

- via seeds (200 to 700 per plant)
- germinable for only a few years in the soil

#### Occurrence and Location:

- native to the whole world
- warmth-loving
- on dry to moderately dry, nutrient-rich, mostly chalk-poor, neutral to weakly acidic pure loam or sandy soil

#### Associated Plants:

root crop weed and ruderal communities

#### Population in Germany:

moderately common; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, bugs, nematode, etc.

#### Harmful Effects:

- often survives weed control because of its late germination
- strongly competitive if present in large amounts

#### Integrated Control:

- field edge hygiene
- turning the soil
- planting winter crops
- taking care to vary active ingredient of control agents

## **Diplotaxis muralis - Annual Wall Rocket - Mauer-Doppelsame**

[https://en.wikipedia.org/wiki/Diplotaxis\\_muralis](https://en.wikipedia.org/wiki/Diplotaxis_muralis) <https://en.wikipedia.org/wiki/Mauer-Doppelsame>



Family: Cruciferous Plants *Brassicaceae*

Characteristics:

- taproot ca. 70cm
- half-rosette plant, upright to loosely spread growth; the plant is bare or hairy and branched at the base; 10 to 50cm tall
- cotyledons round-elliptical
- leaves roughly saw-toothed with triangular sections
- extended, leafless cluster of flowers; petals spatulate, golden yellow; the two outer stamens are nearly as long as the four inner ones, and with a similarly sized anther
- pistil extended vertically, sitting in the entrance to the flower cup; seeds elliptical to egg-shaped, flattened, yellow-brown, finely meshed

Life Cycle:

annual to biannual

Germination:

early to late spring

Flowers:

May to October

Reproduction:

via seeds (ca. 500 per plant)

Occurrence and Location:

- native to middle and southern Europe
- prefers light and warm (thermophilic)
- on moderately dry, nutrient-rich, often chalky, sandy, stony or clay soil



- on farmland, roadsides, in fallow land

- in root crops

Associated Plants:

root crop communities in basic locations and ruderal communities

Population in Germany:

scattered to rare; endangered in some places

Importance in Animal Ecology:

Integrated Control:

too rare for control to be necessary on farmland; protection desirable

Importance in Animal Ecology:

associated species include aphids, cicadas, butterflies, etc.

Uses:

- as ground cover during spring drought

Harmful Effects:

competitor for water and nutrients; harmful effects minimal in maize

Integrated Control:

- promotion of rapid growth of young crops

- repeated preparation of seed beds

- well controlled by harrowing, hoeing and harrowing up to the 4-leaf stage

## **Draba verna - Spring Draba**

[https://en.wikipedia.org/wiki/Draba\\_verna](https://en.wikipedia.org/wiki/Draba_verna)



Family: Cruciferous plant *Brassicaceae*

### Characteristics:

- flat root, 4 to 5cm deep
- rosette plant; upright with leaves from the base; stem single or multiple from the rosette; grows 2 to 20cm tall
- cotyledons spatulate to roundish
- leaves with entire margins or toothed, mostly with stellate hair, no leaves directly on the stem#-
- loose flower cluster with flowers on a long stalk; petals double-lobed, white
- seeds elliptical to ovate, flattened, yellow-brown, finely meshed

### Life Cycle:

- summer and winter annual

### Germination:

- late winter to the middle of spring
- mid to late autumn

### Flowers and Pollination:

- march to May
- self-pollination and by insects

### Reproduction:

- via seeds (100 to 200 per plant)
- germnable only fo a short time in the soil

#### Occurrence and Location:

- pioneer plant native to all Europe
- warmth-loving
- loves dry, humus-rich loam, sandy and gravelly soils; sand indicator
- on farmland and paths, in walls, in neglected and sandy grass, in wasteland

#### Associated Plants:

- farmland weed communities, weeds of sparse grass and pioneer plant locations

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated monophagous species known are weevil and gall mites

#### Harmful Effects:

very weakly competitive

#### Integrated Control:

control not necessary

## **Echinochloa crus-galli - Cockspur**

[https://en.wikipedia.org/wiki/Echinochloa\\_crus-galli](https://en.wikipedia.org/wiki/Echinochloa_crus-galli)



Family: Sweetgrass *Poaceae*

Characteristics:

- roots out of basally clumped leaf nodes, rope-like with many fine roots; roots down to 100cm deep
- tussock grass with single leaves; spreading growth or loosely ascending; little tillering; leaf blade sometimes kinked; grows up to 200cm tall
- cotyledons lanceolate
- wide ligule, no leaf auricle
- leaf sheath pressed flat, with hairs on the nodes; broad leaves, green to dark green, often with a reddish middle nerve
- panicle with obliquely projecting branches

Life Cycle:

summer annual; in suitable conditions two generations per year

Germination:

- late spring to early summer
- from up to 5cm depth

Flowers and Pollination:

- July to October
- predominantly self-pollination

#### Reproduction:

- via seeds (150 to 400 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the whole world
- preferably on dry, warm, fresh loam and sandy soil; nitrogen-loving
- on farmland, in gardens, on wasteland
- in all summer crops

#### Associated Plants:

root crop weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- very strongly competitive
- difficult to control as germination is late

#### Integrated Control:

- turning the soil
- planting nurse crops in maize
- planting winter crops
- early mowing of field edges
- well controlled by mechanical and chemical means

## **Elymus repens - Couch grass**

[https://en.wikipedia.org/wiki/Elymus\\_repens](https://en.wikipedia.org/wiki/Elymus_repens)

Family: Sweetgrass *Poaceae*



### Characteristics:

- grass plant with offshoots and subterranean rhizomes growing horizontally
- roots somewhat branched and with many fibrous root-hairs; roots down to 80cm
- growth clumped to lawn-like; shape similar to ryegrass; up to 120cm tall
- fine cotyledon, somewhat rolled up from the edge
- leaf auricles wrapped around the stem, ligule with short teeth but hardly present
- leaves helical; smooth, rolled leaf sheath, lashed on the lower part
- ears grow directly on the spindle

### Life Cycle:

perennial

### Germination:

- mostly in spring
- from up to 8cm deep

### Flowers and Pollination:

- June to July
- predominately cross-pollination

### Reproduction:

- via seeds (ca. 50 per plant)
- germinable after 3 to 8 years in the soil
- vegetative via sections of rhizome

#### Occurrence and Location:

- native to Europe and western Asia
- on fresh, nutrient- and base-rich loam and clay soil; nitrogen-loving
- on farmland, in pasture, on paths and wasteland
- in all crops

#### Associated Plants:

farmland weed communities and ruderal grassland pioneer communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- strongly competitive
- contains substances which inhibit the growth of nearby plants
- causes harvest difficulty and increases moisture during threshing

#### Integrated Control:

- stubble working and turning the soil
- planting catch crops
- fewer winter crops in the crop rotation
- treat stubble with non-selective herbicide

## **Equisetum arvense - Field horsetail**

[https://en.wikipedia.org/wiki/Equisetum\\_arvense](https://en.wikipedia.org/wiki/Equisetum_arvense)

Family: Horsetail *Equisetaceae*



Characteristics:

- shrub with offshoots up to 50cm deep which creep for meters in several layers; roots up to 160cm deep
- grows to 30cmtall
- yellow-brown spore stalks in spring
- whorled, branched shoots formed after flowering

Life Cycle:

perennial

Flowers:

brown spore shoots in early spring

Reproduction:

- via rhizome offshoots
- rarely via spores

Occurrence and Location:

- native to the whole world
- on heavy, waterlogged, nutrient- and base-rich loam and clay soil; indicator of loam, subsoil wetness and damaged soil structure
- on farmland and in meadows, on paths, dams and in ditches
- requires light so found in cultures planted with a good separation between rows, such as maize



#### Associated Plants:

farmland weed, pioneer, ruderal and meadow weed communities in damp areas

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for beetle and saw fly

#### Use and Harmful Effects:

- high content of silicic acid; formerly used for washing crockery and cutlery („horse-tail!“)
- used in ecological farming to make a brew against fungal disease
- contains toxins
- weakly competitive, but can occur in massive amounts
- can hardly be controlled with herbicides

#### Integrated Control:

- turning the soil
- cultivation of feed plants and cereals
- avoiding soil compaction

## Erigeron canadensis, Conyza canadensis - Canadian Horseweed

[https://en.wikipedia.org/wiki/Erigeron\\_canadensis](https://en.wikipedia.org/wiki/Erigeron_canadensis)

Family: Composite Plants *Asteraceae*



Characteristics:

- 23 to 150 cm deep taproot
- hairy stem, prostrate to upright
- height 30 to 200cm
- cotyledons round-oval
- first leaves stalked, egg-shaped; upper leaves lance-shaped lineal
- loose-branched panicle with an abundance of pale yellow tubular blossoms
- seeds with wing-like appendages, dirty white

Life Cycle:

summer and winter annual

Germination:

- spring
- flat germinator

Flowers:

July to October

Reproduction:

- via seeds
- can germinate after up to 10 years in the ground

#### Occurrence and Location:

- introduced from North America; has become native; distributed worldwide
- somewhat warm-loving
- grows on moderately dry to fresh, nutrient-rich soils of all types; adaptable
- on paths, fallow land and on farmland
- in all crops, particularly maize

#### Associated Plants:

- hoe weeds, roadside weeds and edge communities

#### Population in Germany:

widespread

#### Importance in Animal Ecology:

summer host of the thistle aphid

#### Harmful Effects:

- competes for water through its deep taproot
- toxic acids and volatile oils cause skin irritation in pasture animals
- there is a glyphosphate population

#### Integrated Control:

- turning the soil
- early seed bed preparation and mechanical control on seeding
- young plants well controlled by mechanical means
- herbicides

## **Erodium cicutarium - Redstem stork's bill**

[https://en.wikipedia.org/wiki/Erodium\\_cicutarium](https://en.wikipedia.org/wiki/Erodium_cicutarium)



Family: Geranium *Geraniceae*

Characteristics:

thin taproot up to 150cm deep

- growth spreading to upright, stem strongly hairy, branched; height up to 100cm
- cotyledons on a long stalk, roundish with a tripartite lobed spreading surface
- feathered leaves, to begin with as a rosette
- flowers in an umbel, 3 to 6 single blooms: pink petals
- heron beak shaped fruit head; seeds with a spirally involute (rolled up) awn (beard); seeds can bore into the soil with the awn, or are spread by animals

Life Cycle:

annual to perennial

Germination:

autumn or spring

Flowers and Pollination:

- April to September
- self-pollination or by insects

Reproduction:

- via seeds (400 to 600 per plant)
- germinable after up to 10 years in the soil

#### Occurrence and Location:

- native to all Europe
- warmth-loving
- prefers dry, chalk-poor, sandy soil or loamy, stony and sandy soil; dryness and sand indicator
- on farmland and in vineyards, on wasteland

#### Associated Plants:

farmland and pioneer weed communities and those of the wayside

Population in Germany: widespread; not endangered

#### Importance in Animal Ecology:

host plant for gall midge, butterfly, aphid, mirid bug, nematode

#### Use and Harmful Effects:

- formerly used as a medicinal plant
- very weakly competitive, so causes hardly any damage on farmland

## **Erysimum chrysanthoides - Wormseed mustard**

<https://en.wikipedia.org/wiki/Erysimum>



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- tap root 60cm deep
- upright, angular, branched stem with 2 to 3 three-pronged hairs; 15 to 60cm tall
- cotyledons ovate
- leaves lanceolate, lower ones usually with an entire edge or with irregularly curved teeth; leaves alternate on stem
- dense cluster of flowers with yellow petals
- square upright seed pod; seeds ovate, slightly flattened to triangular

Life Cycle:

summer and winter annual

Germination:

- early spring to early summer and early to late autumn
- flat germinator

Flowers and Pollination:

- May to September
- self-pollination and by bees

Reproduction:

- via seeds (ca. 3,500 per plant)
- germinable after more than 5 years in the soil

Occurrence and Location:

- native Mediterranean area

- on fresh to damp loam and sandy, loamy and clay soils; prefers acidic soils, but also found in regions of basic soil; nitrogen-loving
- on farmland and wasteland, by the wayside
- in summer cereals and leaf crops

Associated Plants:

root crop communities on wet ground and ruderal communities

Population in Germany:

widespread, but usually only thinly spread; not endangered

Importance in Animal Ecology:

host plant for at least 68 species of insect including thrips, aphid, beetle, weevil, gall midge, butterfly, nematode; pollen and nectar plant for various insects

Use and Harmful Effects:

toxic; previously used as a medicinal plant

Integrated Control:

control not necessary

## **Euphorbia cyparissias - Cypress spurge**

[https://en.wikipedia.org/wiki/Euphorbia\\_cyparissias](https://en.wikipedia.org/wiki/Euphorbia_cyparissias)

<https://de.wikipedia.org/wiki/Zypressen-Wolfsmilch>



Family: Spurge *Euphorbiaceae*

Characteristics:

creeping rootstock 60cm deep

- a bushy shrub; stem with resinous sap; grows 15 to 50cm tall
- blue-green oval cotyledons
- blue-green, needle-shaped leaves growing directly on the branches without blooms
- yellow, umbel-like flowers
- seeds smooth, grey, ovate-roundish

Life Cycle:

perennial

Germination:

spring

Flowers:

April to July

Reproduction:

- via seeds (50 to 100 per plant)
- germinable after more than 30 years in the soil
- via roots offshoots



#### Occurrence and Location:

- native to southern and middle Europe
- warmth-loving
- on moderately dry, base-rich, chalky and chalk-free, loose, loamy, sandy soils
- on paths, on embankments, in rough pastures

#### Associated Plants:

communities of grassland with poor soil and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for thrips, bugs, aphid, gall midge, beetle, butterfly, nematode; flowers visited by many species

#### Harmful Effects:

- avoided by grazing animals
- vegetative reproduction by division of root stock or through offshoots
- kann occur in large amounts in dry grassland

#### Integrated Control:

- regular mowing
- must be specifically targeted on farmland

## **Euphorbia exigua - Dwarf spurge**

[https://en.wikipedia.org/wiki/Euphorbia\\_exigua](https://en.wikipedia.org/wiki/Euphorbia_exigua) [https://de.wikipedia.org/wiki/Kleine\\_Wolfsmilch](https://de.wikipedia.org/wiki/Kleine_Wolfsmilch)



Family: Spurge *Euphorbiaceae*

### Characteristics:

- weak tap root up to 25cm deep
- upright to ascending growth, stem richly branched, bare; grows 6 to 20cm tall
- linear cotyledons
- linear lanceolate leaves directly on the stem, often cropped at the tip; narrow, pointed lanceolate bracts
- florets at the end of the side branches, 3- to 5-rayed, repeatedly branched; nectar glands sickle-shaped with two horns
- smooth, bare capsule; seeds grainly or wrinkled

### Life Cycle:

summer (and winter) annual

### Germination:

- early spring to early summer
- flat germinator

### Flowers and Pollination:

May to October

### Reproduction:

- via seeds
- germinable after more than 30 years in the soil

#### Occurrence and Location:

- native to all Europe
- warmth-loving
- on moderately dry, nutrient- and base-rich, mostly chalky, mildly to moderately acidic sandy to stony or pure clay soil and loam; loam and base indicator
- on farmland, on paths and on wasteland
- in summer and winter cultures

#### Associated Plants:

- farmland weed communities of basic locations, ruderal and field-edge weed communities

#### Population in Germany:

widespread to scattered; not endangered

#### Importance in Animal Ecology:

host plant for thrips, bugs, aphid

#### Harmful Effects:

small growth and weakly competitive so does little damage weakly competitive

#### Integrated Control:

control not as a rule necessary

## **Euphorbia falcata - Sickle spurge**

[https://de.wikipedia.org/wiki/Sichelblättrige\\_Wolfsmilch](https://de.wikipedia.org/wiki/Sichelblättrige_Wolfsmilch)



Family: Spurge *Euphorbiaceae*

Characteristics:

- roots up to 50cm deep
- upright growth, unbranched below the inflorescence; up to 20cm tall
- cotyledons elongate-ovate
- uppermost leaves ovate-triangular, ending with a sickle-shaped tip
- 3- to 4-rayed umbel; inconspicuous inflorescence with two horns
- barrel-shaped, quadratic seeds with deep, brown-red lateral furrows

Life Cycle:

- summer annual
- sometimes several generations per year

Germination:

spring (late germinator)

Flowers:

June to October

Reproduction:

via seeds (several hundred per plant)

#### Occurrence and Location:

introduced to Mediterranean regions and Asia Minor

- warmth-loving
- on nutrient- and base-rich loam
- on farmland, in gardens, in vineyards and on wasteland
- in cereals

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

very rare, only in the south

#### Importance in Animal Ecology:

host plant for thrips, bugs, aphid

#### Harmful Effects:

weakly competitive

#### Integrated Control:

control on farmland not necessary

## **Euphorbia helioscopia - Sun Spurge**

<https://de.wikipedia.org/wiki/Sonnwend-Wolfsmilch>

Family: Spurge *Euphorbiaceae*



Characteristics:

- roots up to 80cm deep
- stem single or with side shoots; sticky sap; grows up to 40cm tall
- strong, blunt oval cotyledons with brown spots in the middle
- inverse ovate leaves
- 5-ray umbel; yellow-green inflorescence with cup-shaped envelopes; turns to face the sun
- ovate seeds with a light tip, light to dark brown, with a network of rough pits

Life Cycle:

summer annual, sometimes survives the winter

Germination:

- late spring to summer
- flat germinator

Flowers:

May to October

Reproduction:

- via seeds (100 to 800 per plant)

germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to the whole world
- somewhat warmth-loving
- on fresh or moderately dry, nutrient- and base-rich, humus-rich, loose loam; loam and nutrient indicator
- on farmland, in gardens and vineyards, on paths
- in root crops

#### Associated Plants:

farmland weed communities of base-rich locations and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for thrips, bugs, aphid

#### Harmful Effects:

- threshold for damage to leaf vegetable crops is low because of its toxic, corrosive sap
- weakly competitive

#### Integrated Control:

well controlled by chemical and mechanical means

## **Euphorbia peplus - Petty spurge, milk weed**

<https://de.wikipedia.org/wiki/Garten-Wolfsmilch>

Family: Spurge *Euphorbiaceae*



Characteristics:

- tap root up to 45cm deep
- upright growth with a strongly branched stem containing milk sap; up to 30cm tall
- cotyledons elongated-ovate
- leaves reverse ovate on a short stalk
- inconspicuous yellow-green inflorescence with hair-thin, horn-like offshoots; seeds ovate, almost hexagonal

Life Cycle:

- summer annual

Germination:

- spring, sometimes two generations per year
- flat germinator

Flowers and Pollination:

- June to October
- flowers seldom visited (by insects)

Reproduction:

- via seeds (500 to 1,300 per plant)
- germinable after more than 20 years in the soil



#### Occurrence and Location:

- native to western and southern Europe
- somewhat warmth-loving; in humid locations
- prefers fresh to moderately dry, nutrient-rich, mostly chalk-free, loose loam; loam, nutrient and maturity indicator
- in gardens and on farmland

#### Associated Plants:

farmland, ruderal and field edge weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for thrips, bugs, aphid

#### Harmful Effects:

- contains toxic, caustic sap and thus cannot be tolerated in too large amounts in greens (green leafy vegetables)
- weakly competitive

#### Integrated Control:

well controlled by chemical and mechanical means

## **Euphorbia platyphyllos - Broad-leaved spurge**

[https://de.wikipedia.org/wiki/Breitblättrige\\_Wolfsmilch](https://de.wikipedia.org/wiki/Breitblättrige_Wolfsmilch)



Family: Spurge *Euphorbiaceae*

Characteristics:

- roots up to 35cm deep
- mostly upright stem, bare or with scattered hairs; grows 25 to 60cm tall
- elliptical cotyledons
- stem leaves a broad lanceolate shape, broadening somewhat towards the end, lightly toothed at the tip, lightly haired on the lower side
- the flower's spathaceous bract has a yellowish colour
- greenish radial cyme with 3 to 5 petals with ovate, yellowish glandular appendage
- capsule fruit covered with semi-spherical warts; smooth, shiny, brown-green seeds

Life Cycle:

summer annual

Germination:

mid spring to early summer

Flowers and Pollination:

- June to August
- pollination by insects

Reproduction:

via seeds (over 600 per plant)

#### Occurrence and Location:

- native to middle and southern Europe, Russia, Asia Minor and North Africa
- warmth loving
- on fresh, very nutrient-rich, basic, humous-rich, loamy-clay soil
- on farmland and in gardens, on paths

#### Associated Plants:

farmland and ruderal weed communities and those of damp meadows

#### Population in Germany:

rare to scattered, but not endangered

#### Importance in Animal Ecology:

host plant for thrips, bugs and aphid

#### Harmful Effects:

isolated plants are weakly competitive so little in the way of harmful effects

#### Integrated Control:

- planting winter cereals and strongly competitive root crops
- control is seldom necessary

## **Fallopia convolvulus - Black bindweed**

[https://en.wikipedia.org/wiki/Fallopia\\_convolvulus](https://en.wikipedia.org/wiki/Fallopia_convolvulus)



Family: Knotweed *Polygonaceae*

### Characteristics:

- roots 20 to 80cm deep
- grows flat and spreading at first; winding or sprawling stems 50 to 100cm long
- slender, slight sickle-shaped curved cotyledons with unequal leaf halves
- stalked leaves, heart to arrow shaped, sometimes streaked with red
- pseudo-spikes with a ball of 1 to 5 flowers in the leaf axis; small, white-green blooms
- seeds elliptical, pointed on both sides, triangular, finely pitted, matt-black

### Life Cycle:

summer annual

### Germination:

- spring
- from up to 4cm deep

### Flowers and Pollination:

- June to October
- often self-pollination

### Reproduction:

- via seeds (ca. 180 per plant)
- germinable after more than 40 years in the soil

#### Occurrence and Location:

- pioneer plant native to all temperate zones
- on fresh, nutrient-rich, moderately acidic, loose loam; nitrogen indicator
- on farmland, in vineyards, by the wayside
- in maize, sugar beet and other summer crops

#### Associated Plants:

all crop weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

important for insects which visit flowers

#### Harmful Effects:

- competitor for light and water
- reduced yields and difficulties in harvesting if it overgrows the crop
- difficult to control chemically in later growth stages
- rapid formation of germinable seeds

#### Integrated Control:

- promote the growth of young crops
- early mechanical or chemical treatment

## **Filago arvensis - Field Cudweed - Acker-Filzkraut**

[https://en.wikipedia.org/wiki/Filago\\_\(plant\)](https://en.wikipedia.org/wiki/Filago_(plant))

<https://de.wikipedia.org/wiki/Acker-Filzkraut>



Family: Aster; Composite *Asteraceae*

Characteristics:

- roots up to 30cm deep
- stem upright, botryoidal to paniculate branched from the middle; 10 to 35 cm high
- cotyledons lanceolate
- leaves elongated lanceolate, felted white
- ball-like arrangement of small flower heads on a short stalk with a bell-shaped woolly, felt-like envelope; tubulat flowers yellowish, sometimes purple at the tip
- seeds elongate-ellipütic with sparse, fine hairs, yellow-brown

Life Cycle:

winter, sometimes summer, annual

Germination:

- Autumn and Spring
- flat germinator

Flowers and Fertilisation:

- July to September
- self-pollination

Reproduction:

via seeds

#### Occurrence and Location:

- pioneer plant native to Europe and western Asia
- on dry, moderately nutrient-rich, nitrogen- and chalk-poor sandy and gravel areas that are warm in summer
- on farmland and paths

#### Associated Plants:

root crop weed communities on acidic areas and in pioneer grass communities

#### Population in Germany:

scattered to extinct; endangered

#### Importance in Animal Ecology:

associated species are lettuce-root aphid, sack carrier moth and weevil

#### Harmful Effects:

small and thus weakly competitive

#### Integrated Control:

too rare for control to be necessary; protection measures desirable

## **Fumaria officinalis - Common Fumitory - Gewöhnlicher Erdrauch**

[https://en.wikipedia.org/wiki/Fumaria\\_officinalis](https://en.wikipedia.org/wiki/Fumaria_officinalis) [https://de.wikipedia.org/wiki/Gewöhnlicher\\_Erdrauch](https://de.wikipedia.org/wiki/Gewöhnlicher_Erdrauch)



Family: Fumitory *Fumariaceae*

Characteristics:

- roots 20 to 60cm deep
- stem bushy, branched
- long, narrow cotyledons
- double or triple feathered leaves, covered in a wax layer
- 15 to 40 flower clusters; small red-violet flowers with a dark red tip
- seeds round to kidney-shaped, flattened, green to brownish, wrinkled
- unpleasant smell

Life Cycle:

summer annual

Germination:

- mostly in spring to early summer
- grows from depth of up to 8cm

Flowers:

May to September

Reproduction:

- via seeds (300 to 1,500 per plant)
- germinable after more than 10 years in the ground



#### Occurrence and Location:

- native worldwide

on nutrient- and humus-rich, slightly acid loam; nitrogen indicator

#### Associated Plants:

other farmland weeds of nitrogen rich, basic areas

#### Population in Germany:

found nationwide; not endangered; there are rare family members worthy of protection, but they are difficult to differentiate

#### Importance in Animal Ecology:

associated species include aphids, thrips, etc

#### Uses and Harmful Effects:

- once used as a medicinal plant
- low growth, little competition
- when present in large numbers strongly reduces crop yield
- appears very late in sugar beet and maize and produces germinable seeds
- the thick wax layer on the leaves often results in herbicidal treatment being insufficient

#### Integrated Control:

- intensive working of the soil
- can be controlled with harrowing or hoeing in early growth stage

## Gagea villosa - Hairy Star of Bethlehem

[https://en.wikipedia.org/wiki/Gagea\\_villosa](https://en.wikipedia.org/wiki/Gagea_villosa)

Family: Lilly *Liliaceae*



Characteristics:

- grows from a bulb, of which there are usually two in an envelope
- grows to ca. 8-15cm high
- two leaves from the base, flat, linear, almost filamentary; upper leaves opposite
- differentiated from related species by their hairy stem
- cone-like inflorescence usually with 5 to 12 flowers; frlower stem and lea envelope finely haired; petal narrowing to a point which is usually hairy

Life Cycle:

perennial

Flowers and Pollination:

- March to April
- pollination by insects

Reproduction:

- vegetative
- germinable for less than a year in the soil

Occurrence and Location:

- native to the whole of Europ, weatern Asia and North Africa
- warm-loving
- on moderately dry, neutral to somewhat acid, loose, sandy loam and clay soil
- on farmland, field borders and dry area by the wayside

Associated Plants:

farmland weed communities and those on the edge of poor grassland

Population in Germany:

endangered, in some areas in danger of extinction; has largely disappeared from farmland

Importance in Animal Ecology:

the flowers are visited by insects

Integrated Control:

control not necessary due to its scarcity; protective measures desirable

## **Galeopsis angustifolia - Red Hemp Nettle - schmalblättriger Hohlzahn**

[https://en.wikipedia.org/wiki/Galeopsis\\_ladanum\\_var.\\_angustifolia](https://en.wikipedia.org/wiki/Galeopsis_ladanum_var._angustifolia)

[https://de.wikipedia.org/wiki/Schmalblättriger\\_Hohlzahn](https://de.wikipedia.org/wiki/Schmalblättriger_Hohlzahn)

Family: Labiate family *Lamiaceae*



Characteristics:

- roots 25 to 40cm deep
- from the middle up side branches which are not further branched; grows 10 to 70 cm tall
- cotyledons reverse roundish ovate
- leaves ovate to ovate-lanceolate, with saw-toothed or unbroken edge, hairy underneath
- thick, upright blooms; crown light purple spotted with yellowish-red
- seeds ovate, flattened, to some extent finely warty with grey marbling

Life Cycle:

summer annual

Germination:

mid to late spring

Flowers and Pollination:

- June to October
- self-pollination or by insects

Reproduction:

via seeds (50 to 100 per plant)

#### Occurrence and Location:

- native to the whole of Europe
- light- and warmth-loving pioneer plant
- on dry, base-rich, mostly humus-poor stony rubble or gravelly soil
- on farmland, in meadows and on fallow land
- in summer cereals and toor crops

#### Associated Plants:

weed communities of stony chalk areas and rubble and rock communities

#### Population in Germany:

scatterd to rare; not endangered

#### Importance in Animal Ecology:

associated species are aphid, wasp, cicada, beetle, weevil, butterfly, nematode, etc.

#### Integrated Control:

control on farmland not necessary

## Galeopsis ladanum - Broadleaf Hemp Nettle - Breitblättriger Hohlzahn

[https://en.wikipedia.org/wiki/Galeopsis\\_ladanum\\_var.\\_angustifolia](https://en.wikipedia.org/wiki/Galeopsis_ladanum_var._angustifolia) [https://de.wikipedia.org/wiki/Breitblättriger\\_Hohlzahn](https://de.wikipedia.org/wiki/Breitblättriger_Hohlzahn)

Family: Labiate family *Lamiaceae*

Characteristics:



- quadratic stem; up to 80cm high
- large oval cotyledons with two points at the base
- broad, ovate, leaves with white hair, with two large, mostly rounded, tooth on both sides; noticeably notched venation; soft hairs on both sides
- flowers in the leaf axis; pink, with a yellowish, red-striped spot on the lower lip

Life Cycle:

annual, but sometimes survives longer

Germination:

- spring
- from up to 3cm deep

Flowers:

June to October

Reproduction:

via seeds (100 to 600 per plant)

Occurrence and Location:

- native to regions of Europe and Asia with a cool-damp climate
- on warm, dry, often chalky gravel and shingle poor in humus and fine soil
- on farmland and in ruderal areas
- in summer cereals

Associated Plants:

cereal weed and ruderal communities

Population in Germany:

strongly decreasing, has disappeared almost completely; strongly endangered

Importance in Animal Ecology:

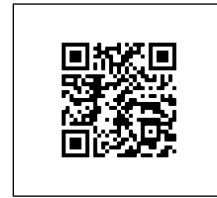
host plant for at least 21 insect species including aphid, wasp, beetle, weevil, butterfly

Integrated Control:

control not necessary because of its rarity on farmland; protective measures desirable

## Galeopsis segetum - Downy Hemp-Nettle

[https://en.wikipedia.org/wiki/Galeopsis\\_segetum](https://en.wikipedia.org/wiki/Galeopsis_segetum)



Family: Labiate family *Lamiaceae*

Characteristics:

- roots 25 to 40cm deep
- upright growth; from the middle up side branches which are not further branched, quadratic, with druze hair; nodules not thickened; height ca. 40cm
- cotyledons large, oval, with two points
- leaves slender ovate to lanceolate with velvety hair, finely toothed on the front, notably notched venation
- flowers in whorls with 4 to 8 blooms; petals sulfur yellow
- seeds ovate, flattened, in parts finely warty, marbled grey-brown to black

Life Cycle:

summer annual, sometimes survives longer

Germination:

- mid to late spring
- from up to 3cm deep

Flowers and Pollination:

July to August

- pollination mostly by insects (bumblebees)

Reproduction:

via seeds (80 to 400 per plant)



#### Occurrence and Location:

- native to regions of Europe and Asia with a cool-damp climate
- on poor, acid, stony rubble poor in humus and fine earth
- on farmland and in ruderal areas
- in cereals and root crops

#### Associated Plants:

farmland weed communities of acid locations and rubble

#### Population in Germany:

scattered to rare, strongly reducing; not endangered

#### Importance in Animal Ecology:

Associated species are aphid, wasp, cicada, bugs, beetle, weevil, butterfly, nematode, etc.

