

FIELD BINDWEED

Convolvulus arvensis L.

Family: *Convolvulaceae* (Morning-glory).

Other Scientific Names: None.

Other Common Names: Small-flowered morning glory, wild morning glory, perennial morning glory, creeping jenny.

Legal Status: Not categorized.



Identification

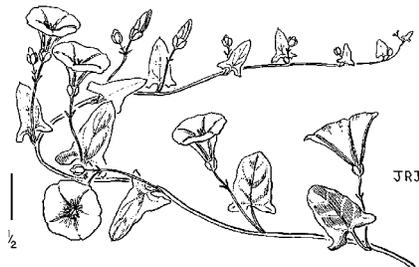
Growth form: Perennial forb.

Flower: Flowers are funnel shaped, up to 2.5 cm across, white to pink, and borne singly or in pairs on long stalks from the axils of the leaves with 2 tiny bracts.

Seeds/Fruit: Conical capsules contain ovoid to pear-shaped seeds. The dull, brownish grey seeds are 3-angled with 1 rounded and 2 flattened sides.

Leaves: Leaves are alternate, simple, glabrous to finely pubescent, more or less arrowhead-shaped.

Stems: Slender, twining stems are prostrate, up to 3 m long, often climbing or forming dense mats.



Roots: The root system and rhizomes are extensive, whitish, cord-like, and fleshy. The primary root is a taproot from which lateral roots develop (Peterson 1998).

Seedling: Seed leaves (cotyledons) are spatulate and broad and indented at the tip.

Similar Species

Exotics: Black bindweed (*Polygonum convolvulus*) in the knotweed family (*Polygonaceae*) is similar but infrequent in southern BC and rare northward. Hedge bindweed (*Convolvulus sepium*) has larger leaves and flowers. This species is native to eastern North America but has been introduced into the province (Douglas et al. 1998).

Natives: None known.

Impacts

Agricultural: Can reduce crop yields and its twining stems can interfere with harvesting and landscape plantings. It also acts as an alternate host for some crop diseases.

Ecological: Field bindweed can be a threat to native plant communities because of its broad range of

environmental tolerances (Peterson 1998). Detached roots and rhizomes can produce large numbers of new shoots. The plant produces a large number of seeds that remain viable in the soil for long periods.

Human: No information available.

Habitat and Ecology

General requirements: Field bindweed grows in coastal and low- to mid-elevation regions of BC's Interior, where it is found on cultivated lands, roadsides, and disturbed habitats, especially on disturbed ground. Field bindweed cannot tolerate shade and uses its viney stems to move into sunlight. Therefore, it is unlikely that field bindweed persists in later stages of community succession (FEIS 1996).

Field bindweed is commonly found on more basic (rather than acidic) soil types and those of heavier texture. It can persist in dry to moderately moist soils and is capable of surviving drought (Rutledge and McLendon. Undated).

Distribution: Field bindweed is common in southern BC, but rarely occurs as far northward as Dawson Creek (Douglas et al. 1998). It is present in the

Kootenay, Okanagan, Thompson, Mainland, and Vancouver Island agricultural reporting regions, but it is not considered a major concern anywhere. It is found throughout most of Canada and the US.

Historical: Introduced from Europe as early as the 1730s (Peterson 1998).

Life cycle: The leaves vary greatly in size and shape with environmental factors, such as light intensity and soil moisture, and with damage due to frequent cultivation. Flowers appear from June to September and occasionally until the first autumn frost (Rutledge and McLendon. Undated). Seeds mature within 2 weeks of pollination. Germination occurs in the autumn or spring, over a wide range of temperatures (FEIS 1996). Field bindweed overwinters by means of its roots and rhizomes. Shoots are killed back to the crown by freezing temperatures, but hardened roots can withstand temperatures as low as -6°C (Peterson

1998). Most lateral roots die back each year, but some persist for several years, spreading horizontally (Peterson 1998). Buds arise on the lateral roots and develop into rhizomes that can establish as new crowns when they reach the surface (Peterson 1998).

Mode of reproduction: By seed and vegetatively from roots.

Seeds production: The number of seeds produced per plant ranges from 25 to 300, and seed production is variable and depends on environmental conditions.

Seed bank: Seeds can remain viable in the soil for over 20 years (Peterson 1998).

Dispersal: Seeds have a hard, impermeable coat. They generally fall near the parent plant, but can be dispersed by water, as a contaminant in crop seeds, and by mammals and birds after ingestion.

Hybridization: No information available.

Management

Biocontrol: None in BC. *Aceria mahlerbae* (gall mite) and *Tyta luctuosa* (moth) are being studied in the US (Rees et al. 1996).

Mechanical: Cutting and mowing have little effect on plant populations unless plants are cut below the root crown at early stages of growth. Established populations have a large seed bank in the soil that can remain viable for over 20 years.

Fire: Fire is not recommended because of the plant's potential for vegetative regrowth and a long-lived seed bank.

Herbicides: Foliar applications of glyphosate, picloram, dicamba, and 2,4-D have provided good management in the US during early flowering and when soil moisture is low (Peterson 1998). Chemical treatment often requires high rates and repeated applications. These can damage non-target species. Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production

Guides for specific recommendations. **Before applying herbicides, read the label for full use and precautionary instructions.**

Cultural/Preventive: Hand-pulling seedlings can be effective for small, new infestations before plants set seed.

Integrated Management Summary

Cutting, mowing, hand-pulling, and herbicides all are possible methods to combine to manage this weed. Use both cultural and chemical methods as required when infestations are small. Seed disturbed areas with perennial grasses and forbs to provide competition against this weed.

References

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