



NAPPO

ORGANISATION NORD-AMERICAINE POUR LA PROTECTION DES PLANTES
NORTH AMERICAN PLANT PROTECTION ORGANIZATION
ORGANIZACION NORTEAMERICANA DE PROTECCION A LAS PLANTAS

PEST FACT SHEET
***Matricaria inodora* L.**

***Tripleurospermum perforata* (Merat) M. Lainz**

Originating from Europe as an escapee from ballast and perhaps intentionally imported as an ornamental, *Tripleurospermum perforata* (= *Matricaria inodora*) is an annual or biennial (occasionally a short-lived perennial) that is wholly or almost scentless. It reproduces entirely by seed and flowers from May to October, becoming a problem in cultivated fields when fall rosettes are not destroyed with spring tillage before planting. Found in all crops, particularly cereals, studies on samples of lentil, mustard and wheat grain suggest that contaminated grain may be an important dispersal mechanism for this weed. Present in Canada and the northern US, with the exception of Alabama, there are no records of this weed in Mexico.

Preferred Scientific Name *Tripleurospermum perforata* (Merat) M. Lainz

Other Scientific Names *Chamomilla inodora* (L.) Gilib.
Chrysanthemum inodorum L.
Matricaria chamomilla L., sensu 1753
***Matricaria inodora* L.**, nom. illeg.
Matricaria maritima auct. pro parte
Matricaria maritima L. var. *agrestis* (Knaf) Wilmott
Matricaria maritima L. ssp. *inodora* (L.) Clapham
Matricaria perforata Mérat
Tripleurospermum inodorum (L.) Schultz-Bip. nom. illeg.
Tripleurospermum maritimum auct. pro parte

Note that the nomenclature of this species is “historically complex” and as recently as 1991, Woo *et al.* chose to use the taxonomic treatment by Rauschert (1974) that assigns the name of *Matricaria perforata*. However, for the purposes of this Fact Sheet, the name *Tripleurospermum perforata* (Merat) M. Lainz has been selected using the USDA Plants Database (USDA, NRCS 2002) as a standard.

Common Names English - scentless chamomile, English wild chamomile, false chamomile, inland scentless mayweed, scentless mayweed, barnyard daisy, corn feverfew, wild chamomile, false mayweed, bachelor’s button
French - matricaire inodore

Habitat

As *M. perforata* (Hanf 1983) scentless chamomile is the most widespread weed of the Chamomile type on arable land in Europe. It is found in all crops, particularly cereals, on ruderal sites, paths, etc., pastures, hayfields, cultivated fields (Anon. 2000) and particularly along roadsides disturbed by construction but may also be found in association with many common agricultural weed species (usually as a minor component only (Thomas and Wise 1987, 1988)). It is found mainly on soils that tend to be more or less acid and well supplied with water and nutrients, preferring a moderate degree of warmth to thrive.

Studies by Woo (1989) suggest that, since scentless chamomile is a relatively recent introduction to the Prairie region of Canada, it is influenced by climactic conditions during the year of growth and has not adapted to long-term environmental conditions. In the Prairie region it is associated with low-lying areas that are poorly drained and difficult to cultivate in spring (Kessler 1989) and soil textures vary from clay to fine sandy loam.

Distribution List

Asia

- Azerbaijan (USDA, ARS 2003)
- China (USDA, ARS 2003)
 - Xinjiang (USDA, ARS 2003)
- Georgia (USDA, ARS 2003)
- Kazakhstan (USDA, ARS 2003)
- Russian Federation (USDA, ARS 2003)
 - Ciscaucasia (USDA, ARS 2003)
 - Dagestan (USDA, ARS 2003)
 - Western Siberia (USDA, ARS 2003)
- Turkey (USDA, ARS 2003)