#### Harmful Effects:

poorly competitive, only reduces crop yields if present in large amounts

#### Integrated Control:

well controlled by mechanical and chemical means, although control not necessary

## Galeopsis tetrahit - Common Hemp Nettle

[https://en.wikipedia.org/wiki/Galeopsis\\_tetrahit](https://en.wikipedia.org/wiki/Galeopsis_tetrahit)

Family: labiate family *Lamiaceae*



Characteristics:

- roots 25 to 60cm deep
- square stem, brush-like hair under the nodes; grows up to 100cm tall
- large oval cotyledons, somewhat indented at the front, with two points at the base
- leaves elongated ovate, soft hairs on both sides, with regular rough teeth
- double-wrapped flower cover; blooms red or white; calyx teeth stiff and prickly
- seeds ovate, flattened, partly with fine warts, brown to dark brown marbling

Life Cycle:

summer annual, sometimes survives longer

Germination:

- spring
- from up to 3cm deep

Flowers:

June to October

Reproduction:

- via seeds (100 to 600 per plant)
- germinable only for a few years in the soil

Occurrence and Location:

- native to regions of Europe and Asia with a cool-damp climate
- on well-aerated, humus and nitrogen-rich soil with a good water supply
- in summer cereals and root crops

#### Associated Plants:

all farmland weed, ruderal and border communities

#### Population in Germany:

spread nationwide; not endangered

#### Importance in Animal Ecology:

host plant for at least 21 insect species including aphid, wasp, bugs, beetle, weevil, butterfly

#### Harmful Effects:

- in high density can reduce crop yields
- hinders ripening, causes difficulty in harvesting and increases grain moisture
- host plant for radish nematode

#### Integrated Control:

- well controlled by harrowing up to the 4 leaf stage
- well controlled by chemicals

## Galinsoga parviflora - Gallant Soldier

[https://en.wikipedia.org/wiki/Galinsoga\\_parviflora](https://en.wikipedia.org/wiki/Galinsoga_parviflora)



Family: Aster; Composite *Asteraceae*

Characteristics:

- roots 25 to 80 cm deep
- upright bushy growth, hexagonal branched stem, sparse short hairs; up to 80cm tall
- cotyledons spatulate, nearly square, hairy at the edge, flattened at the front
- leaves egg-shaped, pointed, finely toothed, somewhat shiny, hardly any hairs, opposed growth; lower leaves with a long stalk, the upper with a short stalk
- many small flower heads with a semi-spherical, bell-shaped envelope; yellow tubular flowers, white, ligulate ray flowers
- seeds wedge-shaped, quadratic to flattened, bearded, grey-black

Life Cycle:

- Summer annual
- several generations per year

Germination:

- late Springs
- flat germinator

Flowers:

June to October

#### Reproduction:

- via seeds (5 to 10 thousand per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- imported from South America, has become native all over the world
- on warm, humus- and nitroge-rich, moderarely acid to neutral loam
- in maize, sugar beet and vegetable cultures

#### Associated Plants:

root crop and ruderal weeds

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

hoverflies visit the flowers

#### Harmful Effects:

- competitor for water and nutrients through its deep root system
- sometimes occurs in copious numbers

#### Integrated Control:

- planting winter crops
- turning the soil
- early seed-bed preparation in Spring, mechanical control during sowing
- early harrowing while the plants are young

## Galinsoga quadriradiata - Peruvian Daisy

[https://en.wikipedia.org/wiki/Galinsoga\\_quadriradiata](https://en.wikipedia.org/wiki/Galinsoga_quadriradiata)



Family: Aster; Composite *Asteraceae*

### Characteristics:

- roots 25 to 75 cm deep
- bushy upright growth, branched stem, raggedly hairy; up to 80cm high
- cotyledons spatulate, almost square; hairy edges
- leaves alternate, opposite, roughly toothed, with bristly hairs on both sides
- flower heads terminal and in the leaf axis; yellow tubular flowers, white ray florets
- seeds wedge-shape, quadratic to flattened, bearded, grey-black

### Life Cycle:

- Summer annual
- several generation per year

### Germination:

- late Spring
- flat germinator

### Flowers:

June to October

### Reproduction:

- via seeds (5 to 10 thousand per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- imported from South America; has become native; found all over the world
- in moderately dry to fresh, warm locations
- on humus- and nitrogen-rich, loamy to clay soils
- on farmland, in gardens, vineyards and on paths
- in maize, sugar beet and vegetable cultures

#### Associated Plants:

- root crop weed and ruderal communities

#### Population in Germany:

widespread, frequent; not endangered

#### Importance in Animal Ecology:

hoverflies visit the flowers

#### Harmful Effects:

- competitor for water and nutrient through its deep root system
- sometimes occurs in copious numbers

#### Integrated Control:

- planting winter crops
- turning the soil
- early seed-bed preparation in Spring, mechanical control during sowing
- early harrowing while the plants are young

## Galium aparine - Goosegrass, catchweed

[https://en.wikipedia.org/wiki/Galium\\_aparine](https://en.wikipedia.org/wiki/Galium_aparine)

Family: Madder *Rubiaceae*



Characteristics:

- roots 20 to 40cm deep
- rough, climbing stem; up to 300cm tall
- cotyledons elongated ovate, notched at the tip
- leaves arranged in whorls, slender lanceolate with a single vein, with bristly hairs
- leafy umbels in the leaf axle; petals white to greenish-white
- seeds spherical with hooked bristles

Life Cycle:

on farmland summer and winter annual

Germination:

- autumn and spring
- from up to 10 deep

Flowers and Pollination:

- June to October
- self-pollination and by insects

Reproduction:

- via seeds (100 to 500 per plant)
- germinable after up to 10 years in the soil



#### Occurrence and Location:

- native to Europe and Asia
- on nutrient- and nitrogen-rich, neutral loam; loam indicator
- on farmland, by the wayside, on fallow land and embankments, at the edge of woods
- in all crops

#### Associated Plants:

all farmland weed communities and rubbish dump plants

#### Population in Germany:

very widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, wasp, gall midge, gall mite, bugs and beetles

#### Harmful Effects:

- strong potential for regeneration from single plants after control measures
- strongly competitive
- causes damage in stored cereals, thus requires expenditure for drying and its removal

#### Integrated Control:

- stubble working and turning the soil
- planting catch crops
- less winter cereal in crop rotation
- well controlled by chemicals in the stage where the first whorls are formed

## Geranium dissectum - Cutleaf geranium

[https://en.wikipedia.org/wiki/Geranium\\_dissectum](https://en.wikipedia.org/wiki/Geranium_dissectum)



Family: Geranium *Geraniaceae*

Characteristics:

- thin taproot up to 40cm deep
- hairy stem – upright, ascending or clambering; height up to 100cm, depending on the culture plant in which it grows
- kidney-shaped cotyledons on long stalks, hairy, round
- broad-ovate rosette leaves with lobes all round, later leaves deeply fingered hand-shaped, all leaves have hairs on both sides
- red-violet flowers on short stalks, petals shorter than the calyx
- the geranium-shaped fruit can bore into the soil; seeds smoothly pitted

Life Cycle:

summer annual or perennial

Germination:

late autumn to spring

Flowers and Pollination:

- May to September
- predominantly cross-pollination

Reproduction:

- via seeds (50 to 150 per plant)
- germinable after more than 5 years in the soil

#### Occurrence and Location:

- native to the whole world
- somewhat warmth-loving
- on fresh to moderately dry, nutrient- and base-rich loam; loam indicator
- on farmland, on paths and on wasteland
- in leaf crops and also in cereals

#### Associated Plants:

- annual and biennial root crop weed and ruderal communities in chalky fields

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, butterfly, gall midge, mirid bug, nematode

#### Harmful Effects:

- causes damage only if present in large quantities because of its strong competition for water and nutrients
- difficult to control with chemicals and thus can spread strongly

#### Integrated Control:

- stubble working and turning the soil
- early seed bed preparation
- early use of currycomb in young growth

## Geranium pusillum - Small-flowered Crane's bill

[https://en.wikipedia.org/wiki/Geranium\\_pusillum](https://en.wikipedia.org/wiki/Geranium_pusillum)



Family: Geranium *Geraniaceae*

Characteristics:

- roots up to 70cm deep
- loose structure thick with short protruding hairs which later disappear
- many branched stems, spreading or upright; grows 15 to 30cm tall
- kidney-shaped cotyledons
- rosette leaves almost circular with 7 to 9 lobes, on stalks; leaves opposite on stem
- very small, pale violet flowers; the inflorescence forms tentacles up to 30cm long
- seeds smooth, light brown

Life Cycle:

- annual to biennial

Germination:

mid-spring and in the autumn

Flowers and Pollination:

- May to October
- self- and cross-pollination

Reproduction:

via seeds (ca. 300 per plant)

- germinable for over 30 years in the soil

#### Occurrence and Location:

- native to all Europe
- somewhat warmth-loving
- on moderately dry, nutrient-rich, mostly chalk-poor, humus-rich loam and loamy sandy soil; nitrogen indicator
- on farmland and in vineyards, on paths, on wasteland
- in all type of crops

#### Associated Plants:

all farmland weed communities in nitrogen rich areas and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, butterfly, gall midge, Mirid bug, nematode; pollen donor for insects

#### Harmful Effects:

competitor for water and nutrients

#### Integrated Control:

- turning the soil
- diverse crop rotation
- use of appropriate herbicides

## Geranium robertianum - Herb Robert

[https://en.wikipedia.org/wiki/Geranium\\_robertianum](https://en.wikipedia.org/wiki/Geranium_robertianum)



Family: Cranesbill *Geraniaceae*

Characteristics:

- strongly branched stem with long glandular hairs with a bitter fragrance; fragile at the thickened joints; often a carmine colour; grows 20 to 40cm tall
- pinnate leaves with three double pinnatifid lobes on each side; unpleasant odor if torn
- flowers pale red to carmine with three darker vertical straks
- seeds smooth with fine spots

Life Cycle:

annual, sometimes overwinters

Flowers and Pollination:

- May to October
- self-pollination and by insects

Reproduction:

- via seeds
- germinable after more than 5 years in the soil

Occurrence and Location:

- native to Europe, Asia and North America
- in areas with a damp climate
- on fresh, nutrient-rich, loose humous-rich loam; nutrient indicator
- on damp, shadowed path and wood edges, in orchards, seldom on farmland

Associated Plants:

border weed communities and herbaceous beds

Population in Germany:

widespread, reasonably common; not endangered

Importance in Animal Ecology:

14 plant-eating species have been identified

Use:

formely used as a medicinal plant

- ornamental plant

Integrated Control:

not common enough for control to be necessary

## **Geranium rotundifolium - Roundleaf geranium**

[https://de.wikipedia.org/wiki/Rundblättriger\\_Storchschnabel](https://de.wikipedia.org/wiki/Rundblättriger_Storchschnabel)



Family: Geranium *Geraniaceae*

Characteristics:

- thin taproot
- stem with short hairs; grows up to 100cm tall
- cotyledons on long stalks
- leaves almost round with an unbroken edge and short, soft hairs; matt yellow-green
- pink flowers reminiscent of the pink flowering Geranium pusillum
- seeds pale grey-brown with a network of pits

Life Cycle:

- summer annual or perennial

Germination:

late autumn until spring

Flowers and Pollination:

- June to october
- self-pollination and by insects

Reproduction:

via seeds



#### Occurrence and Location:

- native to mediterranean regions
- warmth-loving
- on moderately dry, more-or-less nutrient- and base-rich, moderately acidic, stony or sandy loam
- in vineyards, on paths, in dry-stone walls, on wasteland, less often on farmland
- particularly in rape

#### Associated Plants:

- root crop weed and ruderal communities

#### Population in Germany:

- very scattered to rare; not endangered

#### Harmful Effects:

- very persistent
- causes damage only if present in large quantities because of its strong competition for water and nutrients

#### Integrated Control:

- turning the soil
- repeated stubble working
- mechanical destruction when sowing crops after early seed bed preparation
- well controlled by currying in its early growth stages
- difficult to control with chemicals

## Glebionis segetum - Chrysanthemum segetum

<https://de.wikipedia.org/wiki/Saat-Wucherblume>



Family: Aster; composite *Asteraceae*

Characteristics:

- roots up to 45cm deep
- upright stem with few branches and many leaves; grows up to 60cm tall
- oval cotyledons, blue-green, fleshy
- blue-green, elongate to ovate leaves; the younger leaves toothed, the older leaves single or double pinnate, half wrapped around the stem; covered with a waxy layer
- terminal inflorescence on a long stalk; golden-yellow flowers
- straw coloured seeds of various designs, round, with ten ribs and no pappus

Life Cycle:

summer annual

Germination:

late spring to early summer

- flat germinator

Flowers and Pollination:

- June to October
- cross-pollination

Reproduction:

- via seeds (1 to 2 thousand per plant)
- germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to all Europe
- in humid climates with warm winters
- on fresh, nutrient-rich, chalk-poor, sandy clay and loamy soil; loam indicator
- on farmland and wasteland
- in summer cereals and root crops

#### Associated Plants:

farmland and rubble weed communities

#### Population in Germany:

scattered and decreasing in the west and the north, rare in the south and the east; indangered in some regions

#### Importance in Animal Ecology:

host plant for cicada, gall midge, leaf miner, mirid bug; source of pollen and nectar for many species of bee, fly and butterfly

#### Harmful Effects:

can occur in large amounts in some regions and then significantly lowers the yield of cereal crops

#### Integrated Control:

- repeated stubble working and turning the soil, early seed bed preparation
- well controlled by mechanical and chemical means

## Gypsophila muralis - Low Baby's Breath

[https://en.wikipedia.org/wiki/Gypsophila\\_muralis](https://en.wikipedia.org/wiki/Gypsophila_muralis)



Family: Carnation *Caryophyllaceae*

Characteristics:

- roots 15 to 50 cm deep
- upright forked stem, hairy near the ground but otherwise bare; height up to 25cm
- cotyledons slender ovate-elliptical
- leaves lanceolate, opposed in pairs
- flexible, much branched flower cluster; crown leaves light red with dark veins, notched
- seeds round-kidney shaped, flattened, light to dark brown, concentrically warty

Life Cycle:

summer annual

Germination:

- April to May
- flat germinator

Flowers:

July to August

Reproduction:

- via seeds (300 to 800 per plant)
- seeds germinable only for a short time in the soil

#### Occurrence and Location:

- native pioneer plant; occurs all over Europe and in Asia Minor
- somewhat warmth loving
- on occasionally waterlogged, badly aerated, acid soil; indicator plant for waterlogging and mudiness
- in field furrows, on fallow land, on river banks and in ditches

#### Associated Plants:

root crop communities in acidic areas and dwarf (swordleaf) rush communities

#### Population in Germany:

very rare in northern Germany, in the middle and southern parts scattered; endangered

#### Importance in Animal Ecology:

associated species are gall midges, beet cyst eelworm and root-knot nematode

#### Integrated Control:

control unnecessary due to its rarity on farmland; protective measures desirable

## **Helichrysum luteoalbum - Jersey cudweed**

[https://en.wikipedia.org/wiki/Helichrysum\\_luteoalbum](https://en.wikipedia.org/wiki/Helichrysum_luteoalbum)



Family: Aster; composite

Characteristics:

- plant is woolly white and very hairy
- upright, mostly single, stem; grows 20 to 50cm tall
- leaves grey, felty, somewhat stem-clasping; lower leaves inverseelongated ovate, upper leaves elongate to linear
- flower head consists of 4 to 12 bractless balls
- seeds 0.5mm, somewhat rough, pappus hair plain, stringy

Life Cycle:

annual

Flowers and Pollination:

- June to September
- pollination by insects

Reproduction:

via seeds

Occurrence and Location:

- native to almost the whole world
- in climates with a mild winter
- on moist, sometimes wet, nutrient- and base-rich, neutral to moderately acid, sandy and clay soil and loam; wetness indicaor
- on wasteland and on farmland

Associated Plants:

dwarf rush communities

Population in Germany:scattered, has disappeared almost everywhere; in danger of extinction

Integrated Control:

too rare for control to be necessary; protective measures desirable

## **Herniaria hirsuta - Hairy Rupturewort - Behaartes Bruchkraut**

[https://en.wikipedia.org/wiki/Herniaria\\_hirsuta](https://en.wikipedia.org/wiki/Herniaria_hirsuta) [https://de.wikipedia.org/wiki/Behaartes\\_Bruchkraut](https://de.wikipedia.org/wiki/Behaartes_Bruchkraut)



Family: Carnation *Caryophyllaceae*

Characteristics:

- stems close to the ground, 5 to 15 cm long, densely branched
- stem and leaves with bristly hairs
- leaves small, elliptic to lance-shaped; rounded to pointed; directly on the stem, although the lower leaves have short stalks
- flowers yellow-green, shiny, egg-shaped, flat with a sharp edge

Life Cycle:

annual to a few years

Flowers and fertilisation:

- June to October
- pollination by insects and self-pollination

Reproduction:

- by seeds
- germinable for a short time in the soil



#### Occurrence and Location:

- native in Mediterranean areas, Asia, East Africa and South America
- in areas warm in summer
- on nutrient poor, chalk-free, humus-poor sandy, stony and gravelly soil; sand and warmth indicator
- on farmland and in ruderal plant communities

#### Associated Plants:

- annual and biennial root crop weeds and ruderal communities in acid areas

#### Population in Germany:

scattered to rare, dying out; endangered in Southern Germany

#### Integrated Control:

too rare for control to be necessary

## **Holosteum umbellatum - Jagged chickweed**

[https://en.wikipedia.org/wiki/Holosteum\\_umbellatum](https://en.wikipedia.org/wiki/Holosteum_umbellatum)



Family: Carnation *Carophyllaceae*

Characteristics:

- roots 5 to 25cm deep
- upright stem, single or branched from the rosette; very short internodes at the base and thus the leaves are bunched like a rosette; grows 5 to 30cm tall
- leaves bluish-green, oval; only a few lanceolate leaf pairs on the stem
- terminal umbel, white to reddish flowers on long stalks
- seeds roundish flat, red-brown, with a keel on one side and the other grooved

Life Cycle:

summer and winter annual

Germination:

- early to mid spring
- mid to late autumn

Flowers and Pollination:

- March to May
- self-pollination and by insects

Reproduction:

- via seeds (100 to 200 per plant)
- germinable after 5 to 8 years in the soil

#### Occurrence and Location:

- native to almost the whole world
- very light-loving, somewhat warmth-loving
- on more or less nutrient-rich, weakly to moderately acidic loam which is dry in summer
- on farmland, in vineyards and by the wayside

#### Associated Plants:

- cereal weed and pioneer communities, in gaps in lawns

#### Population in Germany:

rare in the north, scattered in the south; not endangered

#### Importance in Animal Ecology:

companion species are aphid, butterfly, gall midge, etc.

#### Integrated Control:

to rare for control to be necessary; protective measures desirable

## **Hordeum murinum - Wall barley**

[https://en.wikipedia.org/wiki/Hordeum\\_murinum](https://en.wikipedia.org/wiki/Hordeum_murinum)



Family: Sweetgrass *Poaceae*

Characteristics:

- forms loose tufts
- grows 20 to 30cm tall
- short leaf membrane, distinct leaf auricle
- spiked grass; three single-flowered ears on each head (one androgynous, two male)
- very small edible seeds

Life Cycle:

annual and persistent

Germination:

April to June

Flowers and Pollination:

- May to October
- self-pollination

Reproduction:

- via seeds
- germinable for only a short time in the soil

#### Occurrence and Location:

- a pioneer plant introduced to the whole world from Mediterranean regions
- light- and warmth-loving
- in nutrient-rich areas that are dry in summer; prefers sandy soils
- on paths and field edges (forms field margins), often in vineyards, on wasteland under roadside trees

#### Associated Plants:

ruderal communities

#### Population in Germany:

rare to widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, plant mite, thrips, bugs, nematode, etc.

food plant for sparrow

#### Integrated Control:

control not necessary because of its rarity on farmland

## Hyoscyamus niger - Black Henbane - Schwarzes Bilsenkraut

[https://en.wikipedia.org/wiki/Hyoscyamus\\_niger](https://en.wikipedia.org/wiki/Hyoscyamus_niger)

[https://de.wikipedia.org/wiki/Schwarzes\\_Bilsenkraut](https://de.wikipedia.org/wiki/Schwarzes_Bilsenkraut)



Family: Solanum *Solanaceae*

Characteristics:

- spindle root or taproot ca. 50cm deep
- stems single or oblique upward side branches in the middle section; with sticky, ragged hairs; height 20 to 80cm
- cotyledons egg-lance-shaped
- leaves elongated egg-shaped, indented pinnatifid toothed, stem leaves well-seated; with sticky, ragged hairs
- long terminal ear-like wraps with leaves on one side; flowers yellowish with violet veins
- capsul-like fruit with kidney-shaped, flattened, grey-brown seeds

Life Cycle:

mostly biannual or summer annual

Germination:

mid-spring to summer and from early to mid autumn

Flowers and fertilisation:

- June to October
- insects or self-pollination

Reproduction:

through seeds (over 2,000 per plant)

#### Occurrence and Location:

- native to all Europe
- light and warm loving
- on moderately fresh to dry, rather nutrient- and nitrogen-rich sandy or stony loam
- on paths and farmland

#### Associated Plants:

- summer basic nitrogen loving plant communities of farmland weeds and on roadsides

#### Population in Germany:

scattered, noticeably in decline; severely endangered in southern states (of Germany)

#### Importance in Animal Ecology:

associated species include thrips, aphids, beetles, nematodes, etc.

#### Harmful Effects:

- contains alkaloids, particularly in the roots and seeds, and thus very poisonous
- once used as a drug

#### Integrated Control:

control on farm land not worthwhile; protective measures desirable

## **Hypericum humifusum - Trailing St. John's Wort**

[https://en.wikipedia.org/wiki/Hypericum\\_humifusum](https://en.wikipedia.org/wiki/Hypericum_humifusum)



Family: St. John's Wort *Hypericaceae*

Characteristics:

- roots 35 to 50cm deep, low growth, stem usually loosely branched from the ground, side branches spread, sprawling; grows 5 to 15cm tall
- cotyledons elliptical to ovate
- leaves linear-elliptic
- single flowers; petal light to whitish yellow; edge with black glandular spots
- seeds elongate-elliptic, dark brown to black, shiny, finely meshed, pitted

Life Cycle:

summer annual, biennial or perennial

Germination:

- mid spring to early summer and mid autumn
- vegetative plants the whole year

Flowers and Pollination:

June to October

- mostly self-pollination

Reproduction:

- via seeds

germinable after over 100 years in the soil



#### Occurrence and Location:

- native to almost the whole world
- on fresh to damp, acidic, sandy loam; dampness indicator
- on farmland, by the wayside and river banks

#### Associated Plants:

- communities of farmland weeds, dwarf rushes, tread-resistant plants and pioneer plants

#### Population in Germany:

strongly reduced in some regions; in places endangered

#### Importance in Animal Ecology:

host plant for beetle, weevil, wasp, gall midge, etc

#### Integrated Control:

control not necessary because of its rarity on farmland; protective measures desirable

## Hypochaeris glabra - Smooth Cat's-Ear - Gewöhnliches Ferkelkraut

[https://en.wikipedia.org/wiki/Hypochaeris\\_radicata](https://en.wikipedia.org/wiki/Hypochaeris_radicata) [https://de.wikipedia.org/wiki/Gewöhnliches\\_Ferkelkraut](https://de.wikipedia.org/wiki/Gewöhnliches_Ferkelkraut)



Family: Aster; Composite *Asteraceae*

Characteristics:

- roots over 30cm deep
- usually several stems from a basal rosette; bare, vertical, with squamous (scaly) [spathaceous bract](#)
- up to 40cm high
- cotyledons longish-lanceolate
- leaves dentate and often streaked with red at the edge
- stem long; single or multiple inflorescence; light yellow flowers
- seeds slender-coniform (cone-shaped), sometimes with a beak-like extension, grained longitudinal ribs

Life Cycle:

- annual to biannual
- sometimes two generations in one year

Germination:

early to late Spring and early to late Autumn

Flowers and Fertilisation:

- June to October
- self-pollination and by insects

#### Reproduction:

- via seeds (100 to 300 per plant)
- seeds germinable after several years in the soil

#### Occurrence and Location:

- native pioneer plant in Europe, West Asia and North Africa
- very light- and warmth-loving
- in meadows and on farmland; on fallow land
- on chalk-poor sandy soil in dry areas; sand indicator

#### Associated Plants:

root crop communities in acid soil areas

#### Population in Germany:

rare, decreasing; very much endangered

#### Importance in Animal Ecology:

associated species include psyllid, aphid, gall wasp, leaf miner

#### Harmful Effects:

small and uncompetitive

#### Integrated Control:

control on farmland not worthwhile

## **Hylotelephium telephium - Stonecrop**

[https://en.wikipedia.org/wiki/Hylotelephium\\_telephium](https://en.wikipedia.org/wiki/Hylotelephium_telephium)

Family: Crassulaceous Plants *Crassulaceae*



Characteristics:

- several shoots from a thick, napiform (turnip-shaped) root
- stem upright, bare; 25 to 50cm tall
- cotyledons round, stalked
- leaves fleshy, elliptical, at the edge irregularly notched to coarsely sinuate; blue-green
- flowers reddish or yellow in multi-flowered cymes

Life Cycle:

perennial

Flowers and Pollination:

- July to October
- pollination by insects

Reproduction:

- via seeds
- via shoots from thickened roots and winter-surviving buds

Occurrence and Location:

- native to the whole of Europe
- in warm locations
- on moderately dry, alkaline stony ground
- in ruderal areas and roadsides, seldom on well-used farmland

Associated Plants:

rubble and border plant communities

Population in Germany:

relatively common to scattered; endangered status unclear

Importance in Animal Ecology:

often visited by many species

Use:

- formerly used as a medicinal and salad plant

- ornamental plant (cultivated forms)

Integrated Control:

too rare on farmland for control measures to be necessary

## **Juncus bufonius - Toad rush**

[https://en.wikipedia.org/wiki/Juncus\\_bufonius](https://en.wikipedia.org/wiki/Juncus_bufonius)



Family: Rush *Juncaceae*

Characteristics:

- roots weakly branched with filamentous roots; roots 10 to 35cm deep
- grows in clumps; growth loosely spread to lawn like, thick tufts; stem round, smooth, growing upwards in a curve of straight up, branched in the upper regions; grows 10 to 40cm tall
- thread shaped leaf blade, pleated
- loosely branched, funnel-like panicle; single flowers on the stem
- collective species with many forms

Life Cycle: summer annual

Germination:

- spring and summer
- flat germinator

Flowers:

June to September

Reproduction:

- via seeds (100 to 300 per plant)
- germinable after more than 100 years in the soil

### Occurrence and Location:

- native to practically the whole world
- prefers moderately warm locations
- on damp, more-or-less nutrient-rich, mostly chalk-poor loam or sandy soil; indicator plant for surface soil compaction and waterlogging
- on river banks, damaged areas of meadows, in damp depressions on farmland

### Associated Plants:

pioneer plant communities in open damp locations

### Population in Germany:

widwspread, not endangered

### Importance in Animal Ecology:

associated species are psyllid, saw-fly, but there are few data available

### Harmful Effects:

- one of the most economically damaging plants in damp location
- cannot be controlled by chemicals
- grazing animals prefer not to eat it

### Integrated Control:

- regular mowing of pastures
- on farmland by changing its use

## **Juncus effusus - Common rush**

[https://en.wikipedia.org/wiki/Juncus\\_effusus](https://en.wikipedia.org/wiki/Juncus_effusus)

Family: Rush *Juncaceae*



Characteristics:

- forms clumps; grows ca. 1.2 metres tall
- round, smooth stems in tufts
- leaf sheaths brown

Life Cycle:

perennial

Germination:

- spring and summer
- shoots in spring

Flowers:

June to August with brown inflorescence on the side

Reproduction:

- via seeds
- germinable after more than 70 years in the soil
- via offshoot (rhizomes)



#### Occurrence and Location:

- native to the whole world
- in moderately warm locations
- on waterlogged, nutrient-rich, mostly chalk-poor, moderately acidic loam or peat soils; indicator of waterlogging and wez areas
- in meadows, on paths, seldom on farmland

#### Associated Plants:

wet meadow communities; rare species can be found where the toad rush grows

#### Population in Germany:

widespread; not endangered

#### Harmful Effects:

- spreads rapidly over large areas through rhizomes, but grows in clumps
- one of the most economically harmful plants in damp locations
- cannot be controlled chemically
- grazing animals prefer not to eat it

#### Integrated Control:

- avoiding bare patches in pasture land, resowing, permanent shadowing of the soil with more valuable feed crops and regular mowing
- changing the use of farmland

## Kickxia elatine - Sharpleaf cancerwort

[https://en.wikipedia.org/wiki/Kickxia\\_elatine](https://en.wikipedia.org/wiki/Kickxia_elatine)

Family: Figwort *Scrophulariaceae*



Characteristics:

roots up to 50cm deep

- stem somewhat angular with protruding glandular hairs; grows 15 to 60cm tall
- cotyledons roundish to elliptical
- hastate leaves on short stalks
- flowers on thin, usually bare, stalk, upper lip violet, otherwise yellow with a white base, and with a straight nose
- the fruit is a spherical capsule; seeds elongate-elliptical, wrinkled

Life Cycle:

summer annual

Germination:

mid spring to early summer

Flowers and Pollination:

- July to October
- pollination by insects

Reproduction:

- via seeds (1 to 2 thousand per plant)
- germinable after more than 30 years in the soil

#### Occurrence and Location:

- native to southern and western Europe, northern Africa and western Asia
- somewhat warmth-loving
- on moderately fresh to fresh, nutrient- and base-rich, neutral loam and clay soil with little humus; loam indicator
- on farmland and wasteland
- in cereals

#### Associated Plants:

cereal weed communities in areas with basic soil and ruderal communities

#### Population in Germany:

scattered to absent but not endangered

#### Importance in Animal Ecology:

flowers visited by wild bees; host plant for weevil and beetle

#### Integrated Control:

control not necessary due to its rarity; protective measures desirable

## **Klickxia spuria - Roundleaf cancerwort**

[https://en.wikipedia.org/wiki/Kickxia\\_spuria](https://en.wikipedia.org/wiki/Kickxia_spuria)

Family: Figwort *Scrophulariaceae*



Characteristics:

