MANAGEMENT OF

INVASIVE PLANTS IN WISCONSIN

A3924-24

Sweetclovers (*Melilotus* spp.)

Brendon Panke and Mark Renz

Invasive plants can thrive and aggressively spread beyond their natural range, disrupting ecosystems. The *Management of Invasive Plants in Wisconsin* series explains how to identify invasive plants and provides common management options. Management methods recommend specific timings for treatment, as well as expected effectiveness. For more information, go to: fyi.uwex.edu/weedsci/category/invasive-plants-of-wisconsin.

Sweetclovers are herbaceous biennial legumes. First-year plants grow as single-stalked, shorter forms of the second-year plants. Second-year plants grow 3–6′ high and can branch extensively. Yellow sweetclover is usually shorter than white sweetclover.

Legal classification in Wisconsin:

- White sweetclover (*Melilotus alba*): Not regulated
- Yellow sweetclover (*Melilotus officinalis*): Not regulated

Leaves: Alternate, 0.5–1″ long, 0.3–0.5″ wide, and with three finely-toothed leaflets, which are clover-like but longer and thinner than other clovers. The middle leaflet grows on a short but distinct stalk.

Flowers: Late spring through summer. Only the second-year plants bloom. Five-parted, 0.25″ long, fragrant, pea-like flowers are clustered in dense, unbranched inflorescences with flowers at the end of stems (racemes). **White sweetclover** has white flowers and **yellow sweetclover** has yellow flowers. **Yellow** also tends to bloom 2–4 weeks earlier than **white**.

Fruits and seeds: Every flower produces one or two small seeds with hard seed coats. Seeds have been reported to remain viable for 81 years.

Roots: Deep taproot with lateral roots extending from it.

Similar species: Sweetclovers can be distinguished from other clovers by their three finely toothed lobes, the middle leaflet extending past the other two, and the flowers occuring in a long, narrow inflorescence. Additionally, sweetclovers can be distinguished from alfalfa by the lack of hair on the lower leaflet surface of sweetclovers and serration along the entire margin. Alfalfa leaflets are similar in size and only serrated near the tip.

Ecological threat:

- Invades prairies, oak savannas, and dunes. Also invades disturbed habitats, such as roadsides.
- Populations of either sweetclover can be enhanced by fire if fire treatments are not timed correctly and repeated appropriately (see recommendations below).

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NPM

Removal

Effectiveness in season: 90–100%
After season: 70–90%

Pulling and cutting the root from the stem are effective individual plant control techniques. Pull if soil conditions allow for the removal of the taproot. Second-year plants are easier to find and pull than first-year plants. Alternately, cut the entire taproot with a sharp shovel or spade 1–2" below the surface. If opened flowers are present, bag material and dispose of it in a landfill to avoid potential for seed spread.

Mowing

Effectiveness in season: 50–70%
Season after treatment: 50–70%

Mowing as low as possible (< 1"), timed just after flower emergence, can suppress sweetclover. Plants may resprout and still flower, but rarely produce viable seed. Monitor populations and repeat mowing if concerned about seed production. Care must be taken not to mow when mature seeds could be present since this will spread the seed. Mowing will not eradicate first-year plants as they resprout. While mowing has been reported as an effective means of suppression, there is no data on how many years of mowing are required to control a population.

Prescribed burning

Effectiveness in season: 50–70%
Season after treatment: < 50%

Dormant season burns tend to enhance sweetclover populations. Growing season (late spring to early fall) burns reduce the population of first-year plants, but second-year plants can survive, depending on duration and intensity of fire. A spring burn in the first year, followed by a growing season burn the second year, have been effective in reducing sweetclover populations. Repeat this cycle until the population is suppressed to the desired level. This is most effective when all plants are in the same life stage. If second- and first-year plants are found together, a first-year burn should be followed by another treatment that targets second-year plants that may not have been killed by the burn. A handheld propane torch can be effective for treating seedlings and first-year plants.

Grazing

Effectiveness in season: < 50%
Season after treatment: < 50%

Readily grazed by a variety of animals, especially during mid-season. Can cause bloating and reduce clotting if consumed in large quantities. Grazing can be an effective management tool in suppressing populations, but requires a high stocking rate early in the growing season.

Manipulation of the environment

Effectiveness in season: 70–90%
Season after treatment: < 50%

Mulch to a depth of 3" or more. Organic or synthetic mulches can be used. This will suppress current populations, but will have variable success, depending on the number of seeds in the soil.