Europe

- Albania (USDA, ARS 2003)
- Austria (USDA, ARS 2003)
- Belarus (USDA, ARS 2003)
- Belgium (USDA, ARS 2003)
- Bulgaria (USDA, ARS 2003)
- Czechoslovakia (as *T. maritimum*, Holm *et al.* 1979; USDA, ARS 2003)
- Denmark (USDA, ARS 2003)
- England (as *T. maritimum*, Holm *et al.* 1979)
- Estonia (USDA, ARS 2003)
- Finland (as *T. maritimum*, Holm *et al.* 1979; USDA, ARS 2003)
- France (USDA, ARS 2003)
- Germany (as *T. inodorum*, Holm *et al.* 1979, USDA, ARS 2003)
- Greece (USDA, ARS 2003)
- Hungary (as *T. inodorum*, Holm *et al.* 1979, USDA, ARS 2003)
- Ireland (USDA, ARS 2003)

Italy (USDA, ARS 2003)
Latvia (USDA, ARS 2003)
Lithuania (USDA, ARS 2003)
Moldova (USDA, ARS 2003)
Netherlands (USDA, ARS 2003)
Norway (USDA, ARS 2003)
Poland (USDA, ARS 2003)
Portugal (USDA, ARS 2003)
Romania (USDA, ARS 2003)
Soviet Union (as *T. maritimum*, Holm *et al.* 1979)
Spain (USDA, ARS 2003)
Sweden (as *T. maritimum*, Holm *et al.* 1979)
Switzerland (USDA, ARS 2003)
Ukraine (USDA, ARS 2003)
United Kingdom (USDA, ARS 2003)
Yugoslavia (USDA, ARS 2003)

North America

Canada (Woo *et al.* 1991)

Throughout Canada (Scoggan 1979)

USA (Woo *et al.* 1991)

With some exceptions, northern half of the US (incl. Alaska) (USDA, NRCS 2002).

Distribution Notes

Aside from the extensive European and Asian distribution noted above, scentless chamomile is widely naturalized elsewhere in the world (USDA, ARS 2003). It is found throughout Europe, but mainly in the north and is rare or absent in the warmer Mediterranean region. It is distributed throughout Canada from the southern region of Vancouver Island to the eastern shores of Newfoundland (Scoggan 1979) and in the US scentless chamomile is distributed in the Northwestern, Great Plains, North Central and Northeastern regions, and Alaska (Woo *et al.* 1991) with the most southerly locations being in Alabama (USDA, NRCS 2002). The plant has become established in Aspen, Breckenridge, and Vail as well as other mountainous regions in Colorado (CWMA 2000).

No records have been located for this weed in Mexico.

Biology and Ecology

This plant germinates readily in the spring and fall, forming a dense fibrous root system that spreads rapidly during wet periods (Anon 2000). As *Matricaria perforata*, it flowers from May to October (Hanf 1983) and generally germinates only when lightly buried. It is a prolific seed producer, setting up to 10,000-200,000 seeds per plant. Potential seed production in a dense stand of this plant has been estimated between 0.3 and 1.8 million m⁻² which according to Woo (1989) is also the productive capability of a single plant growing under ideal conditions. Seeds are somewhat bouyant and reports suggest that they may be transported by runoff (Mitich

1976). Up to 26% of seeds fed to cattle remained viable in dung (Ridley 1930) suggesting another potential pathway for dispersal.

The plant depends entirely on seeds for reproduction, surviving as an annual, biennial or even a short-lived perennial. If seeds germinate in the fall with sufficient time for some development (approximately a month), seedlings will resume growth the following spring. The plants are termed “hemicryptophytes”, dying back to the caudex for overwintering.