- root up to 45cm deep
- round stem with ragged white sticky glandular hairs; height 30 to 50cm
- cotyledons ovate to roundish
- leaves on stalks, hairy like the stem, ovate
- flowers on ragged stalks, upper lip dark purple to black, lower lip lemon yellow, the remainder white-yellow; has a long, arched nose
- fruit is a broad, roundish capsule; seeds elongated ellipsoid, brown, wrinkled

Life Cycle:

- summer annual

Germination:

mid spring to early summer

Flowers and Pollination:

- July to October
- self-pollination and by insects

Reproduction:

- via seeds (ca. 1,5000 per plant)
- germinable after up to 20 years in the soil

#### Occurrence and Location:

- native to southern and western Europe, North Africa and western Asia
- on moderately fresh, nutrient- and base-rich loam and clay soils with little humus; loam indicator
- on farmland and wasteland
- in cereals

#### Associated Plants:

- cereal weed communities in areas with basic soil and ruderal weed communities

#### Population in Germany:

scattered to rare, but not endangered

#### Importance in Animal Ecology:

flowers visited by wild bees; host plant for weevil and beetle

#### Integrated Control:

control on farmland not necessary due to its rarity; protective measures desirable

## **Knautia arvensis - Field scabious**

[https://en.wikipedia.org/wiki/Knautia\\_arvensis](https://en.wikipedia.org/wiki/Knautia_arvensis)

Family: Honeysuckle *Caprifoliaceae*



### Characteristics:

- tap root 70 to 150cm deep
- leaf rosette overwinters; upright stem with few branches, with ragged hairs underneath, bare on top; grows 50 to 80cm tall
- cotyledons oblong elliptic with a blunt tip
- leaves opposite in pairs half umplexicaul, grey-green, dull, pinnatifid; basal leaves mostly undivided
- blue-lilac flowers, more seldom red-lilac; small head with 50 to 80 blooms
- seeds elongated, flattened with a butten like extension, fine brushy hairs, brown

### Life Cycle:

perennial

### Germination:

- mid to late spring and from early to late autumn
- flat germinator

### Flowers and Pollination:

- May to September
- pollination by insects (bees, moths)

#### Reproduction:

- via seeds (1,500 to 2,000 per plant)
- germinable after more than 35 years in the soil
- vegetative via offshoots

#### Occurrence and Location:

- native to Europe
- on moderately dry, nutrient and base rich to weakly acidic loam
- in meadows and path edges, seldom on farmland

#### Associated Plants:

- weed communities in extensively used fields of cereal in areas with basic soil and in heavily fertilised fields

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are thrips, aphid, cicada, gall midge, nematode; flowers visited by wild bees and butterflies

#### Use and Harmful Effects:

- formerly used as a natural medicine
- causes no damage to crops

## **Lactuca serriola - Prickly lettuce, scarole**

[https://en.wikipedia.org/wiki/Lactuca\\_serriola](https://en.wikipedia.org/wiki/Lactuca_serriola)



Family: Aster, composite

Characteristics:

- tap root up to 200cm deep
- stem stiffly upright, much branched, whitish, mostly with red patches; grows up to 150cm tall
- cotyledons roundish, narrowing at the stem
- stiff, blue-green, upright leaves which turn their narrow side to the sun, containing a milky sap; leaf edges with thorny lashes, leaf veins spiky on the lower side
- flower head light yellow, only 7 to 15 flowers
- seeds blackish, elliptical, with pappus

Life Cycle:

winter annual or biennial

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- July to September
- self-pollination and by insects

Reproduction:

- via seeds (400 to 800 per plant)
- germinable after more than 5 years in the soil



#### Occurrence and Location:

- native to Europe, pioneer plant
- somewhat warmth-loving
- on dry, nutrient-rich, chalky loam and clay soils
- on farmland, by the wayside and on wasteland

#### Associated Plants:

ruderal and farmland weed communities

#### Population in Germany:

very widespread; not endangered

#### Harmful Effects:

generally causes only moderate harm as it is usually at the edges of fields

#### Integrated Control:

- stubble working
- turning the soil
- well controlled by early use of hoe and harrow
- also well controlled chemically

## Lamium amplexicaule - Henbit deadnettle

[https://en.wikipedia.org/wiki/Lamium\\_amplexicaule](https://en.wikipedia.org/wiki/Lamium_amplexicaule)



Family: Labiate family *Lamiaceae*

### Characteristics:

- rots up to 30cm deep
- square stem, prostrate or climbing, branched; grows up to 20cm tall
- round-oval cotyledons on a stalk at the base with two tips; entire rim
- leaves triangular-ovate with a sawn, pointed edge; opposite, net-like, wrinkled; lower leaves on a long stalk, the upper ones directly on the stem and half wrapped around it
- flowers in whorls in the leaf axil, carmine red
- seeds longish with white bumps

### Life Cycle:

- annual and perennial
- several generations per year possible

### Germination:

- in autumn, sometimes in spring
- flat germinator

### Flowers and Pollination:

- March to May; partly to September
- self-pollination and by insects

#### Reproduction:

- via seeds (40 to 200 per plant)
- germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to Europe and Asia
- somewhat warmth-loving
- on moderately fresh, nutrient-rich, mostly chalk-containing, (sandy) loam
- on farmland, in gardens and permanent cultures, on paths and wasteland
- in all cultures

#### Associated Plants:

cereal weed communities in basic areas and ruderal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for weevil, beetle, mirid bug, butterfly; flowers visited by wild bees

#### Harmful Effects:

- hampers young growth and tillering (production of side shoots) in winter cereals
- weakly competitive

#### Integrated Control:

can be well controlled by mechanical and chemical means

## Lamium purpureum - Red dead-nettle

[https://en.wikipedia.org/wiki/Lamium\\_purpureum](https://en.wikipedia.org/wiki/Lamium_purpureum)



Family: Labiate *Lamiaceae*

Characteristics:

- taproot up to 20cm deep
- square stem, mostly branched, upright or rising; height up to 20cm
- round-oval cotyledons with two tips at the base, entire edge, wrinkled
- roundish, heart-shaped opposite leaves on long stalks; leaf edge sawn, hairy on the upper surface, often streaked with red, wrinkled
- flowers in 3 to 7 false whorls, each with 6 to 10 blooms; purple-red
- seeds ovate, mostly grey and smooth

Life Cycle:

- annual and perennial
- several generation per year possible

Germination:

- in autumn, sometimes in spring
- flat germinator

Flowers and Pollination:

- March to September
- self-pollination and by insects

Reproduction:

- via seeds (50 to 300 per plant)
- germinable after a very long time in the soil

#### Occurrence and Location:

- native to Europe and Asia
- somewhat warmth-loving
- on nutrient-rich, neutral (sandy) loam; nitrogen and mellowness indicator
- on farmland, in gardens and permanent cultures, in public squares, paths and wasteland
- in winter and summer cultures

#### Associated Plants:

farmland weed communities in nitrogen-rich areas and in ruderal communities

#### Population in Germany:

widespread and common; not endangered

#### Importance in Animal Ecology:

host plant for weevil, beetle, mirid bug and butterfly; flowers visited by wild bees

#### Harmful Effects:

- hampers young growth and tillering (production of side shoots) in winter cereals
- weakly competitive

#### Integrated Control:

- avoiding massive reproduction
- mechanical and chemical control is simple

## Lapsana communis - Common nipplewort

[https://en.wikipedia.org/wiki/Lapsana\\_communis](https://en.wikipedia.org/wiki/Lapsana_communis)

Family: aster, composite *Asteraceae*



Characteristics:

- roots up to 50cm deep
- first forms a leaf rosette; upright stem, branched, hairy lower parts; contains milk sap; height 30 to 150cm
- strong, ovate cotyledons, blunt at the ends, stalked
- leaves ovate to heart-shaped or pinnatifid, toothed
- flowers pale yellow, inflorescence panicle-like
- seeds brown, vaguely triangular, ribbed, with a ring-shaped bulge at the tip

Life Cycle:

annual to biennial, outside of farmland perennial

Germination:

- late autumn to spring
- flat germinator

Flowers and Pollination:

- May to September
- predominantly cross-pollination

Reproduction:

- via seeds (400 to 800 per plant)
- germinable after ca. 5 years in the soil

#### Occurrence and Location:

- native to all temperate zones
- on nutrient- and nitrogen-rich, damp, chalky loam and sandy soils
- on farmland and in gardens, in hedge borders and in woods
- particularly in cereals and rape

#### Associated Plants:

- other farmland and border weeds

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for at least 19 insects (aphid, leaf miner, etc.), nematodes

#### Harmful Effects:

strongly competitive for light, water and nutrients, but only if present in massive amounts

#### Integrated Control:

- ploughing; repeated stubble work
- early seed bed preparation; early use of harrow when it is still in its juvenile stage
- well controlled by herbicides

## **Lathyrus aphaca - Yellow pea**

[https://en.wikipedia.org/wiki/Lathyrus\\_aphaca](https://en.wikipedia.org/wiki/Lathyrus_aphaca)



Family: Legume *Fabaceae*

Characteristics:

- root 30 to 35cm deep
- stem rising or climbing, square, bare, wingless, blue-green; grows 10 to 100cm tall
- cotyledons under the earth, serving as a store for the seeds
- pinna missing, leaf serves as a tendril; stipule large, leaf-like, hastate
- cluster of 1-2 flowers on a long stalk; crown light yellow
- pod contains 6-8 seeds, ovate, smooth, brown to black

Life Cycle:

summer annual

Germination:

via seeds (50 to 100 per plant)

Occurrence and Location:

- native to middle and southern Europe
- warmth loving
- on nutrient-rich, heavy, chalky soil; loam indicator
- on farmland and by the wayside
- particularly in winter cereals

Associated Plants:

cereal weed communities in basic areas and in ruderal communities



Population in Germany:

scattered, diminishing; strongly endangered

Importance in Animal Ecology:

associated species are gall midge, weevil, leaf miner, nematode

Harmful Effects:

weakly competitive

Integrated Control:

too rare to require control on farmland; protective measures desirable

## **Lathyrus hirsutus - Hairy vetchling, Caley pea**

[https://en.wikipedia.org/wiki/Lathyrus\\_hirsutus](https://en.wikipedia.org/wiki/Lathyrus_hirsutus)

Family: *Hylotelephium telephium* Legume *Papilioaceae Fabaceae*



### Characteristics:

- leafy vine climbing plant
- stem with narrow-wings, prostrate or climbing; mostly branched from the base upwards, ending with three or more tendrils; blue-green, almost bare; grows 20 to 120cm
- cotyledons under the earth; they serve as storage vessels for the seeds
- lanceolate leaves in single pairs, the lower ones with a short beard
- inflorescence with 1 to 3 flowers with a violet crown, turning purple or brown on wilting
- pod with 5 to 10 seeds, projecting, roughly haired; seeds spherical, grey-brown, with rough warts
- the plant generally hairy

### Life Cycle:

annual, but can also overwinter

### Flowers:

June to August

### Reproduction:

via seeds

#### Occurrence and Location:

- introduced and has become native to the mediterranean regional
- warmth-loving
- on loose, mostly chalky, nutrient-rich loam and sandy soil
- on farmland, by the wayside
- in winter cereals

#### Associated Plants:

cereal weed communities in chalk-rich regions and ruderal communities

#### Population in Germany:

rare

#### Importance in Animal Ecology:

little known

#### Harmful Effects:

only moderately competitive

#### Integrated Control:

control on farmland not necessary

## Lathyrus nissolia - Grass vetchling

[https://en.wikipedia.org/wiki/Lathyrus\\_nissolia](https://en.wikipedia.org/wiki/Lathyrus_nissolia)

Family: Legume *Papilioaceae Fabaceae*



### Characteristics:

- single, straight, upright, thin stem, weakly tetragonal; height 20 to 40cm
- cotyledons under the soil surface, serving as storage organ for the seeds
- single, grass-like leaves from the base characterised by five strong longitudinal veins, with no pinna or tendrils
- one or two flowers on long stalks; crown crimson, flag with darker veins, cap white
- pod projecting linearly or nodding, first with silky hairs, later becoming bare, light brown with 10 to 20 seeds, which are spherical to somewhat angular, roughly warty and with dark spots

### Life Cycle:

summer annual

### Flowers:

May to July

### Reproduction:

via seeds

### Occurrence and Location:

- native to southern Europe
- likes dry and warm locations
- on nutrient- and humous-rich, heavy loam and clay soil
- on farmland and at field edges
- in cereals

Associated Plants:

cereal weed communities and those in disturbed grassland

Population in Germany:

scattered to rare; very much endangered

Importance in Animal Ecology:

nectar containing legume

Harmful Effects:

only moderately competitive

Integrated Control:

control not necessary as it is rare; protective measures desirable

## **Lathyrus tuberosus - Tuberous pea**

[https://en.wikipedia.org/wiki/Lathyrus\\_tuberosus](https://en.wikipedia.org/wiki/Lathyrus_tuberosus)



Family: Legume

Characteristics:

- spindle-shaped root which changes into a tuber; root ca. 70cm deep
- forms offshoots on top of the soil; stem prostrate or climbing, square; grows up to 100cm tall
- cotyledons under the soil, serve as storage organ for the seeds
- leaves in single pairs with side-leaves, turning into a tendril at the end
- a cluster of usually 3 to 5 flowers on long stalk; crown carmine to pale purple
- seeds smooth or slightly rough, red-brown to brown-black, often squarish

Life Cycle:

perennial

Germination:

late autumn to spring

Flowers and Pollination:

- June to August
- pollination by insects

Reproduction:

- via seeds (100 to 200 per plant)
- storage tuber

#### Occurrence and Location:

- native to Europe and western Asia
- warmth-loving
- on dry, chalky loam and clay soils; warmth, chalk and loam indicator
- on farmland, in vineyards, by the wayside
- in summer cereals

#### Associated Plants:

cereal weed communities

#### Population in Germany:

widespread to scattered, now declining but not yet endangered

#### Importance in Animal Ecology:

associated species are gall midge, weevil, leaf miner, nematode, etc.

#### Harmful Effects:

only moderately competitive

#### Integrated Control:

control on farmland not necessary; protective measures desirable

## **Legusia hybrida - Venus's Looking Glass**

[https://de.wikipedia.org/wiki/Kleiner\\_Frauenspiegel](https://de.wikipedia.org/wiki/Kleiner_Frauenspiegel)



Family: Bellflower *Campanulaceae*

Characteristics:

- roots ca. 15cm deep
- stem upright, angular, strongly branched, with short hairs; up to 20cm high
- cotyledons egg-shaped to round with a blunt tip
- leaves bald or with short hairs; lower leaves long, upper leaves egg-shaped to lanceolate, corrugated to crenate, directly on the stem
- spiciform inflorescence, loosely branched with a terminal flower; blue-violet, bell-shaped flower with a dark centre line
- seeds egg-shaped to elliptical, flattened, smooth, yellow-brown

Life Cycle:

annual

Germination:

mostly Autumn or early Spring

Flowers:

- may to July
- self-pollination or by insects

Reproduction:

- via seeds (over a thousand per plant)
- germinable after up to 20 years in the soil



Occurrence and Location:

native to Europe and western Asia

- warm-loving
- on shallow, loam-clay weathered limestone soil
- in summer cereals

Associated Plants:

cereal weed communities in chalky areas

Population in Germany:

very rare; extinct almost everywhere

Importance in Animal Ecology:

unknown

Integrated Control:

control unnecessary on farmland; protective measures desirable

## Legusia speculum veneris - Venus's Looking Glass (greater)

<https://de.wikipedia.org/wiki/Venus-Frauenspiegel>

Family: Bellflower *Campanulaceae*

Characteristics:



- roots 15 to 20cm deep
- stem with splayed branches, bald or hairy; grows to 30cm tall
- cotyledons egg-shaped to roundish with blunt tip
- leaves hairless, lanceolate to egg-shaped, slightly wavy with a narrow base, on stem, remotely sinuate
- loosely ribbed; flowers bright violet, heller on the outside, wheel-shaped
- seeds egg-shaped to elliptical, flattened, smooth, shiny, yellow-brown

Life Cycle:

summer annual

Germination:

April to May, sometimes also in Autumn

Flowers and Pollination:

- June to August
- self-pollination and by insects

Reproduction:

via seeds (ca. 3 thousand per plant)

#### Occurrence and Location:

- native to middle Europe
- dry, warm locations, does not well tolerate summer drought
- on loose, porous, mostly chalky, nitroge-poor soil
- on farmland, predominantly under winter cereals and in short-lived weed communities

#### Associated Plants:

cereal weed communities in chalk-rich areas

#### Population in Germany:

scattered to rare; endangered

#### Importance in Animal Ecology:

no specific species known

#### Integrated Control:

control not necessary on farmland due to its rarity; protection measures desirable

## **Lepidium campestre - Field pepperweed**

[https://en.wikipedia.org/wiki/Lepidium\\_campestre](https://en.wikipedia.org/wiki/Lepidium_campestre)



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- rosette plant; stem upright, branched in the upper regions, thickly leafed; height 90cm
- basal leaves stalked, elongated, mostly entire; stem leaves with arrow-shaped base, lobed, half wrapped around the stem
- flowers small, white, in thick clusters
- seeds ovate, knobbly, brown

Life Cycle:

summer, sometimes winter, annual

Germination:

- autumn and spring
- flat germinator

Flowers:

May to June

Reproduction:

- via seeds (ca. 200 to 600 per plant)
- germinable after more than 5 years in the soil

#### Occurrence and Location:

- native to Europe and Western Asia
- somewhat warmth-loving
- on dry to fresh, nutrient- and base-rich, mostly chalky loam and clay soil; clay and loam indicator
- on the edges of paths, on rubble and embankments; in isolated cases on farmland

#### Associated Plants:

cereal weeds of chalky soil areas and ruderal communities

#### Population in Germany:

moderately common to scattered; not endangered

#### Importance in Animal Ecology:

food source for weevil and beetle species; 22 plant eating species verified

#### Uses:

used as a food

#### Integrated Control:

control not necessary

## **Lepidium draba - Hoary cress**

[https://en.wikipedia.org/wiki/Lepidium\\_draba](https://en.wikipedia.org/wiki/Lepidium_draba)

Family: Cruciferous plant *Brassicaceae*



Characteristics:

- extended (deep and shallow) root system: the shallow roots form green offshoots
- upright stem, somewhat angular with short hairs and leaves, branched at the top; height 20 to 50cm
- fragrant white flowers in cymes
- podlets ovate to elliptical; seeds ovate, almost smooth, brown

Life Cycle:

perennial

Germination:

- spring
- flat germinator

Flowers and Pollination:

- May to July
- self-pollination and cross-pollination (by flies)

Reproduction:

- via seeds (1 to 5 thousand per plant)
- germinable for ca. 2 years in the soil
- vegetative through root shoots

#### Occurrence and Location:

- introduced accidentally, has become native to south-west Europe and western Asia
- warmth-loving
- prefers dry, nutrient-rich, sandy gravel to pure loam and clay soils
- on paths, railway embankments, fallow land, in vineyards and on farmland
- in root crops and cereals

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

scattered to widespread, in many places markedly increasing

#### Importance in Animal Ecology:

host plant for at least 54 species

#### Harmful Effects:

- strongly reduces crop yields
- great ability to regenerate through vegetative reproduction

#### Integrated Control:

- turning the soil
- use of appropriate herbicides

## **Lepidium sativum - Garden cress**

[https://en.wikipedia.org/wiki/Garden\\_cress](https://en.wikipedia.org/wiki/Garden_cress)

Family: Cruciferous plant *Brassicaceae*



Characteristics:

- stem mostly upright, bare, strongly branched in upper portions; a frosted blue; grows 20 to 40cm tall
- cotyledons three-fingered with lanceolate to elongated oval parts
- leaves a light green, mostly lyre-shaped, pinnatisect with spines at the base; leaves lower on the stem often double or single pinnatisect, the middle leaves slitted and those at the top linear and entire
- flowers white or reddish
- podlets roundish ovate, with broad wings; seeds ovate, smooth, red-brown

Life Cycle:

annual

Germination:

autumn and spring

Flowers and Pollination:

- May to July
- pollination by insects

Reproduction:

via seeds



#### Occurrence and Location:

- and old culture plant gone wild; occurs practically all over the world
- prefers fresh, nutrient-rich soil
- by the wayside, on rubbish tips, occasionally on farmland

#### Associated Plants:

short-lived ruderal communities

#### Population in Germany:

seldom grows wild; unstable neophyte

#### Importance in Animal Ecology:

34 plant eating species verified

#### use and Harmful Effects:

- the raw plant has a sharp taste due to its content of mustard oil
- used as a food
- causes no damage on farmland

#### Integrated Control:

control not necessary

## **Lilium bulbiferum - Fire Lily - Feuer-Lilie**

[https://en.wikipedia.org/wiki/Lilium\\_bulbiferum](https://en.wikipedia.org/wiki/Lilium_bulbiferum) <https://en.wikipedia.org/wiki/Feuer-Lilie>



Family: Lilaceous plant *Liliaceae*

### Characteristics:

- egg-shaped white bulbs with compact scale leaves
- a single unbranched stem per bulb, felted hairs underneath the flowers; 120cm tall, but mostly grows to only half this height
- leaves lanceolate, parallel-veined, arranged alternately, without hair
- umbellate inflorescence with up to six flowers with short-haired or bare stems
- flowers unscented with six upright tepals, luminous red or red-yellow with a few dark patches

### Life Cycle:

perennial

### Flowers:

June and July

### Reproduction:

- via seeds
- small bulbs in the axis of the upper leaves which fall, grow and themselves flower after two years
- new plants can form from the leaves of bulbs chopped up by the plough

#### Occurrence and Location:

- native
- prefers warm, sunny locations
- prefers chalky soil, but can grow on slightly acid ground
- mostly found in mountain meadows, at the roadside and on fallow land, seldom on farmland

#### Associated Plants:

wayside communities on poor, dry soil

#### Population in Germany:

extreme reduction on account of denser cereal stocks; endangered, regionally threatened with extinction

#### Importance in Animal Ecology:

pollination by butterflies, host plant of the lilly leaf beetle

#### Integrated Control:

too rare for control to be necessary; protection measures desirable

## **Linaria vulgaris - Common toadflax**

[https://en.wikipedia.org/wiki/Linaria\\_vulgaris](https://en.wikipedia.org/wiki/Linaria_vulgaris)

Family: Figwort *Scrophulariaceae*



Characteristics:

- roots up to 100cm deep
- usually a single stem, bare or with glandular hairs on the upper part; grows 20 to 40cm tall
- rhombic-pointed cotyledons
- leaves alternate, blue-green, lanceolate, without hairs
- flowers in bunches at the end; yellow, palate with a long spur
- disc-shaped seeds, yellowish-white, later black, with a warty middle section

Life Cycle:

perennial

Germination:

- spring
- flat germinatoe

Flowers and Pollination:

- June to October
- self-pollination and by insects

Reproduction:

- via seeds (8 to 10 thousand per plant)
- germinable after more than 5 years in the soil
- vegetative via root shoots

#### Occurrence and Location:

- pioneer plant native to Europe, Asia and North America
- somewhat warmth-loving
- mostly on dry to moderately fresh, nutrient-rich loam; nitrogen-loving
- often by the wayside and in ruderal areas, rather rare on farmland

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

nectar plant for bumble bees; food plant for many beetles and weevils

#### Harmful Effects:

moderate, mostly grows at the edges of fields

#### Integrated Control:

control not necessary

## **Lolium multiflorum - Italian ryegrass**

[https://en.wikipedia.org/wiki/Festuca\\_perennis](https://en.wikipedia.org/wiki/Festuca_perennis)

Family: Sweetgrass *Poaceae*

Characteristics:

- bushy growth; roots intensively down to 80cm deep
- grows up to 80cm tall
- leaf ears strongly overarch
- leaf blade very shiny on the underneath, without hair; rolled leaf origin
- spiked grass; appears similar to couch grass, but with the narrow end of the ears attached to the spindle

Life Cycle:

annual to biennial

Germination:

mostly in spring, sometimes in autumn

Flowers:

June to July

Reproduction:

- via seeds (300 to 1500 per plant)
- germinable after more than 7 years in the soil



#### Occurrence and Location:

- introduced to and has become native to southern and western Europe
- warmth-loving; sensitive to frost and drought
- , on fresh to moderately fresh, nutrient- and base-rich loam and clay soil
- on farmland, on paths, on wasteland
- in all crops

#### Associated Plants:

farmland and ruderal weed communities

#### Population in Germany:

widespread (particularly cultured forms)

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Use and Harmful Effects:

- valuable feed crop in pastures
- strongly competitive
- grass weeds make the harvest more difficult and increase grain humidity
- some varieties are resistant to herbicides

#### Integrated Control:

- stubble working and turning the soil
- planting catch crops
- chemical control with selective grass herbicides

## **Lolium remotum - Tare**

<https://de.wikipedia.org/wiki/Lein-Lolch>

Family: Sweetgrass *Poaceae*



Characteristics:

- bushy tufted grass; stiff, upright growth, stems smooth but rough under the ears; grows 30 to 60cm tall
- short ligule, no leaf ears
- smooth leaf sheaths; upper side of the leaf blade is rough, underneath smooth
- ear axle coiled, ears have their narrow side towards the stem, and have 3 to 8 flowers; lemma with and without beard

Life Cycle:

summer annual

Germination:

spring

Flowers and Pollination:

- June to August
- self-pollination

Reproduction:

seeds



#### Occurrence and Location:

- native to eastern Europe, North Africa, Asia, South America and Australia
- on fresh, nutrient- and base-rich loam and clay soil; avoids chalk; nutrient indicator
- on farmland and wasteland
- previously in flax fields

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

rare in Sachsen-Anhalt, Brandenburg and Mecklenburg-Vorpommern; otherwise extinct or in danger of extinction

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nemadote, etc.

#### Integrated Control:

control not necessary due to its rarity on farmland; protective measures desirable

## **Lolium temulentum - Darnel ryegrass**

[https://en.wikipedia.org/wiki/Lolium\\_temulentu](https://en.wikipedia.org/wiki/Lolium_temulentu)

Family: Sweetgrass *Poaceae*



### Characteristics:

- bushy growth; stalk bare, smooth, rough below the ears, unbranched or branched at the base; grows 20 to 90cm tall
- mostly sickle-shaped, wrapped around the stem, leaf ears
- leaf blades bare, upper side and edges rough, shiny underneath
- alternating ears with the narrow end to the stem; lemma mostly bearded, very long glume (bract), ear axle between the flowers conspicuously long

### Life Cycle:

summer annual

### Flowers and Pollination:

- June to August
- self-pollination

### Reproduction:

via seeds

### Occurrence and Location:

- native to temperate zones of Europe, Asia and North Africa
- on fresh, nutrient-rich, chalky loam poor in humus; nutrient indicator
- on farmland
- in summer cereals

### Associated Plants:

cereal weed communities

Population in Germany:

extinct, lost

Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

Harmful Effects:

becomes infected by a fungus that produces toxic alkaloids (similar to ergot) that produces dizziness in humans (can be an impurity in flour)

Integrated Control:

control not necessary due to its rarity on farmland; protective measures desirable

## Lysimachia foemina (formerly known as Anagallis foemina) - Poorman's Weatherglass

[https://en.wikipedia.org/wiki/Lysimachia\\_foemina](https://en.wikipedia.org/wiki/Lysimachia_foemina)



Family: Primula *Primulaceae*

Characteristics:

- roots up to 40cm deep
- single stem with branches on the lower leaf nodes; sprawling to spreading growth; 5 to 30cm tall
- cotyledons linear-lanceolate
- leaves elliptical to ovate-lanceolate
- leafy cluster of separated flowers on short stalks; crown blue in the centre with a red patch
- seeds broad ovate, somewhat angular, brown to dark brown, finely warty

Life Cycle:

summer annual

Germination:

mid spring to early summer

Flowers and Pollination:

- June to September
- self- and cross-pollination

Reproduction:

- via seeds (200 to 450 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the Mediterranean
- warmth and light loving
- on moderately dry, nutrient and chalk containing, neutral to basic, usually humus-poor, often stony loam and clay soil
- in cereals

#### Associated Plants:

cereal weed communities of chalky soils

#### Population in Germany:

scattered to rare; in some regions endangered

#### Importance in Animal Ecology:

various pollinators, particularly flies

#### Integrated Control:

control not necessary due to its scarcity; protective measures desirable

## Lythrum hyssopifolia - Lesser loosestrife

[https://en.wikipedia.org/wiki/Lythrum\\_hyssopifolia](https://en.wikipedia.org/wiki/Lythrum_hyssopifolia)



Family: Loosestrife *Lythraceae*

Characteristics:

- a very small plant, prostrate to ascending, bluish-green; grows 5 to 20cm tall
- leaves of different shapes, at the base elliptical; stem leaves lanceolate, upper leaves linear-l- small red-violet flowers, singly in the leaf axil

Life Cycle:

annual

Germination:

spring

Flowers and Pollination:

- June to September
- self-pollination and by insects

Reproduction:

- via seeds
- germinable after a lengthy period in the soil

Occurrence and Location:

- native to Europe, parts of America, Australia and New Zealand
- warmth-loving
- on damp soil with a wet surface and on nutrient- and base-rich, often salty, humus-rich clay soils
- on river banks, paths, ditches and field edges

Associated Plants:

pygmy rush communities

Population in Germany:

scattered to rare; strongly endangered

Integrated Control:

control on farmland not necessary due to its rarity; protective measures desirable

## Malva neglecta - Common Mallow

[https://en.wikipedia.org/wiki/Malva\\_neglecta](https://en.wikipedia.org/wiki/Malva_neglecta)



Family: Mallow *Malvaceae*

Characteristics:

- tap root
- stem with scattered hairs, prostrate or upright; grows up to 50cm tall
- triangular, heart-shaped cotyledons
- circular leaves with 5 to 7 lobes, notched, hairy underneath
- multiple flowers on long stalks in the leaf axil; pale pink to white, darker over the veins, with thickly bushy hairs at the base; petals deeply serrated
- fruit smooth or slightly wrinkled, divides itself into small sections; seeds kidney-shaped, finely dotted

Life Cycle:

annual on farmland, otherwise perennial

Germination:

spring

Flowers and Pollination:

- May to November
- self- and cross-pollination

Reproduction:

- via seeds (300 to 500 per plant)
- germinable after more than 5 years in the soil



#### Occurrence and Location:

- native to the whole of Europe
- warmth-loving
- prefers nutrient-rich, fresh loam; nitrogen indicator
- in gardens, by the wayside, near villages, seldom on farmland

#### Associated Plants:

root crop weeds on over-fertilised soil and in ruderal weed communities near villages

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for the mallow skipper and other butterflies, weevil and beetles; nectar and pollen plant for bees and flies

#### Use and Harmful Effects:

- once used as a medicinal plant and a vegetable
- causes no economic harm on farmland

#### Integrated Control:

- intensive working of the soil
- planting winter crops
- hoeing in culture rows
- well controlled chemically

## Malva sylvestris - High mallow

[https://en.wikipedia.org/wiki/Malva\\_sylvestris](https://en.wikipedia.org/wiki/Malva_sylvestris)

Family: Mallow *Malvaceae*

Characteristics:

- tap root over 140cm deep
- half-rosette plant; prostrate, hairy stem, woody lower part; grows up to 120cm tall
- heart-shaped cotyledons on a long stalk
- round hand-shaped leaves with 3 to 7 notched lobes, hairy underneath
- flowers in bunches on the leaf axil; crown light purple with dark stripes
- disc-shaped seeds with a net of knobbly ribs on the reverse, bare or with a few hairs

Life Cycle:

biennial to perennial

Germination:

mid-spring to early summer and from early to mid-autumn

Flowers and Pollination:

- June to September
- pollination by insects

Reproduction:

- via seeds (300 to 500 per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native plant found near to centres of population in all Europe
- warmth- and light-loving
- prefers nutrient- and humus-rich, fresh, loam, sandy and clay soils
- often by the wayside, on wasteland, more seldom on farmland

#### Associated Plants:

root crop and ruderal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for the mallow skipper and other butterflies, weevil, beetle, nectar and pollen plant for bees and flies

#### Harmful Effects:

does little economic harm as it appears seldom and stays small

#### Integrated Control:

- intensive working of the soil
- planting winter crops
- hoeing in culture rows
- well controlled by chemical means

## **Matricaria discoidea - Wild chamomile, disc mayweed**

[https://en.wikipedia.org/wiki/Matricaria\\_discoidea](https://en.wikipedia.org/wiki/Matricaria_discoidea)



Family: Aster; composite *Asteraceae*

Characteristics:

- roots 15 to 35cm deep
- upright, stout stem, branched, bare; variable height, 15 to 50cm
- ovate cotyledons with pointed ends
- leaves pinnate, narrow filaments, bluish-green
- stalked flower heads, yellow-green coniform receptacle without ray florets; disc florets yellow-green
- emits a characteristic chamomile odour when rubbed
- seeds crooked coniform, flattened to quadratic, brown longitudinal ribs, light brown

Life Cycle:

summer and winter annual

Germination:

- early spring and late autumn
- flat germinator

Flowers and Pollination:

- June to August
- self pollination and by insects

Reproduction:

- via seeds (ca. 5 thousand per plant)
- germinable after over 5 years in the soil

#### Occurrence and Location:

- introduced in the 19th century, now an established native plant
- on compact, more or less fresh, nutrient-rich loam and sandy soil
- often in ruderal areas and on paths but also spreads to arable land
- in summer crops

#### Associated Plants:

- farmland and recreational area weed communities, and others which grow on rubbish dumps and tips

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are plum aphid, weevil, gall midge, leaf miners, boring flies, butterflies, wild bees, etc.

