

COMMON MULLEIN: Options for control

Common Mullein (*Verbascum thapsus*), a member of the Figwort family, is **no longer** on the noxious weed in Lincoln County, Washington. Common mullein is a biennial plant (takes two or more years to flower and die). Brought over from Europe by settlers, it was used as a medicinal herb, as a remedy for coughs and diarrhea and a respiratory stimulant for the lungs when smoked. A methanol extract from common mullein has been used as an insecticide for mosquito larvae.

Common mullein, also known as woolly mullein, is an erect herb. First year mullein plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width. Mature flowering plants are produced the second year, and grow to 5 to 10 feet in height, including the conspicuous flowering stalk. The five-petaled yellow flowers are arranged in a leafy spike and bloom a few at a time from June-August. Leaves alternate along the flowering stalks and are much larger toward the base of the plant. The tiny seeds are pitted and rough with wavy ridges and deep grooves and can germinate after lying dormant in the soil for several decades.

During the first summer after germination mullein

produces a tap root and a rosette of leaves. During this vegetative stage, the rosette increases in size during the growing season until low temperatures arrest growth sometime during the autumn and winter. Beginning the next spring, second year plants bolt into maturity, flower, produce seed during the summer, and then die, completing the plant's normal life cycle. Flowers mature from the base to the tip of the stalk. The length of the flowering period is a function of stalk height; longer stalks can continue to flower into early October. It is estimated that a single plant can produce 100,000-180,000 seeds which may remain viable for more than 100 years. The seeds are dispersed mechanically near the parent plant during the autumn and winter. Seeds at or near the surface are more likely to germinate.

Mullein plants are easily hand pulled on loose soils due to relatively shallow tap roots. This is an extremely effective method of reducing populations and seed productivity, especially if plant is pulled before seed set. If blooms or seed capsules are present, reproductive structures should be removed, bagged, and properly disposed of in a sanitary landfill.

Care should be taken, however, to minimize soil disturbance since loose soil will facilitate mullein seed germination.



First year mullein in the rosette stage.



The "wooly" underside of a common mullein leaf.



Second year mullein bolts and flowers.



A close-up of the 5-lobed, sulfur-yellow flower.



When mature, the plant produces 100,000-180,000 seeds, per plant.



After flowering, the entire plant dies—there is no vegetative reproduction.

Key identifying traits

- First year **rosette** leaves are felt-like soft, and bluish-green in color
- Second year; large fuzzy alternate overlapping **leaves** and a single, stout erect stem, 2 to 8 feet tall
- One or more long terminal **flower spikes** per stem
- **Flowers** are 5 lobed sulfur to pale yellow color, developing as flower spike extends
- Numerous tiny, angular, brownish **seeds** in 2-chambered capsules
- Tall brown **stalks** from previous season easily seen all year—remain standing throughout winter, mostly an eye-sore

Biology and ecology

- Biennial from a stout **tap root**
- **Seeds** remain **viable** for 100 years
- Existing seed supply will yield plants when soil is exposed by fire or other disturbance
- **Unpalatable** to livestock due to soft, fine hairs.
- Prefers dry, sunny, gravelly sites, but will appear on various exposed soils—one of the first weeds to germinate in a disturbed site

CONTROL MEASURES:

For this and other publications, see our website at: www.co.lincoln.wa.us/weedboard

Prevention:

- Minimizing soil disturbances from vehicles, machinery and over grazing. **Early detection** is vital to prevent invasion.

Biological:

- The larvae of the mullein seed-eating weevil, *Gymnetron tetrum*, is very successful.

Cultural:

- Good competitive vegetation helps prevent infestation.

Mechanical:

- Will not stand tillage; puling or cutting below root crown when the soil is damp. It's effective if done prior to seed production.

Chemical:

- Weedmaster, Telar, or Milestone work on mullein.
- A good **surfactant is essential**, due to the hairy surface. Surfactants containing MSO or silicone work best.
- **Read the label** instructions before applying.



- **Spring Activity:** Adults emerge from mid-May to early June. Populations peak three weeks after first emergence. Adults are first found near leaf axils or in the central bud area until bolt formation. After the inflorescence starts to bolt with warmer temperatures, the adults will congregate around the buds and flowers.

- **Mating:** Typically on the inflorescence, near or in a flower.

- **Eggs:** Females typically lay 1 to 3 eggs in a seed capsule. Egg incubation lasts 7 to 11 days. The viability of eggs in the field is only 40 percent.

- **Larvae:** Larvae feed on the seeds within the capsule. The larvae are cannibalistic, and no more than two adults will eventually exit from a seed capsule.
- Once mature, adults will exit the seed capsule by chewing holes, often inflicting mortal damage to the seeds affected.
- **After mid-September:** Adults are not seen any more as they prepare to over-winter.
- **Over-Wintering:** In hollowed-out seed capsules.



Photos and references courtesy of: USDA Forest Service; Stevens County Weed Board; Alien Plant Working; Group Wisconsin Master Gardener; Plants Database.

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