Economic Impact

Holm *et al.* (1977) report this weed (as *Tipleurospermum maritimum*) to be a “principal weed of wheat in one or more countries of northern Europe or of New Zealand”. Douglas (1989) demonstrated that spring-emerging scentless chamomile reduced yields of spring-emerging wheat in Saskatchewan by up to 55% in cool, wet years at a density of 25 plants m². Fall-emerging weeds reduced spring wheat yields approximately 20% in a “drought year” and 60% in a “moderately moist year”. When in winter wheat, the same density of the spring-emerging weed caused a “slight reduction of yield only in a cool, moist year”. Similar research done in North Dakota demonstrated that winter annuals at a density of 1.6 plants m² reduced spring wheat yield by more than 40% but losses to summer annuals were considerably less (Hoag *et al.* 1980). A single plant, growing without competition, may cover an area in excess of 1 m² and spring-emerged seedlings will form a very dense carpet in low-lying areas and limit the growth of seedlings of other species (Woo *et al.* 1991).

Studies in Saskatchewan (Kessler 1989) on samples of lentil, mustard and wheat grain suggest that contaminated grain may be an important dispersal mechanism for this weed.

Scentless chamomile is not known to be palatable to livestock and nutrient analysis indicates that it has poor feed value (Stahlman and Hoag 1974). It can however, cause blistering of muzzles, irritation of mucous membranes, and skin rashes in livestock (CWMA 2000).

Morphology

Scentless chamomile grows to a height of 15 - 100 cm and is wholly or almost scentless. Erect, hairless, branched 20-74 cm high. The stem is erect, branched only from the middle, upwards. Leaves are dark green, 2.5 to 7.5 cm long, alternate, glabrous, 2-3 pinnate, with fine, narrow, linear, spiny tipped segments. Flower heads are large, terminal and arranged singly on stems and branches. The involucre bracts are oblong-ovate and almost single-rowed. Disc florets are golden yellow and ray florets are white, 12-20 and spreading. The seeds are gray to black (often dark brown), 1.5 mm long, 3-angled and grooved, possessing some dormancy.

The plant has a dense, extensively branched fibrous root system (a taproot with extensive secondary roots) which firmly anchors the plant to the ground. With decreased densities and reduced competition, plants become significantly branched while plants in dense stands exhibit little or no basal branching. Often a single plant will produce as much seed as a group of plants occupying the same space.

Control

Cultural Control

Frequent shallow tillage in fall and spring will aid in the destruction of seedlings especially if shallow tillage is performed on hot dry days to prevent re-establishment of plants that may have a portion of the root system remaining in moist soil. Even small plants may have an extensive fibrous root system which holds a large amount of soil. A cultivator with mounted harrows has been the most effective in killing the seedlings. However, when the soil is moist, many plants will re-establish. Larger plants which are uprooted but which have considerable soil on their roots can lie dormant for long periods and re-establish if moisture becomes available later on.

Seeding an infested area to bromegrass and leaving it undisturbed for several years will reduce the infestation but this weed will actually invade bromegrass stands which are severely trampled by cattle (Lobay 1964). Mowing is also effective but it must be carried out early enough to prevent seed production and at least two mowings will be necessary in most years. In grain fields, infested areas should be swathed and harvested separately to avoid spreading seed onto non infested areas. (Anon 2000)

Chemical Control

T. perforata can be controlled in field crops using a variety of commercial products which contain bromoxynil or clopyralid (Anon. 1990). In general, herbicide rates must be higher than those applied to crop land if used on large plants found growing in pastures and roadsides.

Recommendations for the application of herbicide should be obtained for local conditions and within the guidelines of applicable regulations. Below are some applications as supplied by Saskatchewan Agriculture and Food, Regina, Saskatchewan (Anon 2000).

Summerfallow and non cropland

1. Tordon 22K (picloram) Seedlings - 0.6-0.9 L/ha in 165-200 L/ha of water.
Established Plants - 1.1 L/ha in 165-200 L of water/ha.
2. Banvel LH (dicamba) at 1.5 L/ha in 100 L/ha of water will control seedlings.
3. Mecoprop (MCP) at 11-16.8 L/ha in 100 L/ha of water will control seedlings.
4. Roundup (glyphosate) at 2.5 L/ha will control established plants when applied up to the bud of early flower stage.

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