#### Harmful Effects:

- moderate competitor water, light and nutrients
- can spread widely in subsequent cultures if not controlled

#### Integrated Control:

- stubble working and turning the soil
- early seed bed preparation
- well controlled by mechanical and chemical means up to the small rosette stage

## Matricaria perforata - Scentless mayweed

[https://en.wikipedia.org/wiki/Tripleurospermum\\_inodorum](https://en.wikipedia.org/wiki/Tripleurospermum_inodorum)

Family: Aster; composite *Asteraceae*

Characteristics:



- roots up to 20cm deep
- bare, upright branched stem; very variable height up to 100cm
- cotyledons oval with long stems pointed at the end
- leaves double or triple pinnate, lanceolate-toothed tip, bare
- terminal flowers; receptacle arched, pithy; tubular flowers golden yellow, ray florets white; only weakly scented
- seeds coniform, slightly curved, flattened with longitudinal ribs, light brown

Life Cycle:

annual and biennial

Germination:

- spring and autumn
- flat germinator

Flowers and Pollination:

- May to October
- mostly cross-pollination

Reproduction:

- via seeds (5 to 20 thousand per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native pioneer plant in north and western Europe
- on nutrient-rich, mostly chl<sub>k</sub>-poor, clay or sandy loam
- on farmland, on paths, on fallow land
- in all farm crops

#### Associated Plants:

farmland and ruderal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

known to be associated with 18 plant eating species

#### Harmful Effects:

- strong competitor for water, light and nutrients; stronger competitor as chamomile
- can spread widely in subsequent cultures if not controlled

#### Integrated Control:

- turning the soil
- early seed bed preparation
- well controlled by mechanical means up to the small rosette stage
- well controlled chemically

## **Matricaria recutita - Chamomile**

[https://en.wikipedia.org/wiki/Matricaria\\_chamomilla](https://en.wikipedia.org/wiki/Matricaria_chamomilla)



Family: Aster, composite

Characteristics:

- roots 70cm deep
- spreading upright growth, half-rosette; stem somewhat branched and grooved, bare; height variable, over 100cm
- club-shaped cotyledons
- leaves at first single pinnate, later double or tripple pinnate
- small terminal heads on a long stalk; flower base hollow; yellow disc florets
- spicy aroma
- seeds coniform, slightly bent, flattened, longitudinally ribbed, light brown

Life Cycle:

winter and summer annual

Germination:

- spring, autumn
- flat germinator

Flowers:

- May to October
- self-pollination and by insects

Reproduction:

- via seeds (1 to 10 thousand per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native to the whole world
- on fresh, nutrient-rich, rather acid clay or sandy loam; loam indicator
- on farmland, in gardens, on paths and fallow land
- in cereals, root crops, maize and rape

#### Associated Plants:

farmland weeds and ruderal plant communities

#### Population in Germany:

very widespread; not endangered

#### Importance in Animal Ecology:

associated species are prune aphid, weevil, gall midge, leaf miner, boring flies, butterflies, wild bees, etc.

#### Use and Harmful Effects:

- grown as a medicinal plant
- reduces crop yield as a moderate competitor for water light and nutrients
- strong proliferation in subsequent crops if not controlled

#### Integrated Control:

- turning the soil
- early seed bed preparation
- well controlled by mechanical means up to the small rosette stage
- well controlled by chemicals

## Melampyrum arvense - Field cow-wheat

[https://en.wikipedia.org/wiki/Melampyrum\\_arvense](https://en.wikipedia.org/wiki/Melampyrum_arvense)

Family: Figwort *Scrophulariaceae*



Characteristics:

- roots 25 to 35cm deep
- upright, weakly branched stem; grows 25 to 35cm tall
- cotyledons linear-lanceolate
- leaves narrow lanceolate, edge entire to toothed
- flowers in thick, cylindrical ears with flat bracts, ovate to lanceolate, deeply toothed; brilliant red; nectar producing scales underneath
- seeds about the size of cereal grains

Life Cycle:

annual

Germination:

- autumn to early spring (cold germinator)

Flowers and Pollination:

- June to September
- self-pollination and by insects

Reproduction:

- via seeds
- seeds which lie in the field are short-lived

#### Occurrence and Location:

- native to Europe and western Asia
- in warm, rather dry, nutrient-rich, mostly chalky areas
- in poor meadows and vineyards, on paths; seldom in extensive cereal cultures

#### Associated Plants:

in cereal weed communities in base-rich regions and in fringe communities

#### Population in Germany:

scattered to rare, strongly declining; in some areas greatly endangered

#### Importance in Animal Ecology:

nectar plant for bumble bees and other wild bees

#### Integrated Control:

control on farmland not necessary because of its rarity; protective measures desirable

## **Mentha arvensis - Wild mint**

[https://en.wikipedia.org/wiki/Mentha\\_arvensis](https://en.wikipedia.org/wiki/Mentha_arvensis)

Family: Labiate *Lamiaceae*

Characteristics:



- roots 25 to 40cm deep; has rooted offshoots
- spreading growth with short creeping offshoots and subterranean offshoots; square purple stems lying on the ground; grows up to 20cm tall
- wide, rounded cotyledons
- leaves alternate, elliptic, notched, with a lemon aroma
- flowers in double coils, violet to pink
- seeds light brown, smooth or slightly wrinkled

Life Cycle:

perennial

Germination:

- spring and autumn
- flat germinator

Flowers and Pollination:

- July to October
- pollination by insects

Reproduction:

- via seeds (100 to 300 per plant)
- germinable after more than 30 years in the soil
- through vegetative offshoots

#### Occurrence and Location:

- pioneer plant native to all Europe
- in cool and damp climates
- on moisture-laden, nutrient-rich, moderately acid loam and clay soils; indicator for waterlogging
- in meadows and on farmland

#### Associated Plants:

weed communities of damp areas, in wetland meadows and in gaps in lawns

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

74 plant-eating species are found associated with *Mentha*, for example aphid, soft-shield bugs, sawfly, weevil and nematode; pollen and nectar plant

#### Harmful Effects:

#### Integrated Control:

improving the soil by drainage and addition of lime

## Mercurialis annua - Annual Mercury - Einjähriges Bingelkraut

[https://en.wikipedia.org/wiki/Mercurialis\\_annua](https://en.wikipedia.org/wiki/Mercurialis_annua) [https://de.wikipedia.org/wiki/Einjähriges\\_Bingelkraut](https://de.wikipedia.org/wiki/Einjähriges_Bingelkraut)



Family: Spurge *Euphorbiaceae*

Characteristics:

- roots 15-50cm deep
- upper part of stem bushily branched, up to 50cm tall
- cotyledons and leaves with distinct white veins, round-oval
- leaves spade-shaped to elongate egg-shaped, irregularly saw-toothed
- dioecious: male flowers yellow, on thin stalks, female flowers shorter, positioned in the leaf axis
- seeds egg-shaped to spherical, reticular-foveate, light brown
- unpleasant smell

Life Cycle:

summer annual

Germination:

late spring

Flowers and fertilisation:

- May to October
- cross-fertilisation (wind and insects)

Reproduction:

- via seeds (800 to 5,000 per plant)
- can germinate after over 30 years in the ground

#### Occurrence and Location:

- native to Europe, North Africa and South West Asia
- on warm, humus-rich basic sandy soils and loam
- on farmland, vineyards and on paths
- in maize, sugar beet, and vegetables

#### Associated Plants:

- hoe weeds and roadside plants

#### Population in Germany:

moderately abundant ; not endangered

#### Importance in Animal Ecology:

associated species include weevils, aphids including a strongly monophagous species, nematodes

#### Harmful Effects:

- contains saponins and methylamine
- very competitive
- late germination; late growing plants still achieve germination
- when present in large quantity cause high loss of yield

#### Integrated Control:

- early seed bed preparation and mechanical control during sowing
- mechanical control effective up to the 4-leaf stage

## Misopates orontium - Linearleaf snapdragon

[https://en.wikipedia.org/wiki/Misopates\\_orontium](https://en.wikipedia.org/wiki/Misopates_orontium)



Family: Plantain *Plantaginaceae*

Characteristics:

- roots 40 to 70cm deep
- somewhat angular stem, grey-green, white hairs at the bottom, mostly with red streaks; grows up to 50cm tall
- cotyledons rhombic-lanceolate
- leaves elliptical, sometimes with small thorns; turned up at the edge; lower leaves opposite, upper leaves alternate
- terminal cluster of single flowers from the leaf axil; petals pink with darker stripes
- seeds elliptical to rectangular, flattened, curved on the rear side, key-shaped at the front; brown

Life Cycle:

summer annual

Germination:

April to June

Flowers and Pollination:

- July to October
- pollination by bees and bumble bees

Reproduction:

via seeds (800 to 1200 per plant)



#### Occurrence and Location:

- native to warmer areas of Europe, Asia and North Africa
- on nutrient-containing, sandy loam with an acid soil reaction; loam indicator
- on farmland and in vineyards, on wasteland
- particularly in cereals

#### Associated Plants:

cereal weed communities in areas with acid soil and ruderal communities in fresh areas

#### Importance in Animal Ecology:

associated species are weevil and cicadas; nectar plant for bees and bumble bees

#### Population in Germany:

scattered, strongly declining; endangered

## **Montia arvensis - Blinks, water chickweed**

[https://en.wikipedia.org/wiki/Montia\\_fontana](https://en.wikipedia.org/wiki/Montia_fontana)



Family: Purslane *Portulacaceae*

Characteristics:

- grows 2 to 10cm tall
- stem grows upwards, strongly branched; small, inconspicuous, prostrate
- leaves reverse ovate with wedge-shaped, narrowed at the base, alternate, somewhat fleshy, yellow-green
- small flowers on stalks, whitish, in small, branched inflorescence in the leaf axil
- ripe seeds are matt, roundish, 1 to 1,3mm, covered in warts

Life Cycle:

annual to perennial

Flowers and Pollination:

- June to August
- self-pollination and by insects

Occurrence and Location:

- native to Europe

on wet, chalk-free areas with acid soil

- on farmland, the banks of streams and on fallow/wasteland; indicator plant for flooding

Associated Plants:

those found in chalk poor areas near springs

Population in Germany:

rare, strongly in decline; endangered

Use and Harmful Effects:

- formerly used as a winter vegetable
- small growth, weakly competitive species

Integrated Control:

too rare for control to be necessary; protective measures desirable

## Myosotis arvensis - Field forget-me-not

[https://en.wikipedia.org/wiki/Myosotis\\_arvensis](https://en.wikipedia.org/wiki/Myosotis_arvensis)



Family: Borage *Boraginaceae*

Characteristics:

- roots up to 30cm deep
- rosette; upright, hairy stem branched at the base; grows up to 40cm tall
- cotyledons round to a broad oval on a short stem; hairy
- youngest leaves after the leaf rosette ovate to broad-lanceolate, latest leaves tongue-shaped, hairy on both sides
- cluster of many small sky blue flowers
- seeds flattened-ovate with sharp edges, a shiny black-brown

Life Cycle:

annual and perennial

Germination:

- all year
- flat germinator

Flowers and Pollination:

- April to September
- self-pollination and by insects

Reproduction:

- via seeds (500 to 1,000 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe
- only weakly to moderately acid, damp, well aerated and base-rich loam
- on farmland and wasteland
- in winter cereals and winter rape, maize and legumes

#### Associated Plants:

farmland weed communities and those in field borders and sparse meadowlands

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for weevil, aphid, sawfly, butterfly, gall midge, nematode; flowers visited by flies

#### Harmful Effects:

only harmful if present in large amounts

#### Integrated Control:

well controlled by mechanical and chemical means

## **Myosotis stricta - Woodland forget-me-not**

[https://en.wikipedia.org/wiki/Myosotis\\_stricta](https://en.wikipedia.org/wiki/Myosotis_stricta)



Family: Borage *Boraginaceae*

Characteristics:

- flat roots up to 15cm deep
- stem either single or branched from the base with side branches; grows up to 20cm tall
- elliptic leaves; the rosette leaves dry out quickly
- inflorescence clusters with leaves on the lower part over three quarters of the plant
- flowers almost directly on the stem, light blue with yellow tubes
- the fruit is a tubular calyx; seeds ovate, flattened, black-brown, smooth, shiny

Life Cycle:

annual to perennial

Germination:

late winter to late spring and from early to late autumn

Flowers and Pollination:

March to May

- mostly self-pollination

Reproduction:

- via seeds (500 per plant)
- germinable after more than 15 years in the soil

#### Occurrence and Location:

- native to all Europe
- warmth-loving
- on dry, poor, largely decalcified, moderately acid sandy soil and slack; chalk deficiency indicator
- on farmland and paths

#### Associated Plants:

pioneer communities in dry and warm areas, on flat, rocky terrain and pouries gravel and sandy soil; meadow plant communities

#### Population in Germany:

scattered, sharply declining and endangered

#### Importance in Animal Ecology:

host plant for weevil, aphid, sawfly, butterfly, gall midge, nematode; the weevil *Mogulones venedicus* is monophage (visits only this plant)

#### Harmful Effects:

small growth and weakly competitive

## **Myosurus minimus - Mousetail**

[https://en.wikipedia.org/wiki/Myosurus\\_minimus](https://en.wikipedia.org/wiki/Myosurus_minimus)



Family: Buttercup *Ranunculaceae*

Characteristics:

- roots 2 to 8cm deep
- rosette plant; upright stem with no leaves, thickening on the upper portion, grows 2 to 15cm tall
- cotyledons narrow-elongate
- leaves grow from the ground, linear, grass-like, entire edges, blunt
- flowers at the tip and in the leaf axils; petals yellow-green, spurred; honey leaves filamentous, broadening at the tip, yellow; receptacle very strongly elongated at in the fruiting period, mousetail-like; inflorescence thick, grass-like, not rectangular
- abundant fruit in a helical conformation with a very short beak

Life Cycle:

summer annual

Germination:

early to mid spring, also in the autumn

Flowers and Pollination:

- April to June
- self-pollination and by insects

Reproduction:

- via seeds (500 per plant)
- germinable after up to 10 years in the soil



Occurrence and Location:

- native to the whole of Europe
- somewhat warmth-loving
- on thick, waterlogged, chalk-free loam with a good nitrogen content; moisture and nutrient indicator
- on farmland and by the wayside

Associated Plants:

cereal and pioneer communities in the flood area of rivers

Population in Germany:

scattered and declining; endangered in many states

Importance in Animal Ecology:

no associated species known

Harmful Effects:

small and weakly competitive

Integrated Control:

control on farmland not necessary due to its scarcity; protective measures desirable

## **Neslia paniculata - Ball Mustard**

[https://en.wikipedia.org/wiki/Neslia\\_paniculata](https://en.wikipedia.org/wiki/Neslia_paniculata)



Family: Cruciferous plants

Characteristics:

- root over 60cm - upright stalk branched at the top, plant covered in hairs; grows up to 70cm
- cotyledons reverse egg-shaped with slightly emarginate tip
- leaves long at the base, lanceolate and with stalks, v- shaped at the top
- multiple flower cluster on long, loosely-standing shoots; golden-yellow
- small spherical fruit; seeds egg-shaped to elliptical, yellow to reddish-brown, finely tubercular

Life Cycle:

summer annual

Germination:

mid to late Spring, rarely in Autumn

Flowers and Pollination:

- April to August
- predominantly self-pollination

Reproduction:

- via seeds (150 to 200 per plant)
- germinable up to ca. 10 years in the soil

#### Occurrence and Location:

- native to Europe, North Africa, Asia, North America, and Australia
- prefers warm, loose, chalky clay and loamy soil (loam indicator)
- in winter cereals

#### Associated Plants:

cereal weed communities in chalky areas and in ruderal communities

Population in Germany: has become rare due to intensive farming; endangered

#### Importance in Animal Ecology:

Host plant for at least 34 insect species including aphids and weevils

#### Harmful Effects:

small and weakly competitive

#### Integrated Control:

control unnecessary on farmland because of its rarity ; protective measures desirable

## Nicandra physaloides - Shoofly Plant, Apple of Peru

[https://en.wikipedia.org/wiki/Nicandra\\_physaloides](https://en.wikipedia.org/wiki/Nicandra_physaloides)



Family: Nightshade *Solanaceae*

Characteristics:

- grows up to 150cm tall
- cotyledones ovate with a pointed tip
- leaves narrow to broad ovate with a wavy lobed edge, leaf base wedge-shaped to pointed; ; long, peripteral (winged) leaf stalk
- flowers violet to pale blue

seeds brownish-yellow, flat, kidney-shaped

Life Cycle:

summer annual

Germination:

late spring

Flowers and Pollination:

June to October

Reproduction:

via seeds

#### Occurrence and Location:

- introduced from the Andes with bird food and seeds; grow as an ornamental plant but then became wild; occurs globally in warm areas
- warm loving
- almost only on nutrient-containing soils
- particularly in maize

#### Associated Plants:

annual and biennial root crop and ruderal weed communities

#### Population in Germany:

common in some regions

#### Importance in Animal Ecology:

little

#### Harmful Effects:

- all parts of the plant are very toxic
- large populations can develop in mild autumn weather
- competitor for nutrients and water if large populations grow in maize
- gaps in herbicide effectiveness
- often not controlled by herbicides because of its late germination

#### Integrated Control:

- planting cereals

## **Nigella arvensis - Wild fennel**

<https://de.wikipedia.org/wiki/Acker-Schwarzkümmel>



Family: Buttercup *Ranunculaceae*

Characteristics:

- roots over 80cm deep
- grows upright to spread out, loosely branched; height 10 to 40cm
- cotyledons slender ovate
- leaves triple feathered, feather tips pointed
- loosely branched panicle; single bloom on stem; petals pale blue to whitish
- seeds triangular, almost black, grainy

Life Cycle:

summer annual

Germination:

early spring to early summer

Flowers:

July to September

Reproduction:

- via seeds (100 to 300 per plant)
- seeds ripen only in the stubble after harvest of the cereal crop

#### Occurrence and Location:

- native to Europe
- warmth loving
- on nutrient-rich, porous and well aerated, chalky, stony and sandy soil
- in cereal crops

#### Associated Plants:

cereal weed communities in areas with basic soil

#### Population in Germany:

rare; indanger of extinction; can only seed when the stubble is ploughrd late in the year

#### Importance in Animal Ecology:

bee plant

#### Integrated Control:

control not necessary because of its rarity; protective measures desirable

## **Nonea pulla - Monkswort**

<https://en.wikipedia.org/wiki/Nonea>

[https://de.wikipedia.org/wiki/Braunes\\_Mönchskraut](https://de.wikipedia.org/wiki/Braunes_Mönchskraut)



Family: Borage *Boraginaceae*

Characteristics:

- tap root shrub, root up to 90cm deep
- stem with soft bristles, branched in the upper regions, coarse, hollow; grows up to 50cm tall
- lower leaves rosette-like on stalks; upper leaves around the stem, alternate and ordered spirally; elongated to lanceolate, glandular hairs on both sides and bristles; leaf edge entire or slightly lobed
- flowers cupular (cup-shaped), in grape-like, leaved; violet-brown to purple-black
- seeds lopsided ovate, warty-wrinkled

Life Cycle:

perennial

Germination:

autumn

Flowers and Pollination:

- May to August
- pollination by insect



#### Occurrence and Location:

introduced to south-west Europe and now native to the region- likes summer warmth

-on dry, nutrient-, and chalk-rich loess-loam soils with skeletal material

- on farmland, on fields and path edges, in meadows and wasteland

- in cereals

#### Associated Plants:#

cereal weed communities of chalky areas and ruderal communities

#### Population in Germany:

scattered, diminishing; endangered, regionally in danger of extinction

#### Importance in Animal Ecology:

host plant for at least six plant-eating species including beetles and weevils

#### Integrated Control:

control on farmland not necessary because of rarity; protective measures desirable

## **Odontites vernus - Red bartsia**

[https://en.wikipedia.org/wiki/Odontites\\_vernus](https://en.wikipedia.org/wiki/Odontites_vernus)



Family: Broomrape *Orobanchaceae*

Characteristics:

- root parasite (cannot flower or form seeds without a host); spindle-shaped roots tap onto the host plant; somewhat branched with fibrous roots 25 to 40cm deep
- upright, loosely branched growth with a single stem or with unbranched side stems growing obliquely upwards on the middle section; grows 10 to 45cm tall
- cotyledons ovate
- the linear-lanceolate, alternating leaves on a short stem narrow to a wedge shape
- crowded, leafy cluster of single flowers on a short stalk on one side of the stem; crown rot to pale purple
- brown seeds, elongated ovate to spindle shaped, flattened, with thin longitudinal ribs

Life Cycle:

summer annual

Germination:

early to late spring

Flowers and Pollination:

- May to October
- pollination by insects

Reproduction:

- via seeds (100 to 200 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe and Asia
- in warmer locations
- on damp, acidic but not nutrient-poor, sandy-loamy soil
- on farmland and field borders
- particularly in cereals
- related to *Odontites vulgaris*, the species most common in grassland

#### Associated Plants:

cereal weed communities and those in low-growth and disturbed areas

#### Population in Germany:

scattered to rare; endangered

#### Importance in Animal Ecology:

a „bee plant“; the red bartsia bee *Melitta tricincta* lives exclusively on the pollen and nectar of *Odontites* flowers

#### Harmful Effects:

causes no damage on farmland

#### Integrated Control:

no control necessary due to its rarity; protective measures desirable

## Onopordum acanthium - Cotton Thistle - Gewöhnliche\_Eselsdistel

[https://en.wikipedia.org/wiki/Onopordum\\_acanthium](https://en.wikipedia.org/wiki/Onopordum_acanthium) [https://de.wikipedia.org/wiki/Gewöhnliche\\_Eselsdistel](https://de.wikipedia.org/wiki/Gewöhnliche_Eselsdistel)



Family: Aster *Asteraceae*

Characteristics:

- deep root system
- herbaceous, in the first year broad leaf rosettes are formed; stem has sturdy thorns; height 30 to 200cm
- basal leaves very large, broad lanceolate to oval, indentate, with long thorns
- leaves alternate, higher on plant smaller and narrower, pressed against the stem; wide, thorny wings on the stem; with felt-like hairs
- red flowers; single flower head; flattened spherical in shape, surrounded by thorny bracts
- seeds a squashed square in shape, laterally wrinkled, bare, with a reddish pappus (beard)

Life Cycle:

biannual

Germination:

autumn

Flowers and fertilisation:

- July to September
- pollination by insects

Reproduction:

- via a seeds
- long-lived in the soil

#### Occurrence and Location:

- introduced from the Mediterranean, has spread all over Europe
- on chalk-containing, sandy loam soil, dry in summer
- typical path and roadside plant

#### Associated Plants:

biennial and perennial ruderal communities

#### Population in Germany:

widespread to rare; not endangered

#### Importance in Animal Ecology:

important nectar plant for bees, wasps, butterflies and hoverflies

#### Use and Harmful Effects:

- formerly used as a food (as a vegetable, seed oil)
- a medicinal plant in the Middle Ages

#### Integrated Control:

control on farmland not necessary

## Orlaya grandiflora - White Layer Flower - Strahlen Breitsame

<https://en.wikipedia.org/wiki/Orlaya>

<https://de.wikipedia.org/wiki/Strahlen-Breitsame>



Family: Umbelifer *Apiaceae*

Characteristics:

- roots up to 70cm deep
- single stem with arching branches emerging from the upper part; height 20-60cm
- leaves double or triple pinnate with linear, remote, upright tips
- Inflorescence 5-8 radiant double dowels; petals white
- seeds elongated, thick with thin thorns curved at the tips

Life Cycle:

annual

Germination:

mid to late spring

Flowers and fertilisation:

- June to September
- pollination by insects (flies)

Reproduction:

via seeds (ca. 70 per plant)

#### Occurrence and Location:

- native to southern and middle Europe
- in a location that is warm in summer
- on dryish, chalky, mostly stony clay soil; clay indicator
- on farmland, in vineyards, wasteland, dry meadows
- mainly in cereals

#### Associated Plants:

grows together with other cereal weeds in chalky locations and in warmish field edges; with couch grass

#### Population in Germany:

- widespread to rare; endangered

#### Importance in Animal Ecology:

- forage plant for dovetail (birds)
- various aphids and gall midges

#### Integrated Control:

too rare to require control on farmland; protective measures desirable

## Ornithopus perpusillus - Bird's-foot

[https://en.wikipedia.org/wiki/Ornithopus\\_perpusillus](https://en.wikipedia.org/wiki/Ornithopus_perpusillus)



Family: Legume *Fabaceae*

Characteristics:

- long taproot
- multiple thin branched stems, prostrate or ascending, thickly haired; grows 10 to 30cm tall
- leaves have 7 to 12 pairs of small elliptical pinnae; hairy
- 3 to 7 very small flowers in umbels, whitish; the standard (upper petal) veined with purple, keel (fused lower two petals) yellowish
- protruding pod, bent slightly outwards
- kidney-shaped to elliptical seeds, light to dark brown

Life Cycle:

durable and perennial

Flowers and Pollination:

- May to June; occasionally to October
- mostly self-pollination

Reproduction:

- via seeds
- germinable for less than one year in the soil



Occurrence and Location:

- native to all Europe
- on dry, poor, acidic and chalk-free sandy soil; sand indicator
- on farmland, and paths, on wasteland and on dunes

Associated Plants:

annual and biennial root crop and ruderal weed communities and on sandy grass-land

Population in Germany:

widespread to scattered; not endangered

Importance in Animal Ecology:

little known

Integrated Control:

control not necessary because of its rarity on farmland; protective measures desirable

## **Oxalis corniculata - Creeping wood sorrel**

[https://en.wikipedia.org/wiki/Oxalis\\_corniculata](https://en.wikipedia.org/wiki/Oxalis_corniculata)



Family: Wood sorrel *Oxalaceae*

Characteristics:

- tap root
- prostrate, hairy stem branched from the ground up; numerous side shoots above and below the ground, those above having rooted knots; 10 to 10cm tall
- triplet leaves, inverse heart-shaped, alternate leaves on a short stalk, entire edge; often a violet colour
- flowers from the leaf axil on long stalks, golden yellow with a red ring
- fruit capsule elongated- cylindrical, 5-cornered, thickly haired seeds brown with transverse wrinkles
- a sour taste of oxalic acid

Life Cycle:

perennial; on farmland mostly annual

Germination:

spring to summer

Flowers:

June to November

Reproduction:

- via seeds which are ejected from the capsule when ripe
- vegetative through offshoots

#### Occurrence and Location:

- carried all over the world and has become native everywhere
- on warm soil moderately to well provided with nutrients, humus-rich sandy soil and loam
- on farmland and in vineyards, in gardens and by the wayside, on wasteland, in plaster joints

#### Associated Plants:

root crop and ruderal weed communities

#### Population in Germany:

rare to moderately frequent; increasing in urban areas

#### Harmful Effects:

- a nuisance in the garden if occurring *en masse*
- weakly competitive

#### Integrated Control:

- stubble working disrupts the offshoots
- turning the soil
- flat seed bed preparation promotes germination, seedling are destroyed by subsequent sowing
- young growth well controlled by timely use of hoe and harrow

## **Oxalis fontana - Yellow wood sorrel**

[https://en.wikipedia.org/wiki/Oxalis\\_stricta](https://en.wikipedia.org/wiki/Oxalis_stricta)

Family: Wood sorrel *Oxalaceae*



Characteristics:

- roots up to 30cm deep with underground offshoots
- upright, lightly haired stem, grows to ca. 45cm
- cotyledons elliptical to round-elliptical
- leaves triple-feathered on long stalks, the lower side a blue-green colour
- umbel on a long stalk; petals yellow
- fruit capsule extended cylindrical, five-cornered, with glandular hairs; red-brown seeds with a white spot, flat, transversely wrinkled
- acidic flavour of oxalic acid

Life Cycle:

perennial, but on farmland mostly a summer annual

Germination:

spring and summer

Flowers:

June to September

Reproduction:

- via seeds which are ejected from the capsule when ripe
- via underground offshoots and tubercles

#### Occurrence and Location:

- established
- all over the world
- somewhat warmth-loving
- likes loose, chalk-poor, moderately acid to neutral, sandy loam and loamy soil; indicator of mellowness
- on farmland, in vineyards and gardens

#### Associated Plants:

- root crop weeds in areas with nitrogen-rich soil

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, nematode and butterfly

#### Harmful Effects:

- a nuisance if growing in large amounts, especially in gardens
- produces seeds over a period of several months

#### Integrated Control:

- turning the soil, stubble working and flat seed bed preparation in order to destroy germinating seeds and disturb offshoots
- early use of hoe or harrow

## **Panicum calillare - Desert panicgrass**

[https://en.wikipedia.org/wiki/Panicum\\_capillare](https://en.wikipedia.org/wiki/Panicum_capillare)



Family: Sweetgrass *Poaceae*

Characteristics:

- forms clumps
- leaf blade with 3 to 5 nodes; branched on the lower nodes; grows up to 70cm tall
- ligule has the form of a thick wreath of „eyelashes“
- leaf blade rough on both sides, the upper only lightly haired
- outspread to constricted panicle; rich with looms which mostly hang down as they become ripe

Life Cycle:

summer annual

Germination:

early summer

Flowers:

July to August

Reproduction:

- via seeds (ca. 200 per plant)
- germinable for only a few years in the soil

#### Occurrence and Location:

- introduced from North America; used as an ornamental plant, ran wild and has become native to some areas
- in warm locations, on sandy soil; very resistant to drought
- on farmland, in garden and parks, on wasteland, by the wayside
- in isolated cases in maize crops

#### Associated Plants:

- root crop weed and ruderal communities

#### Population in Germany:

widespread (in isolated Occurrences); not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mites, thrips, bugs, nematode, etc.

