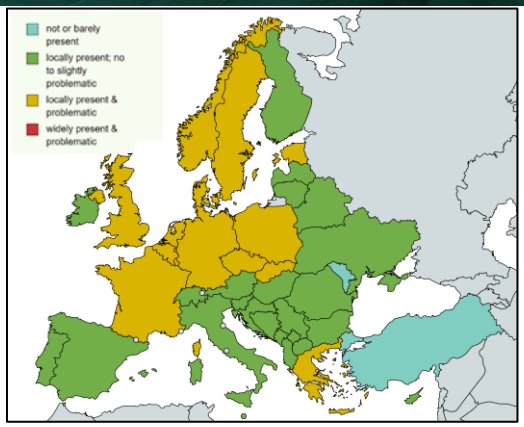
Weed Fact Sheet
Tripleurospermum inodorum

Tripleurospermum inodorum (Scentless mayweed) is a broad-leaved weed and member of the Asteraceae (daisy) family,

T. inodorum has become naturalised well beyond its native range of Europe and Western Asia and can now also be found across Australasia, North America, parts of South America and Japan where it infests a range of crops.



Weed Biology

EPPO-code	MATIN
Life cycle	Annual , biennial or short-lived perennial
Germination window	All year round, with Autumn and Spring peaks. Requires repeated light exposure over several days to germinate. Later germinators can overwinter.
Max generation/year	1
Flowering	June - October
Seed set	August - October
Occurrence in crop or cultivation system	In-crop, field margins, headlands,waste areas, pastures.
Yield loss	Competitive in winter wheat, winter oilseed rape and spring crops. 12.5 plants/m^2 reported to cause a 5% yield loss in conventional cereal farming
Preferred environmental conditions	Primarily lowland species – can grow up to 500m altitude. Warm, fertile heavy soils with pH >4.5

Ploidy	Diploid (2n=18) or Tetraploid (2n=36)
Pollination	Cross-pollination
Pollen dispersal	By insects
Fecundity *(seeds/plant)*	10,000-200,000
Seed shattering	May still be producing seed following crop harvest
Seed dispersal	Water, animals, agricultural activities
Distance of seed dispersal	Naturally seeds fall to ground but can be spread widely by use of agricultural machinery during harvest and hay/straw transport
Dormancy	Seeds non-dormant when shed, but may become dormant if wet or buried in deep soils.
Seed bank longevity	>5 years
Seed decline per year	43% annually with cultivations (BASF)

Impact of Agronomic Measures on Occurrence and Spread

Germination & dormancy

Causes problems in both winter and spring crops due to its extended germination period.

Due to germination requirement of repeated light exposure, scentless mayweed is shallow germinating. Agricultural practices that result in accumulation of seeds in surface soil layers may aid spread of *T. inodorum.*

Soil cultivations

To prevent seeding, practice surface cultivations in spring and summer.

Crop Sowing date and Seed set

Delaying spring crop drilling can benefit *T. inodorum* populations as warmer temperatures can promote weed emergence prior to crop emergence. This may provide opportunity for chemical control of the weed.

Crop rotation and competitiveness

Occurence and spread favoured by both winter and spring sown crops, especially wheat and oilseed rape.

Inclusion of root crops in rotation can aid management by disrupting the dense root system of *T. inodorum.*

Crop density is a large factor affecting seed production and crop competitiveness – in winter wheat an increase of crop density from 60-195 plants/m2 has been reported to halve scentless mayweed seed production.

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Identification Tips

- Flowers greatly resemble the common daisy (*Bellis perennis*) with yellow disk flowers at center and white outer ray flowers.
- Scentless mayweed is very similar to scented mayweed (EPPO - MATCH). By cutting the yellow central flower discs in half you can observe that the receptable of scented mayweed is hollow, whilst the receptacle of scentless mayweed is solid, forming a useful ID tool in the flowering stage (they are much harder to tell apart vegetatively).

SOLID MATIN RECEPTACLE, ADAS

HOLLOW MATCH RECEPTACLE, ADAS

Observed Resistance in Europe

- All reported resistance cases have been in Europe and are to HRAC Group 2: Acetolactate Synthase (ALS) inhibitors (especially sulfonylureas). In total resistance has been reported in the Czech Republic, Denmark, France, Germany, Norway, Poland, Sweden and UK.
- Resistance reported predominantly in wheat crops.
- Cases may be underreported due to the difficulty associated with collecting seed samples and the lack of genetic characterization of many populations.
- A 2020 study indicated a scentless mayweed population with reduced sensitivity to metazachlor (HRAC Group 15: VLCFA synthesis inhibitors), indicating that it may be important to monitor use of this herbicide.

Target-site resistance (TSR)

- A Proline-197-Glutamine mutation has been confrimed in a UK *T. inodorum* population.

Non Target-Site Resistance (NTSR)

- None reported

Management practices

Management can be a challenge due to the diverse biology (e.g. optimal management for winter annuals may not be effective against summer annuals or perennials) and high seed production of scentless mayweed. Management should aim to control scentless mayweed before it flowers and sets seed.

Chemical

- A wide range of herbicides can be used. However, due to the extended period of emergence of scented mayweed, repeated treatments are often required for good control.
- In the case of ALS resistance, suitable non-ALS post-emergent alternatives include clopyralid (HRAC Group 4: Auxin mimics) and metamitron (HRAC Group 5). Rotating modes of action can reduce resistance risk to ALS herbicides as well as integrating non-chemical control measures. Always check crop compatibility and application timings on the product labels first.

Non-chemical

- A range of management methods reported including: tillage in late autumn and early spring prior to crop drilling (preferably in hot dry days to dry out the root system), inclusion of competitive root crops in rotations, and increasing crop density. When the crop is cut and threshed-off site it can reduce the dispersal of seeds attributed to combine harvesters. Strict hygiene of vehicles and machinery.
- Mechanical measures including mowing, swathing and hand weeding prior to flowering of scentless mayweed can help prevent seeding.
- Whilst seedlings have shown good tolerance to flame weeding, steaming at 60°C can be effective at killing them.

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HRAC Europe

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