#### Harmful Effects:

- strongly competitive
- causes little damage as it is only found here and there

#### Integrated Control:

- field edge hygiene
- turning the soil
- planting winter crops
- taking care to vary active ingredient of control agents

## **Panicum dichotomiflorum - Autumn millet**

[https://en.wikipedia.org/wiki/Panicum\\_dichotomiflorum](https://en.wikipedia.org/wiki/Panicum_dichotomiflorum)



Family: Sweetgrass *Poaceae*

Characteristics:

- clump-forming spiked grass; branched at the nodes; grows up to 50cm tall
- weakly developed ligule, no leaf auricle
- nodes and leaf blade without hair
- densely branched panicle

Life Cycle:

summer annual

Germination:

early summer

Flowers and Pollination:

- summer to autumn
- predominantly cross-pollination

Reproduction:

- via seeds (ca. 200 per plant)
- seeds germinable for only a few years in the soil



#### Occurrence and Location:

- introduced from America; has become stably native in the Upper Rhine Plain; found in southern Europe
- drought-resistant
- on farmland, on paths, on wasteland
- in maize fields

#### Associated Plants:

root crop weed and ruderal communities

#### Population in Germany:

somewhat inconsistent; increasing

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, bugs, nematode, etc.

#### Harmful Effects:

- causes little economic damage because of its isolated Occurrence
- weakly competitive
- in meadowland it serves as an inferior feed crop

#### Integrated Control:

- field edge hygiene
- turning the soil
- planting winter crops
- taking care to vary active ingredient of control agents

## **Papaver argemone - Prickly poppy**

[https://en.wikipedia.org/wiki/Papaver\\_argemone](https://en.wikipedia.org/wiki/Papaver_argemone)



Family: Poppy *Papaveraceae*

Characteristics:

- roots 10 to 25cm deep
- half-rosette plant; growth upright/spreading; stem hairy and branched; grows up to 50cm tall
- long, narrow cotyledons
- single to double pinnate leaves with stiff hairs; at first forms a leaf rosette
- large terminal flowers on an elongated stalk; crown scarlet, mostly with a dark stain at the base
- seeds half-moon shaped, pitted network

Life Cycle:

annual and over several years

Germination:

autumn and spring

Flowers:

May to July

Reproduction:

via seeds (ca. 3 thousand per plant)

#### Occurrence and Location:

- native to the Mediterranean area
- mostly on warm, light, chalk-free loam and sandy soil
- on farmland, seldom by the wayside
- particularly in cereals

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

scattered to rare; endangered in many areas

#### Importance in Animal Ecology:

host plant for gall midge, gall wasp, weevil, aphid, cicadas, bugs, nematode; flowers are visited by bees and bumble bees

#### Harmful Effects:

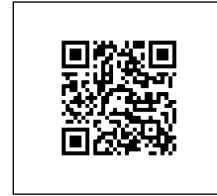
harmless as it seldom occurs in large quantities

#### Integrated Control:

control not necessary because of its rarity; protective measures desirable

## **Papaver dubium - Long-headed poppy**

[https://en.wikipedia.org/wiki/Papaver\\_dubium](https://en.wikipedia.org/wiki/Papaver_dubium)



Family: Poppy *Papaveraceae*

Characteristics:

- tap root 45cm deep
- half-rosette plant; upright stem hairy; 20 to 80cm tall
- cotyledons linear to awl-shaped
- leaves pinnatifid
- single terminal flowers on long stalks; crown dull orange, petals with no black colouring at the base
- very diverse
- seeds kidney-shaped, purple-black, pitted network

Life Cycle:

annual and over several years

Germination:

autumn and spring

Flowers and Pollination:

- May to July
- self-pollination but also spontaneous cross-pollination

Reproduction:

- via seeds (ca. 10 thousand per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to all Europe
- warmth-loving
- mostly on dry, nutrient-rich loose loam with little chalk
- on farmland, on paths and rubble
- particularly in cereals

#### Associated Plants:

all farmland weed communities, absent only from nutrient-poor areas; ruderal weed communities

#### Population in Germany:

relatively common in northern Germany, rare in the south; regionally endangered

#### Importance in Animal Ecology:

host plant for gall midge, gall wasp, weevil, aphid, cicadas, bugs, nematode; flowers are visited by bees and bumble bees

#### Integrated Control:

control not necessary as it seldom occurs on farmland

## **Papaver hybridum - Rough poppy**

<https://en.wikipedia.org/wiki/Papaver>

<https://de.wikipedia.org/wiki/Bastard-Mohn>



Family: Poppy *Papaveraceae*

Characteristics:

- half-rosette plant; upright stem, mostly branched, bare; grows up to 40cm tall
- cotyledons needle-shaped, narrow
- leaves pinnatifid
- bright red petals with black spots at the base
- seeds grey-brown, kidney-shaped, deeply indented

Life Cycle:

annual and for several years

Germination:

autumn and spring

Flowers:

May to June

Reproduction:

- via seeds
- germinable only for a short time in the soil

#### Occurrence and Location:

- introduced to the Mediterranean and now native to these areas
- warmth-loving
- on nutrient- and base-rich loam or sandy soils that are warm in summer
- on farmland, by the wayside and in rubble
- particularly in cereals

#### Associated Plants:

cereal weed communities in chalky areas and rubble weed communities

#### Population in Germany:

very rare everywhere, rapidly declining and hardly seen any more

#### Importance in Animal Ecology:

host plant for gall midge, gall wasp, weevil, aphid, cicada, bugs, nematodes; flowers visited by bees and bumble bees

#### Harmful Effects:

the whole plant is toxic; the capsule contains a number of toxic alkaloids

#### Integrated Control:

control on farmland not necessary due to its rarity; protective measures desirable

## Papaver rhoeas - Common poppy

[https://en.wikipedia.org/wiki/Papaver\\_rhoeas](https://en.wikipedia.org/wiki/Papaver_rhoeas)

Family: Poppy *Papaveraceae*



Characteristics:

- roots up to 100cm deep
- half-rosette plant; upright stem, single or branches, hairy and containing milky sap; grows up to 60cm tall
- long, narrow, needle-shaped cotyledons
- first leaves ovate, entire edge and without hairs; rosette leaves with brushy hairs and pinnatifid, few leaves on the stalk
- flowers nodding before they bloom, singly on the end of the stalk; sepals drop on blooming; crown bright red, inside basally black
- seeds kidney-shaped with a network of pits, dark brown

Life Cycle:

annual and for several years

Germination:

mid to late spring and autumn

Flowers:

June to July

Reproduction:

- via seeds (10 to 20 thousand per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native to Europe, North Africa and Asia
- mostly on well-watered, chalky loam and clay soil
- particularly in cereals and rape, but also in root crops

#### Associated Plants:

farmland weed and ruderal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for gall midge, gall wasp, weevil. Aphid, cicadas, bugs, nematode; flowers visited by bees and bumble bees

#### Harmful Effects:

- a moderate amount tolerated incrops
- loss of harvest yield, increased drying cost
- plant are toxic because of alkaloid content

#### Integrated Control:

- early seed bed preparation
- well controlled mechanically up to the four leaf stage
- well controlled by herbicides

## **Pastinaca sativa - Wild parsnip**

<https://en.wikipedia.org/wiki/Parsnip>

Family: Umbellifer *Apiaceae*



Characteristics:

- deep-rooted; the root is a storage organ
- half-rosette plant: upright stem with angular grooves, branched from the middle upwards, with raw to downy bristles; grows 30 to 120cm tall
- leaves singly or doubly feathered with two to seven feather pairs
- flowers in a 7- to 20-rayed, double umbelled inflorescence; petals yellow
- broad, elliptical, lentil-shaped seeds, indented above and below, yellow-brown
- the whole plant has a fennel-like odour

Life Cycle:

biennial

Flowers and Pollination:

July to September

Reproduction:

- via seeds
- germinable after more than 15 years in the soil

#### Occurrence and Location:

- native to all Europe
- prefers a damp, cool climate
- likes base- and nutrient-rich loam and clay soil containing chalk and nitrogen
- on farmland, in meadows and paths, embankments and sparsely populated weed vegetation

#### Associated Plants:

- cereal and meadow weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for butterflies and gall midges; flowers are visited by all species of insect (beetle, ant, flies, small parasitic wasps)

#### Use and Harmful Effects:

- the sap was formerly used for medicinal purposes
- the cultured variety is a popular vegetable

#### Integrated Control:

- control on farmland not necessary

## **Persicaria hydropiper - Water Pepper**

[https://en.wikipedia.org/wiki/Persicaria\\_hydropiper](https://en.wikipedia.org/wiki/Persicaria_hydropiper)



Family: Knotweed *Polygonaceae*

Characteristics:

- roots up to 120cm deep
- lying or upright growth; knots on the stem where roots and pseudo-spikes form; stem single or branched on the lower part; grows 15 to 60cm tall
- oval, almost round cotyledons
- alternate lanceolate yellow-green leaves
- lengthened, slender loose pseudo-spikes; perianth greenish to reddish-white
- seeds ovate, pointed, strongly flattened, triangular, red-brown, finely spotted

Life Cycle:

summer annual

Germination:

- mid to late spring
- from up to 4cm deep

Flowers and Pollination:

- July to September
- self-pollination

Reproduction:

- via seeds (ca. 200 to 500 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe, Asia and North America
- on damp to wet, acidic, nutrient-rich soil: nitrogen and damp indicator
- on farmland, in ditches, on river banks and woodland paths
- preferentially in summer crops

#### Associated Plants:

farmland and riverbank weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, beetle, bugs, weevil, butterfly, nematode, etc.

#### Harmful Effects:

- little harmful effect
- weakly toxic
- hot, pepper-loke taste

#### Integrated Control:

- working the soil and sowing in dry conditions
- planting perennial crops
- well controlled by herbicides

## **Persicaria lapathifolia - Pale persicaria**

[https://en.wikipedia.org/wiki/Persicaria\\_lapathifolia](https://en.wikipedia.org/wiki/Persicaria_lapathifolia)



Family: Knotweed *Polygonaceae*

Characteristics:

- roots 20 to 120cm deep
- upright or lying, bare; nodules and characteristically formed stipule sheaths on the stem; grows 20 to 80cm tall
- cotyledons elongated oval, often curved
- leaves lanceolate, alternate, with a dark spot; glandular underneath
- white or pallid pink flowers in an inflorescence at the end or from the leaf axle
- seeds ovate with a short point, flattened, dark brown with fine spots, shiny

Life Cycle:

summer annual

Germination:

- spring
- from up to 4cm deep

Flowers:

July to September

Reproduction:

- via seeds (500 to 1,000 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe, Asia and North America
- on fresh humus-rich, nutrient-rich loam and sandy soil
- on farmland, in gardens, by the wayside and on fallow land
- particularly in maize, sugar beet and other summer crops

#### Associated Plants:

all farmland weed, ruderal and river bank communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, beetle, bugs, weevil, butterfly, nematode, etc.

#### Harmful Effects:

- overgrows warmth-loving crops under cold and damp conditions
- difficult to control with herbicides in the later development stages
- forms germinable seeds rapidly

#### Integrated Control:

- promote growth of young crops
- early mechanical control and seed bed preparation
- difficult to control chemically in maize

## **Persicaria maculosa - Lady's Thumb**

[https://en.wikipedia.org/wiki/Persicaria\\_maculosa](https://en.wikipedia.org/wiki/Persicaria_maculosa)



Family: Knotweed *Polygonaceae*

Characteristics:

- roots up to 60cm deep
- stem often red, upright or lying, bare; grows 10 to 80cm tall
- cotyledons lanceolate with a rounded tip
- leaves alternate, linear-lanceolate, often with dark spots
- cylindrical pseudo-spikes, pink flowers
- seeds broad ovate with short points, flattened, brown to black, shiny

Life Cycle:

summer annual

Germination:

mid to late spring

Flowers and Pollination:

- July to October
- mostly self-pollination

Reproduction:

- via seeds (400 to 700 per plant)
- germinable after more than 10 years in the soil



#### Occurrence and Location:

- native to Europe and Asia
- on nutrient- and nitrogen-rich, weakly to moderately acid loam and sandy soil
- on farmland, by the wayside and on fallow land
- particularly in maize, sugar beet and other summer crops

#### Associated Plants:

weed communities of base-poor regions and of ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, beetle, bugs, weevil, gall midge, butterfly, nematode, etc.

#### Harmful Effects:

- very competitive
- difficult to control with herbicides in the later development stages
- rapidly forms germinable seeds

#### Integrated Control:

- promote the growth of young crops
- early seed bed preparation
- mechanical or chemical control as early as possible

## Phelipanche ramosa - Hemp broomrape

[https://de.wikipedia.org/wiki/Ästige\\_Sommerwurz](https://de.wikipedia.org/wiki/Ästige_Sommerwurz)



Family: Broomrape *Orobanchaceae*

Characteristics:

- root parasite, does not make chlorophyll
- asparagus-like shoot with scaly leaves
- has glandular hairs; grows up to 40cm tall
- flowers each have a bract and two sideways extending bracteoles growing on the calyx
- tubular bell-shaped calyx with four notches; crown bluish pale violet or whitish; filaments and anther bare, occasionally a little hairy at the base; stigma cream or blue

Life Cycle:

annual

Germination:

spring, stimulated by germination-promoting substances of the host plant

Flowers:

July to September

Reproduction:

- via seeds (several thousand per plant)
- seeds durable in the soil

Occurrence and Location:

- native to practically all warmer regions
- prefers mostly fresh, nutrient-rich sandy soil
- a parasite on tobacco, tomato and other *Solanum* species, also on hemp, bean and sunflower

#### Associated Plants:

annual root crop communities

#### Population in Germany:

very rare; strongly endangered

#### Use and Harmful Effects:

- the shoots are edible
- attacks host plants in their early growth stages, deprives the roots of water, nutrients etc. by way of adhesive discs, which in the worst case can lead to complete loss of harvest yield
- together with other parasitic weeds of the genres *Striga* and *Cuscuta* is one of the most harmful type of weed in the world
- very troublesome through its massive propagation
- very difficult to control

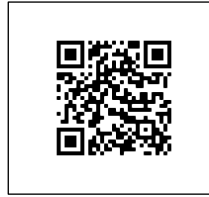
#### Integrated Control:

- not cultivating host plants
- planting tolerant host plants
- promoting growth of young plants with sufficient water and nutrients
- planting catch crops to reduce the potential for seeding in the soil
- herbicides are partially effective

## **Phragmites australis - Common reed**

<https://en.wikipedia.org/wiki/Phragmites>

<https://de.wikipedia.org/wiki/Schilfrohr>



Family: Sweetgrass *Poaceae*

### Characteristics:

- a marsh plant which forms offshoots; rhizome is several metres long with short, hard leaves; the oldest parts of the rhizome die off; roots down to 1 metre deep
- strong, upright leaf blade, growing up to 4 metres tall
- a fringe of hair instead of a ligule
- sharp-edged leaves
- a meadow gras;
- red-violet panicle, flower spikes have male flowers at the base and monoecious above
- seeds ca. 7mm long with silver „flying hairs“ (or swimming hairs)

### Life Cycle:

perennial

### Flowers:

July to September

### Reproduction:

- via seeds (seldom)
- germinable after up to 4 years in the soil
- via rhizomes (offshoots)
- via low lying leaves which root from the nodes

### Occurrence and Location:

- native to almost the whole world
- warmth-loving
- on wet, nutrient- and base-rich, humus-rich, often sandy, muddy soil; indicator of groundwater
- in still or slowly moving water in the reed zone, in water meadows and wet meadowland

### Associated Plants:

water meadow and reed communities

### Population in Germany:

widespread, spread nationwide; not endangered

### Importance in Animal Ecology:

reed populations offer protection for many birds; host plant for reed owl

### Use and Harmful Effects:

- natural building material, e.g. for roofing, insulation
- as a garden plant
- can be used to clean up waste water / sewage
- strongly competitive; control difficult

### Integrated Control:

- control not necessary as the species is only found in wet areas
- drainage also removes the habitat of other species
- care is a part of farming

## **Poa annua - Annual meadow grass**

[https://en.wikipedia.org/wiki/Poa\\_annua](https://en.wikipedia.org/wiki/Poa_annua)

Family: Sweetgrass *Poaceae*



Characteristics:

- roots branched into fine filaments, up to 35cm deep
- low growth, loose to thick clumps
- leaf blade prostrate, bare, growing up in a curve then upright; the leaf sections lying on the ground often root at the nodes; grows 30cm tall
- large white ligule, no leaf auricle
- short leaf blade with a double groove (like ski tracks), navicular (boat shaped) point and often laterally wrinkled; folded leaf origin
- loosely branched panicle; oval ears

Life Cycle:

- summer and winter annual
- several generations per year

Germination:

- all year
- flat germinator

Flowers and Pollination:

- all year
- cross-pollination

#### Reproduction:

via seeds (100 to 800 per plant)

- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the whole world
- in humid locations
- on nitrogen-rich, sandy, pure clay soil or loam
- on farmland, in gardens, in town squares, on paths

#### Associated Plants:

farmland weed and ruderal communities and in trodden areas

#### Population in Germany:

frequent; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Use and Harmful Effects:

- affords protection against erosion
- in grassland causes loss of harvest and represses valuable feed crops

#### Integrated Control:

- stubble working and turning the soil
- well controlled by mechanical and chemical means in early stages
- avoiding damage to the turf

## **Poa trivialis - Rough bluegrass**

[https://en.wikipedia.org/wiki/Poa\\_trivialis](https://en.wikipedia.org/wiki/Poa_trivialis)

Family: Sweetgrass *Poaceae*



Characteristics:

- roots horizontal and fan-shaped, down to 80cm deep
- growth loose to formation of a thick lawn with creeping shoots on top of the soil; stalk ascending in a curve; grows up to 120cm tall
- long, pointed ligule, no leaf auricle
- folded leaf base; leaf blade with a double groove like ski tracks and a navicular tip; underside of leaf shiny
- loosely branched panicle, upright or drooping

Life Cycle:

- annual

Germination:

mostly in spring

- flat germinator

Flowers:

May to June

Reproduction:

- via seeds
- germinable after more than 2 years in the soil
- via offshoots



#### Occurrence and Location:

- native to the whole world
- on damp to wet, nitrogen- and nutrient-rich, humus-rich loam and clay soils; indifferent to soil reaction and heat balance; wetness indicator
- on grassland, less often on farmland

#### Associated Plants:

wet-loving variants of all farmland weeds and those of pastures and ruderal areas

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, bugs, gall midge, mite, thrips, frit fly, nematode, etc.

#### Harmful Effects:

in pastures it represses the growth of valuable grazing and strongly reduces yields; 15% of pasture growth is tolerated

#### Integrated Control:

- mow short every 2 to 3 years to cut off the creeping shoots
- use of harrow on a dry summer day
- avoiding bare patches and turf damage in pastures

## **Polygonum aviculare - Common knotgrass**

[https://en.wikipedia.org/wiki/Polygonum\\_aviculare](https://en.wikipedia.org/wiki/Polygonum_aviculare)



Family: Knotweed *Polygonaceae*

Characteristics:

- roots 25 to 75cm deep
- low growth, upward or lateral spread; stem with reddish overtone, branched; grows to ca. 60cm tall
- long, slender cotyledons
- alternate elongated-elliptical leaves and visible veins
- flowers of short stalks, single or 2 to 6 in small clusters; perianth white, greenish red to pink
- seeds ovate, pointed, triangular, red to dark brown, shiny

Life Cycle:

summer annual

Germination:

- spring to summer
- flat germinator

Flowers:

May to November

Reproduction:

- viy seeds (ca. 150 per plant)
- germinable after up to 50 years in the soil

#### Occurrence and Location:

- native to all temperate zones
- on nitrogen- and humus-containing loam and sandy soil; undemanding, crush resistant
- on farmland and field borders, on paths and fallow land
- particularly in maize and other summer crops

#### Associated Plants:

- all farmland weed communities and in lawns

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, beetle, bugs, weevil, gall midge, butterfly, etc.

#### Harmful Effects:

- less competitive than pale persicaria or black bindweed
- sometimes occurs in large quantities
- can arise in several waves

#### Integrated Control:

- promote growth of young crops
- well controlled by mechanical or chemical means if used early enough

## **Polygonum amphibium var. terrestre - Water smartweed, water heartsease**

[https://en.wikipedia.org/wiki/Persicaria\\_amphibia](https://en.wikipedia.org/wiki/Persicaria_amphibia)

Family: Knotweed *Polygonaceae*



Characteristics:

- roots up to ca. 200cm long, sometimes with finger thick offshoots (rhizome) with yellow-red plantlets; offshoots up to 60cm deep
- stem rising or upright with nodes, branched; grows 30 to 75cm tall
- matt green alternate leaves, lanceolate, often with dark spots, with hairy stipule sheath (ochrea)
- tubular pseudo-spikes thick with pink flowers

Life Cycle:

perennial

Germination:

spring

Flowers:

- June to September
- does not usually flower in fields

Reproduction:

- via seeds (500 to 1,000 per plant)
- via rhizomes

#### Occurrence and Location:

- native to Europe, Asia and North America
- in damp to wet, nutrient-rich, sandy or pure loam or clay
- on farmland, wet meadows and ditches
- preferentially in summer crops

#### Associated Plants:

farmland weed and ruderal communities in wet locations

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, beetle, bugs, weevil, butterfly, nematode, gall midge, etc.

#### Harmful Effects:

- competitor for light and nutrients
- difficult to control as it is perennial
- causes difficulty in harvesting cereals

#### Integrated Control:

- allow wet areas to dry before working and sowing
- planting perennial crops

## **Portulaca oleracea - Common purslane**

[https://en.wikipedia.org/wiki/Portulaca\\_oleracea](https://en.wikipedia.org/wiki/Portulaca_oleracea)

Family: Purslane *Portulacaceae*



Characteristics:

- tap root ca. 25cm deep
- reddish, prostrate stem, branched, round, smooth and fleshy
- elongated ovate cotyledons, mostly with a violet hue
- thick, alternate, fleshy, dark green leaves, bare, club-shaped, succulent
- flowers single or a small number in a terminal ball; golden yellow petals
- very small, round, flat, black, somewhat shiny seeds

Life Cycle:

summer annual

Germination:

- late spring to summer
- light-dependent germinator

Flowers and Pollination:

- June to September; only blooms in the morning
- self-pollination

Reproduction:

- via seeds (10 to 20 thousand per plant)
- germinable after over 40 years in the soil

#### Occurrence and Location:

- has become native to all warm regions on the earth
- warmth-loving
- prefers nutrient-rich, sandy, well-aerated sandy soil and loam
- on farmland, in vineyards, by the wayside
- only in summer crops

#### Associated Plants:

farmland weed and ruderal communities, other crush-resistant plant

#### Population in Germany:

widespread

#### Importance in Animal Ecology:

host plant for aphid, thrips, etc

#### Use and Harmful Effects:

- can be used for salads or as a vegetable
- because of its late germination often escapes weed control
- strongly competitive

#### Integrated Control:

- intensive working of the soil
- planting winter crops and fodder plants
- can be controlled in early growth stage by harrow and hoe

## Potentilla reptans - Creeping Cinquefoil - Kriechendes Fingerkraut

[https://en.wikipedia.org/wiki/Potentilla\\_reptans](https://en.wikipedia.org/wiki/Potentilla_reptans)

[https://de.wikipedia.org/wiki/Kriechendes\\_Fingerkraut](https://de.wikipedia.org/wiki/Kriechendes_Fingerkraut)

Family: Rose Rosaceae



Characteristics:

- taproot 20 to 80 cm. long
- hairy stem, trailing up to 100cm, few leaves; rooting from nodes which are often far apart
- cotyledons egg-shaped to round
- leaves with three or more reverse egg-shaped fingers
- single flowers on the nodes of the trailing stems, gold-yellow crown
- seeds elongated egg-shaped, wrinkled

Life Cycle:

perennial

Germination:

early to late Spring, early to late Autumn

Flowers and Pollination:

- June to August
- pollination by insects

Reproduction:

- via seeds
- seeds germinable after more than 35 years in the soil
- via trailing stems



#### Occurrence and Location:

- native to the whole of Europe
- somewhat warmth-loving
- damp, nutrient-rich, compacted soil
- in fields, meadows on damp fallow land and on the wayside

#### Associated Plants:

damp-loving field weed and grassland communities; flooded grassland plants

#### Population in Germany:

common; not endangered

#### Importance in Animal Ecology:

Associated species include aphid, leaf miner, beetles, weevils, various butterflies, etc.

#### Use:

once used as a medicinal plant

#### Integrated Control:

control not necessary on agricultural land; sometimes annoying in gardens

## Ranunculus arvensis - Corn Buttercup

[https://en.wikipedia.org/wiki/Ranunculus\\_arvensis](https://en.wikipedia.org/wiki/Ranunculus_arvensis)



Family: Buttercup, crowfoot *Ranunculaceae*

Characteristics:

- flat roots, up to 20cm deep
- half-rosette plant, upright growth with leaves at the base; stem little branched; grows 20 to 60cm high
- cotyledons oval on a short stalk
- rosette leaves broad, spatulate, with 3 or five serrations
- stem leaves deeply divided into three or five, linear
- loosely branched panicle with long-stalked single flowers with five yellow petals and five green sepals
- seeds flat, oval, with bent thorns; the snout bent

Life Cycle:

summer, seldom winter, annual

Germination:

spring, autumn

Flowers:

May to August

Reproduction:

- via seeds (150 to 900 per plant)
- germinable for only a short time in the soil

Occurrence and Location:

- native to Europe, north Africa and the Near East
- on particularly heavy, poorly aerated, chalky loam soils; loam indicator
- on farmland and dumps
- in winter cereals

Associated Plants:

cereal weed communities of neutral to basic locations

Population in Germany:

strongly reduced and in many places extinct; endangered

Importance in Animal Ecology:

associated species include wasp, beetle, thrip, mirid bug, nematodes, etc.

Integrated Control:

control not necessary due to its rarity; protective measures desirable

## Ranunculus repens - Creeping Buttercup

[https://en.wikipedia.org/wiki/Ranunculus\\_repens](https://en.wikipedia.org/wiki/Ranunculus_repens)



Family: Buttercup family *Ranunculaceae*

Characteristics:

- main root short-lived; roots grow from the axis of the rosette axis; roots up to 30cm deep
- upright growth with long creeping offshoots; stalk hairy, usually prostrate or growing upwards; grows to 40cm tall
- cotyledons on long stalks, broad ovate
- three part deeply incised leaves
- loose flower cluster of single, golden yellow flowers on long stalks; flowers have five petals and five sepals
- seeds inverted ovate, strongly flattened, with a beak-like extension

Life Cycle:

perennial

Germination:

mid spring

Flowers and Pollination:

May to August

- pollination by insects

Reproduction:

- via seeds (ca. 200 per plant)
- germinable after more than 40 years in the soil
- vegetative via the creeping offshoots

#### Occurrence and Location:

native to Europe, North Africa and the Near East

- particularly on heavy, damp, poorly aerated and compacted loam
- particularly in summer blooming annuals

#### Associated Plants:

farmland weed communities of damp locations and flood meadows

#### Population in Germany:

common; not endangered

#### Importance in Animal Ecology:

associated species include wasp, beetle, scissor bee, thrip, mirid bug, etc.

#### Harmful Effects:

- most troublesome with aboveground offshoots anchored in the soil
- contain toxic substances

#### Integrated Control:

- weeding and loosening up the soil by planting catch crops
- mechanical control with harrow and hoe is difficult

## **Ranunculus sardous - Hairy Buttercup**

[https://en.wikipedia.org/wiki/Ranunculus\\_sardous](https://en.wikipedia.org/wiki/Ranunculus_sardous)



Family: Buttercup family

Characteristics:

- primary root short-lived; side roots from the base of the rosette, hardly branched, a few fibrous roots; roots ca. 20cm deep
- half-rosette plant; upright growth or growing upwards in an arch; stem has slanting branches with protruding hairs from the lower portion; grows to 40cm tall
- cotyledons elliptical to ovate
- basal leaves tripartate with the middle section stalked, upper leaves on the stem with small lanceolate tips
- loosely branched inflorescence of single golden-yellow flowers on stalks
- seeds with a niticable rim and a ring of smaller warts, round, laterally compressed

Life Cycle:

summer and winter annual

Germination:

spring and autumn

Flowers and Pollination:

- May to September
- pollination by insects (bees, flies)

Reproduction:

via seeds (30 to 50 per plant)

#### Occurrence and Location:

- native to all Europe
- on heavy, sometimes wet, nutrient-rich and nitrogen-containing, chalk-poor, sandy clay and loam soils; indicator plant for soil dampness and compaction
- on farmländ, in ditches and marshes

#### Associated Plants:

farmland weed communities of with fluctuating dampness and low chalk content

#### Population in Germany:

very scattered; endangered to severely endangered

#### Importance in Animal Ecology:

associated species include wasp, beetle, scissor bee, mirid bug, thrip, nematode, etc.

#### Integrated Control:

control not necessary because of its rarity on farmland; protective measures desirable

## Raphanus raphanistrum - Wild Radish

[https://en.wikipedia.org/wiki/Raphanus\\_raphanistrum](https://en.wikipedia.org/wiki/Raphanus_raphanistrum)



Family: Cruciferous plants *Brassicaceae*

Characteristics:

- roots 20 to 80cm deep
- half-rosette plant; upright stem with blue rings and upwardly directed hairs ; grows up to 70cm tall
- broad, heart-shaped, stalked cotyledons, indented at the tip
- rosette leaves elongate oval with indented or toothed edge, pinnate leaves with a broad lobe at the end
- whitish or yellowish flowers with violet veining; upright sepals
- seeds slightly flattened, red-brown, finely meshed

Life Cycle:

summer annual

Germination:

- spring
- flat germinator

Flowers:

May to October

Reproduction:

- via seeds (100 to 500 per plant)
- germinable after 20 years in the soil



#### Occurrence and Location:

- native to the whole world
- loves nutrient-rich, chalk-free sandy and loam soils; acidification indicator
- on farmland, on paths, on fallow land
- in summer crops

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include at least plant-eating species including aphid, wasp, cicadas, bugs, gall midges, nematode, weevil, various other insects that visit plants

#### Harmful Effects:

- amounts reduced by much planting of winter cereals
- is host and carrier of animal pathogens

#### Integrated Control:

- planting cash crops, fodder plants and winter crops
- removal before seed bed preparation
- well controlled by mechanical and chemical means

## **Rhinanthus alectorolophus - Greater Yellow Rattle**

[https://de.wikipedia.org/wiki/Zottiger\\_Klappertopf](https://de.wikipedia.org/wiki/Zottiger_Klappertopf)



Family: Broomrape *Orobanchaceae*

Characteristics:

- roots 15 to 40cm deep; root parasite
- single or branched hairy stem, ragged hairy bracts and calyx; height up to 80cm
- cotyledons broad elliptic to round
- stemleaves ovate, sharply sawed, bare, sitting directly on the stem
- terminal flower cluster over triangular, raggedly hairy bracts, upper and lower lips of the blooms are pale yellow
- capsules with few seeds, which have wide wings; the seeds rattle in the sepals when ripe

Life Cycle:

annual

Germination:

- late winter to mid-spring
- flat germinator

Flowers and Pollination:

- May to September
- germinable after more than 3 years in the soil

Reproduction:

- via seeds
- pollination by bumble bees

#### Occurrence and Location:

- native to the whole of Europe
- warm loving
- predominantly on loose, nutrient-rich, mostly chalky loam
- on farmland and in meadows
- particularly in cereals

#### Associated Plants:

cereal weed communities in base-rich locations and in pioneer plant communities, but more often in meadows

#### Population in Germany:

widespread, but has become more rare due to improved cleaning of seed supplies; not endangered

#### Importance in Animal Ecology:

pollination by insects with a long proboscis

#### Integrated Control:

control on farmland not necessary

## Rhinanthus serotinus - Greater yellow-rattle

[https://de.wikipedia.org/wiki/Großer\\_Klappertopf](https://de.wikipedia.org/wiki/Großer_Klappertopf)



Family: Broomrape *Orobanchaceae*

Characteristics:

- root parasite on grasses
- upright branched stem, canted, bare to slightly hairy; grows up to 60cm tall
- narrow, triangular, notched leaves directly on the stem
- petals yellow with a white extension, upper and lower lips fused together
- two-part seed capsule (filled with) rattling seeds

Life Cycle:

- annual; semi-parasite

Flowers:

May to September

Reproduction:

via seeds

Occurrence and Location:

- native to the whole of Europe
- on seasonally humid, moderately fresh, base- and nutrient-rich loam
- in meadows and semi-dry grassland, field borders, on fallow land, seldom in crops

Associated Plants:

- basic cereal weeds and meadow weed communities

Population in Germany:

scattered; endangered

Importance in Animal Ecology:

pollinators are bumble bees

Integrated Control:

control in farmland not necessary

## **Rorippa sylvestris - Creeping yellow cress**

[https://en.wikipedia.org/wiki/Rorippa\\_sylvestris](https://en.wikipedia.org/wiki/Rorippa_sylvestris)

Family: Cruciferous plant *Brassicaceae*

Characteristics:

- root up to 120cm deep
- stem prostrate to upright, angular with branches which are themselves branched, bare or lightly haired, height 20 to 40cm
- cotyledons ovate
- leaves divided into leaf stalk and lamina; not all round the stem; lower leaves feathered to pinnate, upper leaves on the stem and often in narrow, undivided sections
- cluster of many, thickly flowering blooms on long stalks; yellow petals
- seed pods slender, upright; seeds with a very fine network of pits

Life Cycle:

perennial

Germination:

early spring into early summer and early to late autumn

Flowers and Pollination:

- June to october
- cross-pollination

Reproduction:

- via seeds (ca. 10 thousand per plant)
- germinable after more than 15 years in the soil
- vegetative via root offshoots



#### Occurrence and Location:

- native to all Europe
- on damp, nitrogen-containing, humus-rich loam, sandy and clay soils; indicator plant for soil compaction
- on farmland, river banks and paths

#### Associated Plants:

farmland weed communities of areas which are sometimes waterlogged, weed communities in water meadows, pasture and ruderal areas

#### Population in Germany:

grows nationwide; not endangered

#### Importance in Animal Ecology:

host plant for at least 52 insect species; cross-pollination by bumble bees, bees and hoverflies

#### Integrated Control:

- cleaning agricultural machines and apparatus
- no working of the soil with rotating tools, as damaged root pieces can produce new shoots
- use of grubber (cultivator) in dry condition
- use of appropriate herbicides

## Rumex acetosa - Round-Leaved Dock - Sorrel

<https://en.wikipedia.org/wiki/Sorrel>

Family: Knotweed *Polygonaceae*

Characteristics:



- roots up to 150cm deep
- lance-shaped cotyledons and leaves
- leaves usually ending in two laterally protruding tips
- dioecious (male and female plants)
- red-yellow inconspicuous flowers
- seeds brown-black, shiny, with a yellow patch at the base

Life Cycle:

- perennial

Germination:

- spring to summer

Flowers:

- May to June

Reproduction:

- vegetative via root shoots
- via seeds (1,000 seeds per plant)
- can germinate after more than 20 years in the ground



#### Occurrence and Location:

- native to the whole of Europe
- on banks and paths; on dry, infertile and acidic pasture, seldom on farmland, where the curly dock is more common

#### Associated Plants:

- pasture flora

#### Population in Germany:

- widespread, not endangered

#### Importance in Animal Ecology:

- - associated species include psyllids, wasps, bugs, gall midge, wing borers, thrips, weevils, butterflies, nematodes, etc.

#### Harmful Effects:

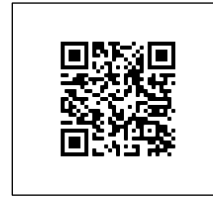
- has a very low nutritious value due to a high content of oxalate;
- avoided by cattle

#### Integrated Control:

- avoidance of empty spaces and plant damage in pasture, gaps should be re-seeded
- facilitate new growth in pasture after (over)use
- well controlled on farmland by intense tillage, hoeing and use of herbicides
- drainage and liming

## **Rumex acetosella - Dock - kleiner Sauerampfer**

[https://en.wikipedia.org/wiki/Rumex\\_acetosella](https://en.wikipedia.org/wiki/Rumex_acetosella)



Family: Knotweed *Polygonaceae*

Characteristics:

- root depth up to 90cm
- stems single or branched; loosely spread growth; height up to 40cm
- lance-shaped cotyledons and leaves with protruding thorns on the leaf stem
- stem and leaves a reddish colour
- dioecious; flower head loosely but richly branched, grape-like; flowers red-yellow
- seeds egg-shaped, angular, enclosed by a brown flower envelope

Life Cycle:

perennial

Germination:

- spring to summer
- germinates from a depth of 4cm

Flowers and fertilisation:

- May to July
- pollination by wind

Reproduction:

- vegetative through root shoots
- via seeds (over 1,000 per plant)
- able to germinate after more than 20 years in the soil

#### Occurrence and Location:

- native; global occurrence
- in dry, acid meadows with poor soil, arable land and field margins; a sign of chalk deficit

#### Associated Plants:

- other weeds of acidic soil, in dry meadows and roadsides, also in sandy lawns

#### Population in Germany:

- widespread except in chalky regions; not endangered

#### Importance in Animal Ecology:

- associated species include jumping lice, wasps, bedbugs, gall midges, thrips, weevils, butterflies, nematodes, etc.

#### Harmful Effects:

- has a very low nutritious value due to a high content of oxalate; avoided by cattle

#### Integrated Control:

- intensive working of the soil, hoeing, and herbicides afford good control

## **Rumex crispus - Curly Dock - Kauser Ampfer**

[https://en.wikipedia.org/wiki/Rumex\\_crispus](https://en.wikipedia.org/wiki/Rumex_crispus)



Family: Knotweed *Polygonaceae*

Characteristics:

- strong, deep roots, up to 300cm
- strong stem, often with thick side branches on the lower part: up to 100cm high
- cotyledons green-red with long stems and an elliptical form
- large, strongly waved lance-shaped leaves, initially building rosettes
- abundant flowers, branched, with grape-like twigs, greenish with red areas
- seeds pointed egg-shaped, chestnut brown

Life Cycle:

perennial

Germination:

- spring to summer

Flowers:

- June to August

Reproduction:

- via seeds (3,000-4,000 seeds per plant)
- can germinate after more than 40 years in the ground
- vegetative via root shoots

#### Occurrence and Location:

- native; occurs world wide
- on damp nitrogen-rich loam or clay soil; nutrient indicator
- on farmland, grassland, paths and river banks
- often in May

#### Associated Plants:

- arable weeds
- meadow and roadside plants

#### Population in Germany:

- widespread, not endangered

#### Importance in Animal Ecology:

- associated species include psyllids, wasps, bugs, gall midge, wing borers, thrips, weevils, butterflies, nematodes, etc.

#### Harmful Effects:

- in isolated fields can become a very troublesome weed
- kann start to grow before the crops and thus cause major reduction in yield
- can grow late in the season and necessitate renewed control

#### Integrated Control:

- deep working of the soil and intensive stubble cultivation
- seedlings can be well controlled in spring by hoeing and harrowing
- chemical control

## **Rumex obtusifolius - Broad-Leaved Dock - Stumpfblättriger Ampfer**

[https://en.wikipedia.org/wiki/Rumex\\_obtusifolius](https://en.wikipedia.org/wiki/Rumex_obtusifolius) [https://de.wikipedia.org/wiki/Stumpfblättriger\\_Ampfer](https://de.wikipedia.org/wiki/Stumpfblättriger_Ampfer)

Family: Knotweed *Polygonaceae*

Characteristics:



- strong roots, stake-like to slightly turnip-shaped
- strong stems, either single or (often) with strong branches in the lower section, upright, often reddish in colour; height ca. 120cm
- lance-shaped cotyledons with stalk
- wide, egg-shaped leaves, slightly wrinkled and stumpy, reddish colour
- richly flowered, repeatedly branched; grape-like branches with whorls; flowers greenish, fringed with red, unremarkable
- egg-shaped seeds with a point, sharp triangles, brown and shiny

Life Cycle:

- perennial

Germination:

- spring to summer

Flowers and fertilisation:

- July to August

Reproduction- via seeds (5,000 to 10,000 seeds per plant)

- can germinate after more than 40 years in the ground
- vegetative via root shoots

#### Occurrence and Location:

- native; occurs in Europe and Asia
- fresh, humus and nutrient-rich, loamy to clay soil
- particularly in over-fertilised pasture land, hardly at all as a farmland weed

#### Population in Germany:

- widespread; not endangered

#### Associated Plants:

- pasture and roadside flora

#### Importance in Animal Ecology:

- associated species include psyllids, wasps, bugs, gall midge, wing borers, thrips, butterflies, nematodes, etc.

#### Harmful Effects:

- has a very low nutritious value due to a high content of oxalate; avoided by cattle
- represses valuable feed crops
- seeds germinable a week after flowering
- survive passage through cattle gastro-intestinal tract and periods in solid and liquid manure

#### Integrated Control:

- avoidance of grain damage
- timely mowing and pasture maintenance
- individual control with selective herbicides combined with re-seeding

## Scandix pecten-veneris - Shepherd's needle

[https://en.wikipedia.org/wiki/Scandix\\_pecten-veneris](https://en.wikipedia.org/wiki/Scandix_pecten-veneris)



Family: Umbellifer *Apiaceae*

Characteristics:

- roots up to 50cm deep
- upright growth; branched stem with scattered bushy hair; grows 10 to 40cm tall
- linear cotyledons
- double to triply feathered leaves
- umbel with one to three sprays of flowers with no bracts, seemingly growing from the stem; petals on the edge; umbel with 2 to 10 blooms
- seeds have a long beak and stand upright in a crest

Life Cycle:

summer annual

Germination:

mostly in autumn

Flowers and Pollination:

- April to July
- self-pollination and by insects

Reproduction:

- via seeds
- germinable for less than a year in the soil



#### Occurrence and Location:

- native to Mediterranean areas
- warmth-loving
- on moderately dry, nutrient- and base-rich, mostly chalky, humus-poor, stony clay soil
- on farmland and wasteland
- cereal weed communities in extensive (sparse) winter cereals

#### Associated Plants:

cereal weed communities in chalky exposed areas and ruderal communities

#### Population in Germany:

strongly endangered; in danger of extinction

#### Integrated Control:

control not necessary due to its rarity; protective measures desirable

## Schoenus nigricans - Black sedge

[https://en.wikipedia.org/wiki/Schoenus\\_nigricans](https://en.wikipedia.org/wiki/Schoenus_nigricans)



Family: Sedge *Cyperaceae*

Characteristics:

- forms clumps which can grow together to form a thick lawn; height 20 to 80cm
- 6 to 12 round, blue to grey-green stalks, at first growing rigidly upwards, later hanging down; leaves only at the base
- leaves very slender, rough; at least half as long as the stem; leaf sheath is long, black or yellow-brown and shiny
- inflorescence consists of 5 to 20 ears which are bunched together, each with 2 to 7 flowers; bracts grow considerably longer than the inflorescence

Life Cycle:

perennial

Flowers and Pollination:

- May to July
- pollination by wind

Reproduction:

via seeds

Occurrence and Location:

- native to the whole world
- on chalk-rich, nitrogen-poor, wet, often flooded soil with a lack of oxygen
- on river banks and coombes

Associated Plants:

fen (lowland marsh) communities

Population in Germany:

rare; strongly endangered

Integrated Control:

control not necessary due to its rarity; protective measures desirable

## **Scleranthus annuus - German knotweed**

[https://en.wikipedia.org/wiki/Scleranthus\\_annuus](https://en.wikipedia.org/wiki/Scleranthus_annuus)

Family: Pink *Caryophyllaceae*



Characteristics:

- roots 12 to 20cm deep
- loosely to thickly branched, flat to upright spread; stem mostly bare and brown; grows up to 25cm tall
- cotyledons linear awl-shaped
- leaves opposite, linear awl-shaped, hairy at the edge, slender, in whorls, glandularly hairy at the top
- a whorl with small greenish flowers without petals
- seeds ovate with five pointed tips, longitudinally grooved, yellow

Life Cycle:

summer and winter annual, biennial

Germination:

autumn and spring

Flowers:

May to October

Reproduction:

- via seeds (ca. 100 per plant)
- germinable after more than 18 years in the soil

#### Occurrence and Location:

- native to Europe, Asia and North America
- on sandy, strongly acidic, dry soil; indicator of soil acidification
- on farmland, in meadows and vineyards
- in all crops, particularly cereals

#### Associated Plants:

farmland weed communities in regions with acidic soil

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, bugs, nematodes

#### Harmful Effects:

causes little damage as single plants are weakly competitive and the species only occurs in large areas

#### Integrated Control:

control on farmland not necessary

## Senecio inaequidens - Narrow-leaved ragwort

[https://en.wikipedia.org/wiki/Senecio\\_inaequidens](https://en.wikipedia.org/wiki/Senecio_inaequidens)



Family: Aster, composite *Asteraceae*

Characteristics:

- strongly branched stem, often woody at the base; grows 40 to 100cm tall
- leaves linear to narrow lanceolate, undivided, with sharp teeth, half wrapped around the stem
- much branched, loose inflorescence, flowerhead at the end, yellow
- seeds elongated cylinder shaped with white-haired longitudinal ribs, finely bristled, grey

Life Cycle:

perennial

Flowers:

May to November

Reproduction:

via seeds (up to 30 thousand per plant)

Occurrence and Location:

- imported neophyte which has become naturalised; originated in South Africa, now widespread in middle Europe
- likes dry areas
- on farmland and in meadows, on fallow land, by the wayside and on embankments; en masse on the roadside and in railway stations

Associated Plants:

couch grass and dry loving pioneer plants

Population in Germany:

widespread

Importance in Animal Ecology:

a total of 62 plant-eating insects have been documented, including four *Senecio*-specific insect species; long flower facet of importance

Harmful Effects:

contains toxic alkaloids

Integrated Control:

- regular resowing of grassland
- removal of the first plants to appear
- maintaining a thick sward
- mulching affected fallow areas, embankments, etc. before the seeds ripen
- perennial arable feed crops

## **Senecio jacobaea - Tansy ragwort**

[https://en.wikipedia.org/wiki/Jacobaea\\_vulgaris](https://en.wikipedia.org/wiki/Jacobaea_vulgaris)



Family: Aster, composite *Asteraceae*

### Characteristics:

- rosette plant; overwinters in rosettes
- stem red at the base, with angular grooves and spider's web-like hairs; branched well over the middle; 30 to 100cm tall
- lyre-shaped rosette leaves which mostly die off before blooming, pinnate stem leaves
- inflorescence with up to two thousand golden-yellow composite flowers per plant

### Life Cycle:

as a rule biennial, in the first year leaf rosette, in the second year shoot with inflorescence

### Flowers and Pollination:

- June to October
- pollination by insects (bees, flies)

### Reproduction:

- via seeds (100 thousand per plant)
- flat germinator
- germinable after up to 25 years in the soil



#### Occurrence and Location:

- native to almost the whole world; foreign genotype also in seed mixtures for creating green spaces from fallow land and wild areas
- in areas with a moist climate
- on humus-rich, nutrient- and base-rich, loam and clay soil
- on abandoned farmland, in grassland, on railway and road embankments

#### Associated Plants:

general grassland communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

has great importance as a source of pollen and food for insects; food plant for beetles

#### Harmful Effects:

contains toxic alkaloids (causing liver damage to grazing animals, particularly horses)

#### Integrated Control:

- removal of the first plants when they appearing
- maintaining a thick sward on grassland
- mulching of affected fallow land, embankments, etc. before the seeds ripen
- use the areas several time a year-old- use of suitable herbicides

## Senecio vernalis - Eastern Groundsel

[https://en.wikipedia.org/wiki/Senecio\\_vernalis](https://en.wikipedia.org/wiki/Senecio_vernalis)



Family: Aster, composite *Asteraceae*

Characteristics:

- roots up to 45cm deep
- half-rosette plant; stiff, upright growth with erect branches; grows to 50cm tall
- cotyledons linear-lanceolate
- alternate, pinnate-lobed leaves, the first very hairy, the later leaves practically bald; leaf shape varies strongly
- panicle of stalked, medium-sized heads with a bell-shaped envelope; disc and ray florets yellow
- seeds elongate-cylindrical with white-haired longitudinal ribs, finely bristled, grey

Life Cycle:

biennial to triennial

Germination:

- spring
- flat germinator

Flowers:

April to May, sometimes the whole year

Reproduction:

- via seeds (2 to 4 thousand per plant)
- germinable for only a few years in the soil

#### Occurrence and Location:

- introduced from abroad and established in middle Europe
- on loose, nutrient-rich but chalk-free, dry loamy and sandy soils
- at the edges of fields, on paths and embankments, seldom on farmland or in gardens

#### Associated Plants:

crop weed and ruderal weed communities

#### Population in Germany:

scattered to widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, gall midge, sawfly, beetle, butterfly, bugs, nematode

#### Harmful Effects:

contains alkaloids so toxic, especially for horses, but less so than ragwort

#### Integrated Control:

- avoid overgrazing and cutting too short in grassland
- mow before the seeds ripen
- well controlled by chemicals on farmland

## Senecio vulgaris - Groundsel

[https://en.wikipedia.org/wiki/Senecio\\_vulgaris](https://en.wikipedia.org/wiki/Senecio_vulgaris)

Family: Aster, composite Asteraceae

Characteristics:



- roots 15 to 45cm deep
- half-rosette plant; stem upright or rising, mostly branched, bare or with wooly hair; grows ca. 40cm tall
- linear-lanceolate cotyledons
- first leaves saw-edged, upper leaves pinnate lobed, often a shiny green
- panicle of small, short-stalked heads with a bell-shaped envelope; ray and disc florets yellow
- seeds elongated cylindrical with white-haired longitudinal ribs, finely bristled, grey

Life Cycle:

- summer and winter annual
- several generations per year

Germination:

- autumn to spring
- flat germinator

Flowers:

the whole year long (weather dependent)

Reproduction:

- via seeds (4 to 10 thousand per plant)
- germinable for only a few years in the soil

#### Occurrence and Location:

- native to the whole world
- on fresh, loose loam and sandy soil; nutrient and nitrogen indicator
- on farmland, in vineyards, by the wayside and on fallow land
- in summer crops such as maize, cereals, vegetables and legumes

#### Associated Plants:

farmland weed communities in nitrogen rich areas and in ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are aphid, gall midge, sawfly, beetle, butterfly, bugs, nematode

#### Harmful Effects:

- poorly competitive, but can appear in large amounts
- contains toxic alkaloids

#### Integrated Control:- repeated working of the soil before sowing

- early use of harrow and hoe
- can be controlled with herbicides

## **Setaria pumila - Pigeon grass**

[https://en.wikipedia.org/wiki/Setaria\\_pumila](https://en.wikipedia.org/wiki/Setaria_pumila)



Family: Sweetgrass *Poaceae*

### Characteristics:

- roots are leaf nodes bunched at the leaf base, little branched and with fine fibrous roots; roots down to 35cm deep
- bare leaf blade, growing straight upwards or with a kink; grows up to 80cm tall
- short cotyledons
- no ligule, instead a fringe of hair; no leaf auricle
- leaves have a white middle nerve and a fringe of hair at the leaf base
- spiked panicle grass; ears with a yellow, ginger bristles which become completely separate from the spindle

### Life Cycle:

summer annual

### Germination:

early summer

### Flowers and Pollination:

- July to September
- predominantly cross-pollination

### Reproduction:

- via seeds (400 to 700 per plant)
- germinable after more than 30 years in the soil)

#### Occurrence and Location:

- native to all temperate zones of the earth and in the subtropics
- on moderately dry to fresh, moderately to strongly acidic, nutrient-poor loam or pure sand that is warm in summer
- on farmland and on paths
- in all summer crops

#### Associated Plants:

root crop and ruderal weed communities

#### Population in Germany:

scattered to widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Harmful Effects:

- strongly competitive
- because of its late germination difficult to control with herbicides

#### Integrated Control:

- turning the soil
- planting winter crops
- care should be taken choosing and varying the active ingredient of herbicides

## **Setaria verticillata - Bristly foxtail**

[https://en.wikipedia.org/wiki/Setaria\\_verticillata](https://en.wikipedia.org/wiki/Setaria_verticillata)

Family: Sweetgrass *Poaceae*



Characteristics:

- a spiked grass; grows up to 100cm tall
- short cotyledons
- no ligule, the leaf auricle develops as a wreath of hair
- long hair on the edge of the leaf sheath
- the bristles in the ears are aligned backwards and act as a burr; ears are arranged in whorls

Life Cycle:

summer annual

Germination:

early summer

Flowers and Pollination:

- July to September
- predominantly cross-pollination

Reproduction:

- via seeds (ca. 200 to 700 per plant)
- germinable after more than 30 years in the soil



#### Occurrence and Location:

- native to temperate zones all over the earth and to the subtropics
- warmth-loving
- on moderately fresh, nitrogen-rich sandy loam
- on farmland, in gardens, on wasteland
- in all summer annual arable crops, particularly in maize

#### Associated Plants:

in root crop weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, frit fly, thrips, bugs, nematode, etc.

#### Use and Harmful Effects:

- formerly used as a feed crop
- if present in large quantities is strongly competitive
- difficult to control because of its late germination

#### Integrated Control:

- turning the soil
- planting „nurse crops“ in maize
- planting winter crops
- early mowing of field margins
- hoeing

## **Setaria viridis - Green foxtail**

[https://en.wikipedia.org/wiki/Setaria\\_viridis](https://en.wikipedia.org/wiki/Setaria_viridis)



Family: Sweetgrass *Poaceae*

Characteristics:

- roots from a basal clump of leaf nodes, sparsely branched with many fine filaments; roots down to 40cm deep
- bare leaf blade growing straight upwards or with a kink; shoots often branched well above the ground; grows up to 80cm tall
- short cotyledons
- without ligule or leaf auricle; leaves have a wreath of hair and a reddish colour at the base
- spiked panicle grass; ears at first green, later with red-violet bristles

Life Cycle:

summer annual

Germination:

early summer

Flowers and Pollination:

- July to October
- predominantly cross-pollination

Reproduction:

via seeds (200 to 700 per plant)

- germinable for up to 15 years in the soil

#### Occurrence and Location:

- native to all temperate zones of the earth and in the subtropics
- on moderately dry to fresh, nutrient- and nitrogen-rich sandy loam of varying soil reaction
- on farmland, in vineyards and gardens, on paths
- in all summer crops

#### Associated Plants:

root crop weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, beetle, gall midge, mite, thrips, frit fly, bugs, nematode, etc.

#### Use and Harmful Effects:

- formerly used as a feed crop
- strongly competitive if present in large amounts
- difficult to control with herbicides because of its late germination

#### Integrated Control:

- keeping field borders free
- turning the soil
- planting winter crops

## Sherardia arvensis - Sherardia - Ackerröte

<https://en.wikipedia.org/wiki/Sherardia>

<https://de.wikipedia.org/wiki/Ackerröte>



Family: *Rubiaceae*

Characteristics:

- root depth up to 25cm
- stalk prostrate, rough and hairy, square, branched, side-branches protruding horizontally; height up to 20cm
- most of the branches which lie on the ground have adventitious roots
- cotyledons (seed leaves) egg-shaped to round
- pointed leaves, lanceolate, with bristly hairs, twirling on the stem
- flowers light violet massed in terminal cymes
- fruit disintegrates into two seeds with small teeth at the top

Life Cycle:

annual, in summer

Germination:

- mid to late spring
- flat germination

Flowers and fertilisation:

- May to October
- self- and insect pollination

Reproduction:

by seeds

#### Occurrence and Location:

- native; global Occurrence
- in warm, chalky, well aerated soil
- in farmland and fallow land
- in summer cereals

#### Associated Plants:

other weeds of basic soil areas

#### Population in Germany:

declining in the south; not endangered

#### Importance in Animal Ecology:

companion species include leaf louse, gall midge, leaf miner fly, scale insect, bed-bug, leaf beetle, wasp

#### Use:

previously used to produce a dye

#### Integrated Control:

not worth control measure as it is rare in farmland; protective measures desirable

## **Silene noctiflora - Nightflowering silene**

[https://en.wikipedia.org/wiki/Silene\\_noctiflora](https://en.wikipedia.org/wiki/Silene_noctiflora)

Family: Carnation *Caryophyllaceae*



Characteristics:

- roots 15 to 45cm deep
- half-rosette plant, upright growth; stem with glandular hair; grows 10 to 40cm tall
- cotyledons elongate to elongate-elliptic
- leaves opposed, longish, ovate
- flowers androgynous, open in the evening or at night; calyx has 10 sepals with lateral conjunctions; petals pale pink to white
- seeds kidney-shaped, roundish, flattened, light to dark grey, concentrically warty

Life Cycle:

summer and winter annual

Germination:

late spring to early summer

Flowers and Pollination:

- June to September
- self- and cross-pollination

Reproduction:

via seeds(up to 800 per plant)

- germinable after more than 5 years in the soil

#### Occurrence and Location:

- native to the whole of Europe
- in areas that are warm in the summer
- mostly on heavy, chalk-rich loam or clay soils which are alternately wet and dry, but not waterlogged; loam indicator
- on farmland and in vineyards, on wasteland, by the wayside
- particularly in cereals

#### Associated Plants:

farmland weed communities of base-rich areas and ruderal communities

#### Population in Germany:

reasonably common; not endangered

#### Importance in Animal Ecology:

pollination is by insects, mostly moths (grey moths, night moths); host plant for aphids, miner flies, gall midge, beetle and weevil

#### Integrated Control:

control not necessary; protective measures desirable

## **Sinapis arvensis - Wild mustard**

[https://en.wikipedia.org/wiki/Sinapis\\_arvensis](https://en.wikipedia.org/wiki/Sinapis_arvensis)



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- taproot up to 100cm deep
- half-rosette plant; upright branched stem with rough hairs on the lower part; grows up to 70cm tall
- wide, inverse heart-shaped cotyledons, indented at the tip
- lower leaves lobed, upper leaves undivided, toothed, directly on the stem or on short stalks
- golden yellow flowers in umbel-like clusters, sepals sticking out to the side#- hairless seed capsule; seeds round, smooth, black-brown

Life Cycle:

summer annual

Germination:

- mid spring to early summer
- flat germinator

Flowers and Pollination:

- june to october
- pollination by insects (bees)

Reproduction:

- via seeds (200 to 2000 per plant)
- germinable after over 80 years in the soil



#### Occurrence and Location:

- native to the whole world
- on nutrient and chalk-rich, moderately dry to moderately damp loam; loam and humus indicator
- on farmland and on paths, on wasteland
- in summer crops, but also in winter cereals and rape

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, thrips, bugs, cicada, gall midge, weevil, nematode, butterfly;  
pollen and nectar plant for insect that visit flowers

#### Harmful Effects:

- competitor for nutrients and water
- carrier of animal pathogens such as cyst nematode and flea beetle

#### Integrated Control:

- planting winter crops
- working the stubble in autumn, repeated seed bed preparation in spring
- well controlled by mechanical and chemical means in the early development stage

## **Sisymbrium loeseli - Small tumbleweed mustard**

[https://en.wikipedia.org/wiki/Sisymbrium\\_loeselii](https://en.wikipedia.org/wiki/Sisymbrium_loeselii)

Family: Cruciferous plant *Brassicaceae*



Characteristics:

- rosette plant; stem roughly haired on the lower part, highly branched above; grows up to 150cm tall
- small, claviform (club-shaped) cotyledons
- reverse lanceolate leaves on a stalk
- four ascending yellow petals
- protruding fruit stem; pods curved or straight, linear and narrow, around the stem; seeds brown, extended ellipsoid, somewhat warty

Life Cycle:

winter annual, sometimes biennial

Germination:

- autumn and spring
- flat germinator

Flowers:

May to August

Reproduction:

via seeds

### Occurrence and Location:

- has become native to all temperate latitudes in Europe and Asia
- warmth-loving
- on moderately dry, nutrient-rich gravelly or stony loam
- on farmland, by the wayside, on wasteland
- in winter rape

### Associated Plants:

annual and biennial hoe weeds and ruderal communities

### Population in Germany:

scattered, increasing in many areas

### Importance in Animal Ecology:

host plant for at least 84 insect species, e.g. beetle, thrips, weevil, gall midge, butterfly; pollen and nectar plant for a number of insects

### Harmful Effects:

in some regions an annoying weed because of its mass propagation

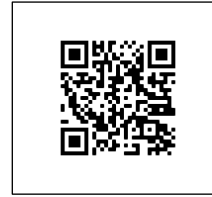
- control in winter rape very difficult

### Integrated Control:

- increasing the proportion of cereals in crop rotation schemes
- stubble working
- chemical treatment post-emergence
- hoeing in row cultures

## Sisymbrium officinale - Hedge mustard

[https://en.wikipedia.org/wiki/Sisymbrium\\_officinale](https://en.wikipedia.org/wiki/Sisymbrium_officinale)



Family: Cruciferous plant *Brassicaceae*

Characteristics:

- taproot 20 to 50cm deep
- upright growth; stem strongly branched and hairy; grows 100cm tall
- spoon-shaped, claviform cotyledons on stalks
- half-rosette plant; rosette made up of feathered and bristled leaves; upper leaves elongated lanceolate
- cluster of many flowers; crown pale yellow
- pods pressed against the stem; seeds ovate, compressed, reddish-brown

Life Cycle:

winter, sometimes summer, annual

Germination:

- early to mid spring
- flat germinator

Flowers and Pollination:

- May to September
- self-pollination

Reproduction:

- via seeds (1 to 4 thousand per plant)
- germinable after more than 5 years in the soil

#### Occurrence and Location:

- pioneer plant native to Europe, Asia and North Africa
- preferably on nutrient-rich, loose, carbonate-containing sandy and stony soils and loam; nitrogen indicator
- on farmland, in gardens, on paths and wasteland
- in root crops and vegetable cultures

#### Associated Plants:

- farmland weeds and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for at least 84 insect species, e.g. beetle, thrips, weevil, gall midge, butterfly; pollen and nectar plant for a number of insects

Use: formerly used as a medicinal plant

#### Integrated Control:

- crop rotation scheme should contain a lot of cereals
- intensive stubble working
- hoeing near the end of rows
- late post-emergence treatment in intensive root crop and vegetable crop rotation

## **Solanum carolinense - Carolina horsenettle**

[https://en.wikipedia.org/wiki/Solanum\\_carolinense](https://en.wikipedia.org/wiki/Solanum_carolinense)



Family: Nightshade *Solanaceae*

Characteristics:

- tap root up to 140cm deep; off-shoots at a depth of 20cm
- upright, thickly haired stem with many 1cm long thorns; grows 20 to 120cm tall
- cotyledons lanceolate
- leaves alternate, lobed; upper surface thickly haired and with a number of spikes; thorns on the lower surface project at various angles
- five white to light blue petals; yellow anthers close together with a green stigma
- yellow to orange-yellow round berries, 8 to 20mm in size

Life Cycle:

perennial

Germination:

- requires temperature variation of 20 to 30 degrees for germination
- germinable after up to 3 years in the soil
- germinates from a depth of 10cm

Flowers:

July to October

Reproduction:

- seeds
- vegetative from roots buds and detached pieces of root

#### Occurrence and Location:

- introduced a few years ago; found worldwide in the tropics and temperate zones
- sporadically on farmland, in gardens and meadows, on wasteland and by the way-side

#### Population in Germany:

inconsistent

#### Use:

in natural medicine

#### Integrated Control:

- mechanical control is difficult as new plants grow from small bits of root
- also difficult to control chemically

## **Solanum nigrum - Black nightshade**

[https://en.wikipedia.org/wiki/Solanum\\_nigrum](https://en.wikipedia.org/wiki/Solanum_nigrum)



Family: Nightshade *Solanaceae*

Characteristics:

- tap root, 40 to 70cm deep
- upright growth; stem ascending or prostrate, branched, with scattered hairs
- cotyledons pointed ovate, hairy, pale blue, with a visible centre vein
- leaves ovate, sparsely haired, on stalks, with a dentate edge
- alternate, white, star-shaped flowers with noticeably projecting stamen
- seeds grey-brown, pitted, kidney-shaped, squashed

Life Cycle:

summer annual

Germination:

- late spring
- light-dependent germinator

Flowers and Pollination:

- June to October
- predominantly cross-pollination

Reproduction:

- via seeds (100 to 1,000 per plant)
- germinable after more than 40 years in the soil



#### Occurrence and Location:

- native to practically the whole world
- on nutrient-rich humus; nitrogen and mellowness indicator
- on farmland and in gardens, by the wayside, on wasteland
- particularly in maize, sugar beet, potatoes and vegetables

#### Associated Plants:

- root crop and ruderal weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for beetle, aphid, sawfly, shield bug (scutelleridae), mirid bug, nematode, etc.

#### Harmful Effects:

- contains a toxic alkaloid (solanin)
- is resistant to triazine herbicides
- sometimes occurs in large quantities; strongly competitive because of its extensive root system

#### Integrated Control:

- early seed bed preparation
- well controlled mechanically up to the four leaf stage
- largely difficult to control because of its late appearance

## **Solanum villosum - Hairy nightshade**

[https://en.wikipedia.org/wiki/Solanum\\_villosum](https://en.wikipedia.org/wiki/Solanum_villosum)

Family: Nightshade *Solanaceae*

Characteristics:

- upright growth up to 50cm
- ovate, pointed cotyledons
- leaves ovate, bluish, lightly haired
- flowers alternate, white, star-shaped with projecting stamen
- fruit spherical, wax-yellow
- unpleasant musky odour

Life Cycle:

summer annual

Germination:

- late spring
- germination above 15°C

Flowers:

June to October

Reproduction:

via seeds



#### Occurrence and Location:

- introduced and now native to global temperate and tropical zones
- warmth-loving
- on humus-, nutrient- and nitrogen-rich loam and sandy soil
- on farmland, by the wayside, on wasteland
- particularly in maize, sugar beet and vegetables

#### Associated Plants:

root crop weed communities and short-lived ruderal communities

#### Population in Germany:

very scattered to rare

#### Harmful Effects:

- contains the toxic alkaloid solanin, which is present in particularly high concentrations in the unripe berries (leading to a ban on harvesting leaf vegetables when it is present)
- as a late germinator often avoids chemical control measures

#### Integrated Control:

- early seed bed preparation
- well controlled mechanically up to the four leaf stage, later forms a dense root network

## **Solidago canadensis - Canada Goldenrod**

[https://en.wikipedia.org/wiki/Solidago\\_canadensis](https://en.wikipedia.org/wiki/Solidago_canadensis)



Family: Aster; composite

Characteristics:

- strong shoots up to 150cm tall; offshoots spread strongly; plant growth thick, with short hairs; branched upper part, thickly leaved
- leaves directly on the stem, lanceolate, roughly dentate, thickly haired underneath
- many small golden-yellow flower heads; thick inflorescence, densely branched
- seeds hairy; pappus formed by rows of fine, white, rough bristles
- can be confused with the usually smaller Giant Goldenrod *Solidago gigantea*

Life Cycle:

perennial

Flowers and Pollination:

- August to October
- pollination by insects

Reproduction:

- via seeds (up to 19 thousand per plant)
- on germinable for a short time in the soil
- underground offshoots

### Occurrence and Location:

- introduced from North America, has become stably native all over Europe
- in locations that are warm in summer
- on fresh to damp, nutrient-rich clay and loam soils; nutrient indicator
- on fallow land, riverbanks, less often in permanent crops

### Associated Plants:

persistent ruderal communities, those on the edges of fields and in herbaceous borders

### Population in Germany:

widely disseminated, mostly present in large amounts

### Importance in Animal Ecology:

41 plant-eating species have been established, of which two are *Solidago*-specific; important for insect that visit flowers (bee meadow)

### Use and Harmful Effects:

- contains substances used as dyes
- used as an ornamental and medicinal plant
- strong growth, strongly competitive; spreads readily over fallow land
- represses / replaces native light-loving plant with consequences for fauna

### Integrated Control:

control not necessary on farmland because of its rarity in crops

## Sonchus asper - Prickly Sow-Thistle

[https://en.wikipedia.org/wiki/Sonchus\\_asper](https://en.wikipedia.org/wiki/Sonchus_asper)

Family: Aster; composite *Asteraceae*



Characteristics:

- stake-like root 100cm deep
- rosette; upright growth, stem channels milky juice; up to ca. 80 cm tall
- cotyledons round to spatulate, distinctly offset from stem
- toothed leaves, rough and oblong-oval; leafnode round
- funnel panicle; heads on stalks with a bell-shaped envelope; yellow flowers
- seeds elliptical-round, flattened, 6-8 longitudinal ribs, light brown to brownish

Life Cycle: summer annual; can survive winter

Germination:

Spring to early Summer

- flat germinator

Flowers and Pollination:

- June to October
- by insects, (e.g. bees)

Reproduction:

via seeds (1 to 6 thousand per plant)

#### Occurrence and Location:

- global
- on dewy to damp, fertile, loam or sandy soil that is not chalk-deficient
- in gardens, on farmland and by the wayside
- in root crops and summer cereals

#### Associated Plants:

farmland weed and riverbank bidentate communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

polle and necta source for bees, flies, beetles and butterflies

#### Integrated Control:

- stubble working and repeated soil work in Spring
- shading by strongly competitive crops; planting catch-crops and fodder plants with frequent mowing
- harrowing and hoeing at an early stage

## Sonchus avensis - Field Milk Thistle

[https://en.wikipedia.org/wiki/Sonchus\\_avensis](https://en.wikipedia.org/wiki/Sonchus_avensis)

Family: Aster; composite *Asteraceae*

Characteristics:



- pole-like root p to 200cm deep
- hollow upright stem, contains a milky sap; grows up to 150cm tall
- cotyledons egg-shaped, round to round-oval
- leaves long-lanceolate, bare, lobed pinnatifid; thorny teeth at the edge
- panicles mostly of long-stalked heads; ray floret yellow

Life Cycle:

perennial

Germination:

Spring

Flowers:

- July to September
- predominately cross-pollination

Reproduction:

- via seeds (1 to 5 thousand per plant)
- germinable for only a few years in the soil
- vegetative through root offshoots



#### Occurrence and Location:

- spread all over the world
- dewy to wet, nitroge-rich, deep loamy or clay soil
- on farmland, gardens, meadows, on the wayside
- in cereals, maize and rape

#### Associated Plants:

farmland weed, wetland meadow and quecke-pioneer communities

#### Population in Germany:

common, not endangered

#### Importance in Animal Ecology:

associated species include aphid, psyllid, thrips, gall midge; pollen and nectar source for bees,

hoverflies, beetles, butterflies

#### Harmful Effects:

- most competitive of the thistle species
- difficult to control in root crops

#### Integrated Control:

- turning the soil and stubble working
- shading by highly comptitive crops; planting catch crops and fodder plants with frequent cropping
- non-selective herbicide on stubble

## Sonchus oleraceus - Sow Thistle

[https://en.wikipedia.org/wiki/Sonchus\\_oleraceus](https://en.wikipedia.org/wiki/Sonchus_oleraceus)

Family: Aster; composite *Asteraceae*

Characteristics:

- taproot ca. 100cm deep
- stem often violet, hollow, upright, branched, with a milky juice; height up to 100cm
- cotyledons roundish ovoid on a stalk
- first leaves round, those following feathered, with thorny, enfolding the stem
- panicle, stalked heads with a spherical envelope; ray florets yellow

Life Cycle:

summer annual, can survive winter

Germination:

- predominantly Spring to early Summer
- flat germinator

Flowers and pollination:

- June to October
- by insects

Reproduction:

- via seeds (1 to 6 thousand per plant)
- germinable after more than 20 years in the soil



#### Occurrence and Location:

- global
- warm-loving
- on fertile, damp to dry, chalky loam
- on farmland, on fallow land, by the wayside
- in root crops and summer cereals

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include aphid, psyllid, thrips, gall midge, leaf miner; pollen and nectar source for bees, hoverflies, beetles and butterflies

#### Harmful Effects:

- less competitive than the field milk thistle and sow thistle
- sometimes occurs on a massive scale

#### Integrated Control:

- turning the soil, stubble working
- - shading by highly competitive crops; planting catch crops and fodder plants with frequent cropping
- mechanical control effective in its early stages

## Sorghum halepense - Johnson grass

[https://en.wikipedia.org/wiki/Johnson\\_grass](https://en.wikipedia.org/wiki/Johnson_grass)

Family: Sweetgrass *Poaceae*



Characteristics:

- roots intensively with horizontal rhizomes under the earth, up to finger thick and spreading widely; roots down to over 100cm deep
- strong leaf blade filled with marrow; hairy nodes; grows up to 200cm tall
- long ligule
- leaves arranged in a double line; smooth leaf blade
- flowers in compact or loose panicles white, yellow or red; panicle hairy

Life Cycle:

perennial

Germination:

spring and summer

Flowers:

June to July

Reproduction:

- via seeds ((ca. 1000 per plant)
- predominantly vegetatively through rhizomes

### Occurrence and Location:

- introduced to the Rhine Valley where it has become native; found in America and southern Europe
- warmth-loving
- preferentially on nutrient- and base-rich loam and clay soil; indicator for clay and variable dampness
- on farmland and in pastures, by the wayside and on wasteland
- in maize and soya bean

### Associated Plants:

root crop weed communities

### Harmful Effects:

- strongly competitive through rapid and strong growth
- chemical control difficult due to the strong rhizomes; herbicide resistant
- value as feed crop in pasture is minimal

### Integrated Control:

- repeated deep stubble working in dry weather
- planting catch crops
- turning the soil
- less maize in crop rotation
- cleaning machinery used on the soil
- early mowing of field borders
- use of non-selective herbicides on stubble

## Spargula arvensis - Corn spurry

[https://en.wikipedia.org/wiki/Spargula\\_arvensis](https://en.wikipedia.org/wiki/Spargula_arvensis)



Family: Carnation *Carophyllaceae*

Characteristics:

- roots 10 to 15cm deep
- upright growth; stem single or several arched side branches from the ground up; grows 10 to 50cm tall
- threadlike cotyledons
- small, elongated twirling leaves, glandular hairs above, lower down with longitudinal grooves
- white flowers with 5 petals, sporadically curved back in reduced panicles
- seeds lentil-shaped to almost round with a very small edge of skin

Life Cycle:

- summer annual, often survives the winter
- often a second generation in one year

Germination:

- spring and autumn
- light germinator

Flowers and Pollination:

- June to October
- self-pollination and by insects

Reproduction:

- via seeds (one to ten thousand per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the whole world
- particularly in areas with a humid climate
- often on well aerated, sandy, nutrient-rich, moderately to strongly acid soil; acidification indicator
- on farmland and wasteland
- in root crops

#### Associated Plants:

root crop weed communities in areas with acidic soil

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for beetle and other insect species; flowers visited mostly by flies and hymenoptera

#### Harmful Effects:

causes little damage, weakly competitive

#### Integrated Control:

control not necessary

## Spargularia rubra - Red sandspurry

[https://en.wikipedia.org/wiki/Spargularia\\_rubra](https://en.wikipedia.org/wiki/Spargularia_rubra)

Family: Carnation *Carophyllaceae*

Characteristics:



- flat roots, up to 15cm deep
- growth prostrate to ascending, branched; hairy stem; grows up to 25cm tall
- cotyledons linear
- stipules ovate, shiny silver; leaves have noticeable thorns and have leaf shoots in the axil
- pink petals shorter than the sepals
- capsule with three flaps; seeds without epithelial rim, finely wrinkled, without thorns

Life Cycle:

summer annual

Germination:

late winter up to late spring

Flowers and Pollination:

May to September

- self-pollination and by flies

Reproduction:

- via seeds (1000 per plant)
- germinable after more than 8 years in the soil



#### Occurrence and Location:

- native to almost the whole world
- on changeable, fresh, nutrient-rich, chalk and base poor, moderately acidic sandy loam and clay soil; salt tolerant; indicator plant for acidification and compacted soil
- on paths and farmland
- in summer cereals

#### Associated Plants:

farmland weed communities in areas with acid soil, plants growing where the earth is trodden, dwarf reed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for aphid, thrips, bugs, beetle, weevil, owl moth, nematode

#### Harmful Effects:

only occurs in limited areas and is weakly competitive

#### Integrated Control:

control not necessary

## Stachys annua - Hedgenettle

[https://de.wikipedia.org/wiki/Einjähriger\\_Ziest](https://de.wikipedia.org/wiki/Einjähriger_Ziest)

Family: Labiate *Lamiaceae*

Characteristics:



- roots up to 50cm deep
- upright, mostly heavily branched, thin stem, bare smoothly haired
- cotyledons roundish to inverted ovate

pale green leaves, elongated elliptical to spatulate, only the lower leaves on a stalk, rounded, shallowly grooved to finely serrated, thin

- short-stalked flowers in whorls of 4 to 6 blooms; upper lip pale sulphur yellow, somewhat longer, brownish streaked lower lip
- calyx with short hairs; seeds ovate, slightly flattened, finely wrinkled, black-brown

Life Cycle:

summer annual, sometimes perennial

Germination:

mid to late spring

Flowers and Pollination:

- June to October
- self-pollination and by insects

Reproduction:

- via seeds (50 to 200 per plant)
- germinable after up to 40 years in the soil

Occurrence and Location:

- native to eastern Mediterranean regions
- warmth-loving

- on moderately dry, chalky, nutrient-rich, sandy clay soils and loam
- on farmland and in vineyards
- in cereals and leafy crops

Associated Plants:

farmland weed communities of chalky areas

Population in Germany:

rare, decreasing; endangered

Importance in Animal Ecology:

host plant for aphid, gall midge, mirid bug, leaf miner, butterfly; pollen and nectar  
plant for wild bees

Integrated Control:

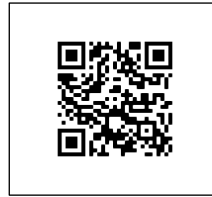
control not necessary because of its rarity on farmland; protective measures desirable

## Stachys arvensis - Field woundwort

[https://en.wikipedia.org/wiki/Stachys\\_arvensis](https://en.wikipedia.org/wiki/Stachys_arvensis)

Family: Labiate *Lamiaceae*

Characteristics:



- stem sparsely branched, prostrate, seldom upright, square; height 5 to 20cm
- cotyledons ovate
- leaves roundish to heart-shaped with blunt notches, loose, protruding hairs, often streaked violet
- pale pink flowers in overlapping whorls

Life Cycle:

annual, outside of farmland perennial

Germination:

- spring

Flowers and Pollination:

- July to September
- mostly self-pollination

Reproduction:

- via seeds (50 to 150 per plant)
- germinable after more than 20 years in the soil

#### Occurrence and Location:

- native to western and northern Europe
- in climates with a humid winter
- on fresh, nutrient-rich, chalk-poor, mostly light or humus-rich sandy loam
- on farmland, in gardens and on wasteland
- in sugar beet and other root crops

#### Associated Plants:

farmland and ruderal weed communities

#### Population in Germany:

scattered to rare, decreasing; endangered

#### Importance in Animal Ecology:

host plant for aphid, gall midge, mirid bug, leaf miner, butterfly; pollen and nectar plant for wild bees

#### Integrated Control:

- avoiding mass reproduction as the seed bank persists in the soil
- well controlled by mechanical and chemical means
- protective measures desirable

## **Stellaria media - Chickweed**

[https://en.wikipedia.org/wiki/Stellaria\\_media](https://en.wikipedia.org/wiki/Stellaria_media)



Family: Carnation *Caryophyllaceae*

Characteristics:

- flat roots up to 15cm deep
- stem prostrate or ascending with a single row of hairs; grows to 40cm tall
- stalked cotyledons pointed lanceolate with an entire rim, hairless, with a visible middle rib
- light green leaves, round to ovate with a definite tip, stalked, opposite
- small, white, star-like flowers
- the fruit is spherical ovate with six long teeth on opening; seeds roundish kidney-shaped, red-brown, with thorns

Life Cycle:

- annual to perennial
- up to three generation a year

Germination:

- all year
- flat germinator

Flowers and Pollination:

- March to October
- self-pollination and by insects

Reproduction:

- via seeds (ca. 15 thousand per plant)
- germinable after more than 50 years in the soil

#### Occurrence and Location:

- native to the whole world
- pretty well anywhere with a preference for mature soil; nitrogen indicator
- on farmland, in gardens and vineyards, on paths and wasteland
- in all agricultural crops

#### Associated Plants:

farmland weed and pioneer communities

#### Population in Germany:

widespread, common everywhere; not endangered

#### Importance in Animal Ecology:

host plant for at least 48 insect species such as aphid, sawfly, thrips; also nematode

#### Use and Harmful Effects:

- protects against erosion in permanent cultures
- strongly competitive, especially in cereals
- promotes a micro-climate suitable for fungal pathogens
- host plant for plant disease and pests (radish / sugar beet nematode)

#### Integrated Control:

- promote growth in young cultures
- well controlled mechanically in its early growth stages

## **Symphytum officinale - Common Comfrey - Beinwell**

[https://en.wikipedia.org/wiki/Symphytum\\_officinale](https://en.wikipedia.org/wiki/Symphytum_officinale) [http://dia.org/wiki/Echter\\_Beinwell](http://dia.org/wiki/Echter_Beinwell)



Family: Borage *Boraginaceae*

Characteristics:

- strong roots up to 180cm, widespread root system
- semi-rosette plants; clump-like, shoots green, firmly upright, stem branched from ground level, square, with rough hairs; 30 to 60cm tall
- basal leaves stalked, egg-shaped to lance-like, others on the stem, roughly haired, decurrent (extending downwards)
- flowers bell-shaped, red-violet or yellow-white
- seeds skew egg-shaped with sharp inner edges, shiny on the outside, grey-brown, finely warty skin

Life Cycle:

- perennial

Flowers and fertilisation:

- May to July
- self-pollination and by bees

Reproduction:

- vegetative through branching of the rhizome and through severed pieces



#### Occurrence and Location:

- native to the whole of Europe
- on damp , on nutrient-rich basic, pebbly-sandy to loamy/clay soil; nutrient indicator
- widespread in wet meadows, shrub banks, in ditches, on field margins, occasionally on moist farmland – above all after radical changes in a meadow

#### Associated Plants:

- fringe communities of wet areas

#### Population in Germany:

- widespread; not endangered

#### Importance in Animal Ecology:

- Host plant for at least 59 species including many plant-eating beetles; nectar plants for wild bees (bumblebees)

#### Use and Harmful Effects:

- can be cut several times a year
- once used as a natural cure
- turnip-shaped rhizome contains reserve substances, e.g. inulin
- moderate feed value

#### Integrated Control:

- does not require control on farmland

## Taraxacum officinale - Dandelion

[https://en.wikipedia.org/wiki/Taraxacum\\_officinale](https://en.wikipedia.org/wiki/Taraxacum_officinale)

Family: Aster; composite *Asteraceae*

Characteristics:



- deep tap root and root shoots, 130 to 240cm deep; stays flat in damp areas
- rosette plant; stunted growth; hollow stalk with no leaves, containing milky sap; grows up to 40cm tall
- cotyledons roundish-elliptical
- leaves spatulate to reverse ovate with dentate edge
- flowers yellow, closed in the dark
- seeds light brown to black, nobbly with a beak and a white pappus

Life Cycle:

perennial

Germination:

- early spring to late summer
- flat germinator

Flowers and Pollination:

- April to June
- pollination by insects (bee meadow)

Reproduction:

- via seeds (ca. 200 to 5 thousand per plant)
- germinable after a considerable time in the soil
- vegetative through root shoots from spring to autumn

#### Occurrence and Location:

- native to the whole of Europe
- on fresh, nutrient-rich, neutral, compact loam
- in meadows, on farmland, by the wayside
- mostly only in permanent crops

#### Associated Plants:

all farmland weed communities, in areas walked on, in pioneer and rubble communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for over 90 insect species including aphid, psyllid, gall midge, leaf miner, weevil, cicada; pollen and nectar source for many wild bee species, butterflies, etc.

#### Harmful Effects:

- tolerable in meadows up to 20% coverage as it is a tasty fodder plant
- does not often grow on farmland

#### Integrated Control:

- intensive working of farmland soil
- in meadows appropriate fertiliser, and use; bare patches should be avoided

## Tesdalia nudicaulis - Shepherd's Cress - Nacktstängeliger Bauernsenf

[https://de.wikipedia.org/wiki/Nacktstängeliger\\_Bauernsenf](https://de.wikipedia.org/wiki/Nacktstängeliger_Bauernsenf)

Family: Cruciferous plant (*Brassicaceae*)



Characteristics:

- 15-35 cm deep spindle-shaped roots
- semi-rosette plant; upright growth; mostly several stems from a basic rosette; 5-15cm in height
- cotyledons round elliptical
- leaves round to egg-shaped
- multiflowered, mostly dense, upright, short bunches; wide crown
- silicles broadly elliptic, flat; seeds flat, light brown

Life Cycle:

- winter annual to biannual

Germination:

- mid- to late autumn

Flowers and fertilisation:

- April to May
- by insects and self-pollination

Reproduction:

- by seeds (100 to 200 per plant)

#### Occurrence and Location:

- native to Europe
- likes warmth and light
- grows on dry, permeable, acid clay, sand, gravel or stony ground poor in humus; sandy fiels and sand dunes; indicates sandy soil and lack of nutrients
- on farmland, paths and fallow land

#### Associated Plants:

- other plants favouring nutrient-poor, acid locations; sandy grassland

#### Population in Germany:

- widespread in the north, in the south scattered to rare; in places severely endangered

#### Importance in Animal Ecology:

- associated species include beetles, aphids, bugs, weevils, flea beetles, butterflies, nematodes; pollen and nectar plant for many insects

#### Integrated Control:

- no control measures because of its rarity on farmland; protective measures desirable

## **Thlaspi arvense - Field Pennycress**

[https://en.wikipedia.org/wiki/Thlaspi\\_arvense](https://en.wikipedia.org/wiki/Thlaspi_arvense)



Family: Cruciferous plants *Brassicaceae*

Characteristics:

- roots ca. 50cm deep
- half-rosette plant, upright growth; up to 40cm high
- cotyledons round-oval, stalked
- rosette with weakly toothed leaves; stem leaves arrow-shaped, indented edge, half wrapped around the stem
- elongated, many-bloomed flower cluster; crown white
- seeds elliptical, flattened, brown-black, with 5 to 7 concentric ribs

Life Cycle:

summer and winter annual

Germination:

- autumn and spring
- flat germinator

Flowers and Pollination:

- April to June
- self-pollination or by insects

Reproduction:

- via seeds (500 to 2,000 per plant)
- germinable after up to 30 years in the soil

#### Occurrence and Location:

- native to the whole world
- on basic to weakly acid, sandy and clay loam
- on farmland, in gaps in meadowland, on paths and in ruderal areas
- in cereals, rape, sugar beet, maize, etc.

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species are weevil, Gall midge, butterfly, nematode, and all together 65 plant-eating species

#### Harmful Effects:

- appreciable loss of yield if it grows in masses on farmland
- host and vector for animal pathogens (e.g. flea beetle, nematode)

#### Integrated Control:

- stubble working and turning the soil
- early seed bed preparation and harrowing
- can be well controlled in maize and cereals with herbicides, but sometimes difficult in rape

## Torilis arvensis - Spreading Hedge Parsley

[https://en.wikipedia.org/wiki/Torilis\\_arvensis](https://en.wikipedia.org/wiki/Torilis_arvensis)



Family: Umbellifer *Apiaceae*

Characteristics:

- stem usually upright, finely grooved, branched from the ground up, with a reddish tinge; grows 30 to 40cm tall
- leaves elongated triangular, smoothly hairy
- flowers white or reddish in long-stalked umbels
- blackish-green seeds with barbed thorns directed upwards
- the whole plant is covered with short, grey, felty hairs, in the adult stage tinged with silver

Life Cycle:

summer and winter annual

Germination:

mostly in autumn

Flowers:

June to September

Reproduction:

via seeds



#### Occurrence and Location:

- native to central Europe and South Africa
- warm-loving (wine-growing climate)
- prefers warm, dry, chalky loam and clay soils
- on farmland, by the wayside and on wasteland
- in cereals

#### Associated Plants:

cereal weed communities in chalky areas and ruderal communities

#### Population in Germany:

scattered to rare, dwindling population, but not endangered

#### Importance in Animal Ecology:

Associated species include butterfly, gall midge, stink bug and many insects that visit flowers

#### Integrated Control:

control on farmland not necessary

## **Trifolium arvense - Hare's Foot Clover**

[https://en.wikipedia.org/wiki/Trifolium\\_arvense](https://en.wikipedia.org/wiki/Trifolium_arvense)



Family: Legume *Fabaceae*

Characteristics:

- roots up to 45cm deep
- upright growth, loosely branched; stem usually upright, often with a red nuance, expansively branched; grows up to 30cm tall
- three-fingered leaves, the slender leaflets hairy on both sides
- cylindrical flowers directly on the stem with very small pink blooms, hairy grey sepals
- seeds ovate, flattened, smooth, yellow

Life Cycle:

summer annual

Germination:

mid to late spring

Flowers and Pollination:

- June to September
- self-pollination and by insects

Reproduction:

- via seeds (ca. 200 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe, northern and western Asia and Africa
- in areas with a mild climate
- areas preferred are poor in humus, nutrient and chalk, warm in summer and dry; typical for sandy soils
- by the wayside, on fallow land and on farmland

#### Associated Plants:

cereal weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

pollination by bees and bumblebees; visited by a number of insects with a long proboscis

#### Use and Harmful Effects:

- formerly used as a natural remedy
- low fodder value due to its hard and bitter stem (but is eaten by rabbits)

#### Integrated Control:

control on farmland not necessary

## **Tussilago farfara - Coltsfoot**

<https://de.wikipedia.org/wiki/Huflattich>



Family: Aster; composite

Characteristics:

- roots over 100cm deep
- stem with dark scale leaves; about 20cm high
- slender-lanceolate cotyledons- first leaf pair oblong, later ones hand-sized, heart-shaped, whitish felted
- flowering stem with golden-yellow flower head
- seeds elongated-cylindrical, flattened, bare, stalked, with close longitudinal ribs, finely bristled, yellow

Life Cycle:

perennial

Germination:

- mid spring to summer
- flat germinator

Flowers and Pollination:

- February to April
- pollination by insects (bees, flies)

Reproduction:

- via seeds (400 to 600 per plant)
- vegetative through root offshoots

#### Occurrence and Location:

- native to Europe, Asia and North Africa
- particularly on damp, heavy chalky soil with a layer of collected water
- on farmland and meadowland, on fallow land
- in summer crops

#### Associated Plants:

farmland weed, quecke, pioneer and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

- its pollen and nectar are the first source of food for hibernating insects in the spring
- host plant for aphid, cicada, bugs, butterflies, wild bees, etc

#### Use and Harmful Effects:

- used to make cough mixture
- difficult to control by harrowing and chemicals
- can cause considerable loss of yield if present in significant amounts in sugar beet, potato, summer cereals and vegetable crops

#### Integrated Control:

- working and turning the soil
- prevention of spreading by cleaning equipment used

## **Urtica dioica - Stinging Nettle (large) - Große Brennnessel**

[https://en.wikipedia.org/wiki/Urtica\\_dioica](https://en.wikipedia.org/wiki/Urtica_dioica) [https://de.wikipedia.org/wiki/Große\\_Brennnessel](https://de.wikipedia.org/wiki/Gro%C3%9Fe_Brennnessel)



Family: Nettle *Urticaceae*

Characteristics:

- spreading taproot with a number of branched offshoots
- tetragonal stem; up to 150cm tall
- small, short, stalked cotyledons curved at the tip
- leaves round-oval, regularly nicked and lobed, pointed at the end, with stinging hair
- flowers in ribbed inflorescence in the leaf axil; dioecious
- seeds egg-shaped, keeled on the back, light green

Life Cycle:

perennial

Germination:

- Spring
- perennial via vegetative shoots

Flowers:

June to October

Reproduction:

- via seeds (ca. 100 to 1,000 per plant)
- germinable after more than 30 years in the ground
- vegetative via rhizomes

#### Occurrence and Location:

- native to Europe, Asia and North America
- on well-aerated, nutrient-rich, deep loam and clay soil
- in particular in ruderal areas, waysides, grassland; seldom on farmland

#### Associated Plants:

- biannual and perennial ruderal weeds

#### Population in Germany:

- found everywhere; not endangered

#### Importance in Animal Ecology:

- host plant for 200 species

#### Use Harmful Effects:

- formerly used for dyes and fibres
- used as a tea and as a vegetable
- competes for water, light and nutrients
- spreads over large areas if not controlled

#### Integrated Control:

- intensive working of the soil and repeated stubble working
- regular mowing of grassland and focussed control of badly affected areas

## **Urtica urens - Stinging Nettle (small) - Kleine Brennnessel**

[https://en.wikipedia.org/wiki/Urtica\\_urens](https://en.wikipedia.org/wiki/Urtica_urens) [https://de.wikipedia.org/wiki/Kleine\\_Brennnessel](https://de.wikipedia.org/wiki/Kleine_Brennnessel)



Family: Nettle *Urticaceae*

Characteristics:

- roots ca. 80cm deep
- upright stem, unbranched or with single side-branches; up to 60cm tall
- small stalked cotyledons, curved at the tip, inverted heart-shaped
- round-oval leaves, regularly notched and lobed
- stinging hair on the stem and leaf
- flowers axillary, crown green
- seeds egg-shaped, flattened, yellow-brown

Life Cycle:

summer annual

Germination:

- early spring
- flat germinator

Flowers and fertilisation:

- June to September
- pollination by wind

Reproduction:

- by seeds (300 per plant)



#### Occurrence and Location:

- native worldwide
- on aerated, nutrient and nitrogen rich, warm clay and sandy soil
- particularly in vegetable cultures; also in summer annual root crops

#### Associated Plants:

other root crop weeds in nitrogen-rich and basic soils; in ruderal areas

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

associated species include many insect types, but to a considerably lesser extent than is the case for the large stinging nettle

#### Harmful Effects:

- competes for water, light and nutrient, thus lowering yields
- disseminated to the following crop

#### Integrated Control:

- turning the soil
- early seed bed preparation and mechanical control at time of seeding
- young plants can be controlled by mechanical and chemical means

## Vaccaria hispanica - Cow cockle

<https://en.wikipedia.org/wiki/Vaccaria>

Family: Carnation *Caryophyllaceae*



Characteristics:

- tap root up to 60cm deep
- upright bare stem, forked branched at the top; grows 30 to 65cm tall
- leaves pointed lanceolate, growing together at the base; upper leaves almost heart-shaped, bluish down, bare
- inflorescence much forked; petals pale pink
- seeds round, a little flattened, red-brown to matt black, close-grained dots

Life Cycle:

winter annual

Germination:

autumn

Flowers and Pollination:

- June
- self-pollination and by butterflies/moths

Reproduction:

- via seeds
- germinable after 2 years in the soil

#### Occurrence and Location:

- native to temperate zones of Europe and Asia
- in areas warm in summer
- on dry, chalk-rich, stony loam and clay soils; chalk indicator
- in ruderal areas, seldom on farmland
- in cereals and clover

#### Associated Plants:

cereal weed communities

#### Population in Germany:

has practically disappeared apart from isolated plants; in danger of extinction

#### Use:

- used as an ornamental plant
- contains medicinal substance
- used as a herb
- introduced in seed supplies, but the seeds do not collect greatly in the soil

#### Integrated Control:

control not necessary due to its rarity; protective measures desirable

## Valerianella carinata - Keeled-Fruited Corn Salad, European Corn Salad - Gekielter Feldsalat

<https://en.wikipedia.org/wiki/Valerianella> [https://de.wikipedia.org/wiki/Gekielter\\_Feldsalat](https://de.wikipedia.org/wiki/Gekielter_Feldsalat)



Family: Valerian *Valerianaceae*

Characteristics:

- forms small rosettes
- stem hexagonal, furrowed, lower limbs longer than the upper; height ca. 40cm
- cotyledons round to square, slightly emarginated (notched at the edge) at the end, stalked
- leaves longish, spatulate, almost bare
- flowers compact head-shaped
- fruit bare or with short hairs, long, quadrilateral, without a calyx seam
- there are various, common or rare, related species with similar ecology which can only be differentiated by means of their seeds
- seeds bare or with short hairs, longish, quadratic, without a calyx seam

Life Cycle:

summer and winter annual

Germination:

Autumn

Flowers:

April to May

Reproduction:

via seeds in very slender fruit

#### Occurrence and Location:

- native to mid and southern Europe, the Near East and North Africa
- warmth-loving
- on nutrient and base rich, mostly chalky loam or loessial soil
- on farmland, in vineyards and on the wayside

#### Associated Plants:

weed communities in basic and nutrient-rich areas

#### Population in Germany:

scattered to rare; not endangered

#### Importance in Animal Ecology:

little known

#### Harmful Effects:

small and not competitive

#### Integrated Control:

too rare for control to be worthwhile on farmland; protective measures desirable

## Valerianella rimosa - Lamb's Lettuce, Broad Fruited Corn Salad - Gefurchter Feldsalat

<https://en.wikipedia.org/wiki/Valerianella> [https://de.wikipedia.org/wiki/Gefurchter\\_Feldsalat](https://de.wikipedia.org/wiki/Gefurchter_Feldsalat)



Family: Valerian *Valerianaceae*

Characteristics:

- half-rosette plant
- stem with sharply-edged furrows; height up to 35cm
- cotyledons egg-shaped, stalked, soft
- lower leaves narrow, lanceolate, slightly dentate, the upper leaves hastate, often with teeth on the lower edge
- many multiply branched flowers; white, in terminal groups
- *Valerianella* species can only be identified with certainty by their seed vessel
- globular fruit; seeds globular to egg-shaped, bloated, smooth, with 3 to 5 indistinct teeth

Life Cycle:

winter and summer annual

Germination:

spring, infrequently in autumn

Flowers:

June to August

Reproduction:

via seeds

#### Occurrence and Location:

- native to middle and southern Europe; North Africa
- likes summer warmth
- on loam/clay, nutrient-rich, basic soil
- on farmland, in vineyards, on banks and roadsides
- in summer cereals

#### Associated Plants:

cereal weed communities on nutrient-rich basic soil

#### Population in Germany:

dispersed to rare; endangered

#### Importance in Animal Ecology:

little known

#### Harmful Effects:

small and weakly competitive

#### Integrated Control:

control unnecessary because of its rarity; protective measures desirable

## Veronica agrestis - Green Field-Speedwell - Acker-Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_agrestis](https://en.wikipedia.org/wiki/Veronica_agrestis) <https://de.wikipedia.org/wiki/Acker-Ehrenpreis>



Family: Plantain *Plantaginaceae*

Characteristics:

- roots 10-15cm deep
- plants grow lying on the ground to standing in an arch, with loose branches; 20cm high
- spatulate cotyledons
- leaves hairy, slightly curved, egg-shaped on short stems
- leaf cluster at the tip, long-stemmed single flowers, pale blue
- seeds egg-shaped to elliptical, arched in a key shape, obliquely wrinkled, yellow-brown

Life Cycle:

summer and winter annual

Germination:

- late winter to the middle of spring
- early to late autumn

Flowers and fertilisation:

- April to October
- self-pollination or by insects



#### Reproduction:

- via seeds (60 to 100 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the whole of Europe
- mostly on humus- and nitrogen-rich, slightly acid clay and sand-clay soil
- on farmland, in gardens and on fallow land

#### Associated Plants:

- grows together with almost all farmland weed communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

- associated species include aphids, cicadas, butterflies, etc.

#### Harmful Effects:

- individual plants are not strongly competitive
- seldom occurs in large quantities

#### Integrated Control:

- promotion of the growth of young plant cultures
- by mechanical means such as harrowing, hoeing; can be well controlled up to the 4-leaf state
- but as a rule control not necessary

## Veronica arvensis - Field Speedwell - Feld-Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_arvensis](https://en.wikipedia.org/wiki/Veronica_arvensis)

<https://de.wikipedia.org/wiki/Feld-Ehrenpreis>



Family: Plantain *Plantaginaceae*

Characteristics:

- roots 10 to 22cm deep
- stem either single or with unbranched side branches on the lower stem node, upright to spread;
- height up to 20cm
- small, rounded cotyledons
- leaves spatulate, hairy, notched
- leaved flower cluster with single blooms on a short stem attached to the leaf axil; azure blue
- seeds egg-shaped to elliptical, bowl-shaped, corrugated, laterally wrinkled, yellow

Life Cycle:

summer and winter annual

Germination:

predominantly early spring and late autumn

Flowers and fertilisation:

- March to September
- self-pollination and by insects (bees)

#### Reproduction:

- via seeds (ca. 50 to 100 per plant)
- germinable after more than 10 years in the ground

#### Occurrence and Location:

- native to the whole of Europe
- mostly on nutrient-rich, slightly acid loam and sandy-loam soil
- on farmland, in meadows and open places

#### Associated Plants:

- grow together with all other farmland weeds, in ruderal communities and on moist grassland

#### Population in Germany:

- widespread; not endangered

#### Importance in Animal Ecology:

- associated species include aphids, cicadas, butterflies, etc.

#### Harmful Effects:

- single plants not very competitive; in large numbers competitors for nutrients and water

#### Integrated Control:

- promote rapid development of young crops
- stubble working
- well controlled chemically and up to the 4-leaf stage easily controlled by mechanical means; patchy control in rape crops

## Veronica hederifolia - Ivy-Leaved Speedwell - Efeu-Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_hederifolia](https://en.wikipedia.org/wiki/Veronica_hederifolia) <https://de.wikipedia.org/wiki/Efeu-Ehrenpreis>



Family: Plantain *Plantaginaceae*

Characteristics:

- roots 10 to 20cm deep
- stem hairy, prostrate; ca. 30cm tall
- thick, oval, hairy-stalked cotyledons, not curved at the tip
- ivy-like leaves, (usually) tri-lobed, hairy
- leaved cluster with long-stalked single flowers; light blue, pale lilac to white
- seeds egg-shaped to round, arched in a bowl-shaped arch, laterally wrinkled, yellow to brown

Life Cycle:

summer and winter annual

Germination:

- autumn or spring
- germinates in the dark

Flowers and fertilisation:

- March to May
- mostly self-pollination

Reproduction:

- via seeds (200 to 300 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native all over the world
- often on nutrient- (nitrogen-)rich loamy and calciferous soil
- on farmland and in gardens, on roadsides
- in winter cereals and winter rape, also in maize, beets, legumes and potato

#### Associated Plants:

grows together with other farmland weeds and wayside communities

#### Population in Germany:

- widespread; not endangered

#### Importance in Animal Ecology:

associated species include aphids, cicadas, butterflies, etc.

#### Harmful Effects:

single plants not very competitive; in large numbers competitors for nutrients and water

#### Integrated Control:

- promote rapid development of young crops
- stubble working
- up to the 4-leaf stage easily controlled by harrow and hoeing

## Veronica persica - Winter Speedwell - Persischer Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_persica](https://en.wikipedia.org/wiki/Veronica_persica) [https://de.wikipedia.org/wiki/Persischer\\_Ehrenpreis](https://de.wikipedia.org/wiki/Persischer_Ehrenpreis)

Family: Plantain *Plantaginaceae*



Characteristics:

- roots 12 to 20cm deep
- single stem, lower part with lengthened, unbranched side-branches; mostly sprawling along the ground; height up to 40cm
- spatulate cotyledond
- leaves almost heart-shaped on short stalks, with a roughly sawn edge
- stem and leaves hairy
- cluster of single flowers on long stalks; crown light blue with a yellowish cleft
- seeds egg-shaped to round, curved in a bowl shape, laterally wrinkled, yellow-brown

Life Cycle:

summer and winter annual

Germination:

- spring or the whole year
- flat germinator

Flowers and fertilisation:

- February to September
- self-pollination and by insects

Reproduction:

- via seeds (50 to 200 per plant)
- germinable after more than 20 years in the ground

Occurrence and Location:

- introduced from the Near East, now native worldwide
- often on basic to weakly acid, nutrient- and humus rich loam
- found in all farm crops

Associated Plants:

other farmland weeds of basic soil areas and ruderal communities

Population in Germany: - nationwide

## Veronica polita - Grey Field Speedwell - Glänzender Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_polita](https://en.wikipedia.org/wiki/Veronica_polita) [https://de.wikipedia.org/wiki/Glänzender\\_Ehrenpreis](https://de.wikipedia.org/wiki/Glänzender_Ehrenpreis)

Family: Plantain *Plantaginaceae*



Characteristics:

- roots 12 to 17cm deep
- upright, prostrate or branched stem, diffusely haired; height 5 to 20cm
- cotyledons egg-shaped
- leaves on short stalks, roughly notched, dark green, shiny
- single flowers on short stalks, sky blue with darker stripes
- seeds egg-shaped to round, arched in a bowl shape, laterally wrinkled yellow to brown

Life Cycle:

summer and winter annual

Germination:

- late winter to mid-spring and early to late autumn
- flat germinator

Flowers and fertilisation:

- March to September
- mostly self-pollination

Reproduction:

- via seeds (ca. 400 per plant)
- germinable after 20 to 40 years in the ground



#### Occurrence and Location:

- native to the warmer regions of Europe
- on loose, carbonate-containing soil
- on farmland, meadows, vineyards, gardens

#### Associated Plants:

in cereal and root crop weed communities areas of basic soil

#### Population in Germany:

widespread in fertile areas in central Germany, otherwise scattered; not endangered

#### Importance in Animal Ecology:

associated species include aphids, cicadas, butterflies, etc.

#### Harmful Effects:

seldom occurs in large numbers, single plants are weakly competitive, does little harm

#### Integrated Control:

control generally not necessary

## Veronica praecox - Breckland Speedwell - Früher Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_\(plant\)](https://en.wikipedia.org/wiki/Veronica_(plant)) [https://de.wikipedia.org/wiki/Früher\\_Ehrenpreis](https://de.wikipedia.org/wiki/Früher_Ehrenpreis)



Family: Plantain *Plantaginaceae*

Characteristics:

- primary root fusiform, thin; side-roots branched into small fibre-roots; root depth 12 to 17cm
- plants grow lying on the ground to standing in an arch, branched at the base and almost bare, the upper part glandular hairy; height 5 to 10cm
- cotyledons spatulate
- leaves bare, the lower leaves stalked, the upper directly on the stem, wide and notched
- flowers on long stalks in loose, individual cluster; azure blue
- seeds oval, trough-shaped, reverse side smooth, light ochre

Life Cycle:

summer and winter annual

Germination:

autumn and spring

Flowers:

autumn and spring

Reproduction:

via seeds

#### Occurrence and Location:

- native to the whole of Europe
- mostly on warm, nutrient-rich, chalky sandy and loam soils
- on farmland, meadows, and open places

#### Associated Plants:

- all other farmland weeds

#### Population in Germany:

- widespread in border and hilly areas, otherwise decreasing rapidly; endangered in some regions

#### Importance in Animal Ecology:

associated species include aphids, cicadas, butterflies, etc.

#### Harmful Effects:

seldom occurs in large quantities; single plants are weakly competitive; thus causes little damage

#### Integrated Control:

generally no control required

## Veronica triphyllos - Finger Speedwell - Dreiteiliger Ehrenpreis

[https://en.wikipedia.org/wiki/Veronica\\_triphyllous](https://en.wikipedia.org/wiki/Veronica_triphyllous) [https://www.gardenia.org/wiki/Dreiteiliger\\_Ehrenpreis](https://www.gardenia.org/wiki/Dreiteiliger_Ehrenpreis)



Family: Plantain *Plantaginaceae*

Characteristics:

- roots 12 to 17cm deep
- single stem, often branched in the lower part, with short, downy hairs; 15cm tall
- cotyledons egg-shaped
- leaves directly on the stem, sparsely haired, with deep indentations, with five lobes
- leaved cluster with single flowers on a short stalk from the leaf axil, fruit stalk erect, bent upwards; crown leaves azure-blue
- seeds egg-shaped to elliptical, in a bowl-shaped arch, laterally wrinkled, dark brown

Life Cycle:

summer and winter annual

Germination:

- autumn and spring
- cold germinator

Flowers and fertilisation:

- March to May
- self-pollination and by insects

#### Reproduction:

- via seeds (100 to 200 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to the whole of Europe
- warm-loving
- on nutrient-rich, basic to slightly acid, sandy or sandy-loam soil, sand indicator; drought-resistant

#### Associated Plants:

grows with other cereal weed communities and pioneer plants

#### Population in Germany:

population greatly reduced in some areas; not endangered

#### Importance in Animal Ecology:

associated species include aphids, cicadas, butterflies, etc.

#### Integrated Control:

control not usually necessary

## Vicia angustifolia - Common vetch

[https://en.wikipedia.org/wiki/Vicia\\_sativa](https://en.wikipedia.org/wiki/Vicia_sativa)

Family: Legume *Fabaceae*



Characteristics:

- roots up to 40cm deep
- climbing-rambling growth, upright but spread; grows up to 60cm tall
- cotyledons are under the surface of the soil (in the seed pod)
- leaves feathered in 3 to 8 pairs, very slender
- single or double blooms on a short stalk from the leaf axil; purple petals
- black, bare, upstanding pods; round, dark brown to black seeds

Life Cycle:

annual to biennial

Germination:

autumn and spring

Flowers and Pollination:

- May to July
- self-pollination and by insects

Reproduction:

via seeds (ca. 100 per plant)

#### Occurrence and Location:

- originally native to the Mediterranean area, but imported to Western Europe as a feed plant
- particularly on nutrient-rich, loose loam and sandy soil; largely indifferent to soil acidity
- in meadows and on paths, on wasteland, seldom on farmland
- in cereals

#### Associated Plants:

almost all farmland weed communities, and those found in rock outcrops and slack

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, gall midge, cicada, beetle, weevil, seed beetle, nematode; pollen and nectar plant for wild bees

#### Harmful Effects:

harmful when it overgrows cereal crops

#### Integrated Control:

- only shallow stubble working and sowing a catch crop without ploughing
- early sowing of summer crops
- can be combed out of winter wheat with a harrow up to the time it blooms

## Vicia cracca - Bird vetch

[https://en.wikipedia.org/wiki/Vicia\\_cracca](https://en.wikipedia.org/wiki/Vicia_cracca)



Family: Legume *Fabaceae*

Characteristics:

- tap root up to 80cm deep
- angular, climbing, branched stem, sometimes with hairs; ground offshoots up to 150cm long
- the cotyledons are under the soil (in the seed pod)
- feathered leaves in 6 to 15 pairs with a tendril on the end
- inflorescens with many blooms on a long stalk; blue-violet to purple crown
- spherical seeds of varying colour – green, brown, black

Life Cycle:

perennial

Germination:

- predominantly in spring
- from a depth of up to 15cm

Flowers and Pollination:

- June to August
- pollination by insect (bee meadow)

Reproduction:

- via seeds (150 to 300 per plant)
- germinable after over 5 years in the soil
- via rhizomes



#### Occurrence and Location:

- native to Europe and Asia
- on fresh loam and clay soil
- in meadows, occasionally in cereal crops

#### Associated Plants:

- farmland weed communities in extensive areas and meadowland communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, gall midge, cicada, beetle, weevil, seed beetle, nematode; pollen and nectar plant for wild bees

#### Harmful Effects:

- reduction in yield and difficulty in harvest because of its climbing habit
- harvest difficulty through higher grain moisture, also in stored cereals

#### Integrated Control:

- shallow stubble working and sowing catch crops without ploughing
- early sowing of summer crops
- can be combed out of winter wheat with a harrow up to the time it blooms

## Vicia hirsuta - Common or hairy vetch

[https://en.wikipedia.org/wiki/Vicia\\_hirsuta](https://en.wikipedia.org/wiki/Vicia_hirsuta)

Family: Legume *Fabaceae*

Characteristics:



- roots up to 60cm deep
- square, climbing, branched, hairy stem; grows up to 70cm tall
- cotyledons are under the surface of the soil (in the seed pod)
- initial leaves in one or two pairs, feathered, later leaves in 5 to 11 pairs and feathered with a tendril at the end
- 3 to 6 flowers, in a secundiflorous inflorescence; petals bluish-white
- mostly 2 seeds in each hairy pod; seeds roundish, shiny, smooth, of various colours, spotted

Life Cycle:

annual, sometimes persistent

Germination:

predominantly in autumn

Flowers and Pollination:

- May to September
- self-pollination and by insects

Reproduction:

- via seeds (100 to 300 per plant)
- germinable after more than 25 years in the soil

#### Occurrence and Location:

- native to all Europe
- on sandy, loamy often acidic, poorly aerated soil
- on farmland, on paths and wasteland
- in cereals

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, cicada, beetle, weevil, seed beetle, nematode; important for numerous pollen and nectar collecting wild bees

#### Harmful Effects:

hampers harvest and causes increased grain moisture because of its climbing habit

#### Integrated Control:

- only shallow working of stubble and sowing catch-crops without ploughing
- early sowing of summer crops
- can be removed from winter wheat with the harrow up until it blooms

## Vicia sativa - Common vetch

[https://en.wikipedia.org/wiki/Vicia\\_sativa](https://en.wikipedia.org/wiki/Vicia_sativa)

Family: Legume *Fabaceae*

Characteristics:



- roots up to 80cm deep
- climbing-twining growth, square stem; grows up to 80cm tall
- cotyledons are under the surface of the soil (in the seed pod)
- leaves in one or two pairs, feathered, the first without a tendril, the following leaves with a simple one; the small leaves are elongated wedge-shaped
- flowers on short stalks in pairs, occasionally with more blooms; crown bluish and purple
- seeds spherical of various shades of light brown to black, yellowish white

Life Cycle:

summer, rarely winter, annual

Germination:

early to mid spring

Flowers and Pollination:

April to June

- pollination by insects

Reproduction:

- via seeds (100 to 200 per plant)
- germinable after more than 30 years in the soil

#### Occurrence and Location:

- invasive species, appears inconsistently
- requires light and warmth to some extent
- on fresh, nutrient-rich loam
- on farmland and in meadows, on wasteland

#### Associated Plants:

farmland weed and ruderal communities

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, gall midge, cicada, beetle, weevil, seed beetle, nematode; pollen and nectar plant for wild bees

#### Harmful Effects:

hampers harvest and causes increased grain moisture because of its climbing habit

#### Integrated Control:

- only shallow working of stubble and sowing catch-crops without ploughing
- early sowing of summer crops
- can be removed from winter wheat with the harrow up until it blooms

## Vicia tetrasperma - Lentil vetch

[https://en.wikipedia.org/wiki/Vicia\\_tetrasperma](https://en.wikipedia.org/wiki/Vicia_tetrasperma)

Family: Legume *Fabaceae*

Characteristics:



- roots up to 70cm deep
- prostrate growth with a thin, bare, rambling square stem; grows up to 50cm tall
- cotyledons are under the surface of the soil (in the seed pod)
- first leaves oval, feathered, in pairs later leaves feathered in 3 to 4 pairs, feathers slender with a narrow tip with a tendril at the end
- inflorescence with 1 or 2, sometimes 3, blooms; bluish-white on long stalks
- the pod contains four seeds which are almost spherical and greenish to dark brown

Life Cycle:

annual and persistent

Germination:

predominantly in autumn, but also in spring

Flowers and Pollination:

- May to July
- pollination by insects

Reproduction:

- via seeds (200 to 300 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to Europe, Western Asia and North Africa
- somewhat warmth-loving
- on moderately fresh, chalk-poor, somewhat nutrient-rich sandy and clay soil
- on farmland and in meadows, on paths
- mostly in winter cereals

#### Associated Plants:

communities of farmland, ruderal, pioneer and meadow weeds

#### Population in Germany:

widespread; not endangered

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, gall midge, cicada, beetle, weevil, seed beetle, nematode; pollen and nectar plant for wild bees

#### Harmful Effects:

harmful when it overgrows cereal crops

#### Integrated Control:

- only shallow stubble working and sowing a catch crop without ploughing
- early sowing of summer crops
- can be combed out of winter wheat with a harrow up to the time it blooms

## **Vicia villosa - Hairy vetch**

[https://en.wikipedia.org/wiki/Vicia\\_villosa](https://en.wikipedia.org/wiki/Vicia_villosa)

Family: Legume *Fabaceae*



Characteristics:

- roots up to 80cm deep
- the cotyledons are under the soil (in the seed pod)
- 5 to 10 pairs of feathery leaves, densely hairy; strong tendrils at the tip
- strong, hairy, branched stem up to 120cm tall
- petals mostly violet, sometimes white (two-coloured) in ragged clusters
- seeds spherical to flat, dark brown to black, velvety

Life Cycle:

annual to biennial

Germination:

autumn and spring

Flowers and Pollination:

- May to August
- pollination by insects

Reproduction:

- via seeds (80 to 300 per plant)
- germinable for only a short time in the soil



#### Occurrence and Location:

- introduced from the Mediterranean area as a feed crop
- on warm, moderately dry, nutrient-free sandy soil and loose loam
- on farmland, beside paths
- in cereals

#### Associated Plants:

farmland weed and ruderal communities

#### Population in Germany:

scattered; not endangered

#### Importance in Animal Ecology:

host plant for leaf miner, aphid, gall midge, cicada, beetle, weevil, seed beetle, nematode; pollen and nectar plant for wild bees

#### Harmful Effects:

- harvest difficulty and reduced yield through higher grain moisture, also in stored cereals
- impurity in seed supplies

#### Integrated Control:

- shallow stubble working
- sowing catch crops without turning the soil
- early sowing of summer crops
- can be combed out of winter wheat

## **Viola arvensis - Field pansy**

[https://en.wikipedia.org/wiki/Viola\\_arvensis](https://en.wikipedia.org/wiki/Viola_arvensis)

Family: Violet *Violaceae*

Characteristics:



- root up to 45cm deep
- stem prostrate to upright, branched; grows up to 80cm tall
- cotyledons broad, spatulate, unbroken edge with a notched point, on a short stalk
- leaves notched on the rim, lower leaves on longer stalks, roundish to ovate-lanceolate, stipule deeply pinnatifid

Life Cycle:

winter annual; sometimes also in summer

Germination:

- in autumn, sometimes also in spring
- flat germinator

Flowers and Pollination:

- April to October
- predominantly self-pollination

Reproduction:

- via seeds (150 to 2,000 per plant)
- germinable after over 20 years in the soil

#### Occurrence and Location:

- native to the whole of Europe
- on fresh to moderately dry, nutrient- and base-rich, chalk-poor to moderately acid loam or sandy soil
- on farmland and paths, on wasteland
- in winter cereals, frequently also in rape, summer cereals, sugar beet and maize

#### Associated Plants:

farmland weed and ruderal weed communities

#### Population in Germany:

common; not endangered

#### Importance in Animal Ecology:

host plant for weevil, aphid, thrips, cicada, sawfly, butterfly, gall midge, nematode

#### Use and Harmful Effects:

- formerly used as a medicinal plant
- the green parts of the plant cause difficulty in harvesting and a higher degree of grain moisture, especially in stored cereals
- carrier of rattle diseases in potato
- difficult to control with herbicides in maize and rape

#### Integrated Control:

- careful seed bed preparation
- promotion of rapid development of young crops
- well controlled up to the 4-6 leaf stage by mechanical means (harrow, currycomb)
- certain control with herbicides in cereals

## **Viola tricolor - Heart's ease, field pansy**

[https://en.wikipedia.org/wiki/Viola\\_tricolor](https://en.wikipedia.org/wiki/Viola_tricolor)

Family: Violet *Violaceae*



Characteristics:

- roots up to 45cm deep
- growth loosely spread to upright; hollow stem; grows up to 40cm tall
- cotyledons broad spatulate with an unbroken edge and notched top; on a short stalk
- leaves notched on the edge, the lower leaves with long stalks, round to ovate-lanceolate, stipule deeply pinnatifid
- single flowers in bunches on a long stalk; three-coloured crown – deep yellow, white and bluish violet

Life Cycle:

winter annual, sometimes also in summer

Germination:

- all year round
- flat germinator

Flowers and Pollination:

- April to October
- self- and cross-pollination

Reproduction:

- via seeds (400 to 2,500 per plant)
- germinable after more than 10 years in the soil

#### Occurrence and Location:

- native to all Europe
- on fresh, nutrient- and humus-rich, loam and sandy soil
- on farmland and in meadows, by the wayside
- particularly in winter cereals, rape, summer cereals, sugar beet and maize
- is not as common as *Viola arvensis*

#### Associated Plants:

- farmland and meadow weed communities

#### Population in Germany:

scattered in the north, rare in the south; not endangered

#### Importance in Animal Ecology:

host plant for weevil, aphid, thrips, cicada, sawfly, butterfly, gall midge, nematode

#### Harmful Effects:

- needs gaps in the crop to develop strongly, but seeds can ripen in undergrowth and the weeds can then grow in the next crop
- green parts of the plant can cause problems with harvest and increased grain moisture, especially when crops are stored
- difficult to control with herbicides in maize and rape
- carrier of rattle diseases in potato

#### Integrated Control:

- promotion of rapid development of young crops
- well controlled up to the 4-6 leaf stage by mechanical means (harrow, currycomb)
- certain control with herbicides in cereals

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### **Author Manfred G. Raupp**

Born in Staffort (Germany) in 1941, training in agriculture was followed by studies at the University of Applied Sciences in Nürtingen and the University of Hohenheim, degrees in agricultural engineering, agricultural sciences, agricultural sociology and doctorate in economics.

After 3 years in a marketing agency spent 25 years as manager in the chemical/ pharmaceutical industry in Frankfurt and Basel. Responsibility first for Germany, later for Central and Eastern Europe and Central Asia. From 1990 on additional teaching assignments at several Eastern European universities for "research management". Appointed professor in Prague (Czech Republic) and Chester (England). 1999 - Foundation of MADORA GMBH Lörrach with research assignments in life sciences for companies and authorities. Registered EU expert in biological research issues.

Civic engagement in the Erasmus student exchange and international student exchange with schools in Lörrach's 8 partner cities.

Returned to Stutensee-Staffort with his wife Dorothee in 2018. Founder member of the senior advisory board of Stutensee 2019. Involved in the topic of local mobility of senior citizens.