Chemical control

Foliar

Apply directly to individual plants or broadcast across an infested area. Broadcasted foliar applications are typically the most cost-effective treatment in dense infestations. Use lower rates on smaller plants and less dense populations and higher rates on larger plants and denser populations. Use lower rates in the fall since plants are more susceptible at this time. Spring applications require higher rates, but if applied after seedlings germinate, both first- and second-year plants will be controlled.

2,4-D*

Effectiveness in season: 50–70%
Season after treatment: < 50%

Common name: Many

Rate:
broadcast: 0.95–1.5 lb a.e./A
spot: For a 3.8 lb a.e./gal product. 1% (0.04 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Use aquatically labeled product if potential exists for solution to contact surface water. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

aminopyralid*

Effectiveness in season: 90–100%
Season after treatment: 70–90%

Common name: Milestone

Rate:
broadcast: 7 fl oz/A (0.1 lb a.e./A)
spot: Equivalent to broadcast rates.

Timing: Apply when target species is actively growing and fully leafed out.

Remarks: 14 fl oz/A can be used as long as less than half of the area is treated. Depending on the volume of solution applied per acre, typical mixtures for spot treatments are 2–8 mL Milestone per gallon of water.

Caution: Do not apply directly to water or to areas where surface water is present. Remains in soil for up to one year, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants. Do not compost treated plants since herbicide can persist through composting process.

chlorsulfuron*

Effectiveness in season: 50–70%
Season after treatment: 50–70%

Common name: Telar

Rate:
broadcast: 0.4–1.0 oz/A (0.3–0.75 oz a.i./A)
spot: 0.04 oz/gal (0.03 oz a.i./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Can remain in the soil for months, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

clopyralid*

Effectiveness in season: 70–90%
Season after treatment: 50–70%

Common name: Transline

Rate:
broadcast: 16–20 fl oz/A (0.4–0.5 lb a.e./A)
spot: 0.2–0.4% (0.006–0.01 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Remains in soil for up to one year, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants. Do not compost treated plants since herbicide can persist through composting process.

dicamba*

Effectiveness in season: 50–70%
Season after treatment: < 50%

Common name: Banvel

Rate:
broadcast: 16–32 fl oz/A (0.5–1.0 lb a.e./A)
spot: Equivalent to broadcast rates.

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants. Rates > 16oz/A (0.5 lb a.e./A) may cause stunting and discoloration of sensitive grasses, such as smooth brome.

metsulfuron*

Effectiveness in season: 50–70%
Season after treatment: < 50%

Common name: Escort

Rate:
broadcast: 0.3–1 oz/A (0.2–0.6 oz a.i./A)
spot: 0.04 oz/gal (0.02 oz a.i./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Remains in the soil for months, depending on application rate. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

picloram + 2,4-D*

Effectiveness in season: 90–100%
Season after treatment: 70–90%

Common name: Pathway

Some products containing picloram are restricted-use in Wisconsin.

Rate:
broadcast: 32–64 fl oz/A (0.5–1.0 lb a.e./A)
spot: Equivalent to broadcast rates.

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Remains in the soil for over one year, depending on application rate, and has the potential to contaminate surface runoff water during this timeframe. Maintenance of a vegetative buffer strip is recommended between the areas this product is applied and surface water features. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants. Do not compost treated plants since herbicide can persist through composting process.

***Active ingredient (a.i.)**

sulfometuron*

Effectiveness in season: 50–70%
Season after treatment: 50–70%

Common name: Oust

Rate:
broadcast: 3.0–5.0 oz/A (2.25–3.75 oz a.i./A)
spot: Equivalent to broadcast rates.

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Applications can result in bare ground since sulfometuron is not selective and can remain in the soil for months, depending on application rate and site conditions. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

Herbicide information is based on label rates and reports by researchers and land managers. Products known to provide effective control or in common use are included. Those that do not provide sufficient control or lack information for effectiveness on target species have been omitted.

References to pesticide products in this publication are for your convenience and not an endorsement of one product instead of a similar product. You are responsible for using pesticides in accordance with the label directions. *Read the label before any application.*

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triclopyr*

Effectiveness in season: 50–70%
Season after treatment: < 50%

Common name: Garlon 4

Rate:
broadcast: 16–30 fl oz/A (0.5–1.0 lb a.e./A)
spot: 1–2% (0.04–0.08 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

triclopyr + 2,4-D*

Effectiveness in season: 70–90%
Season after treatment: 50–70%

Common name: Crossbow

Rate:
broadcast: 64 fl oz/A (triclopyr: 0.5 lb a.e./A + 2,4-D: 1.0 lb a.e./A)
spot: 1% (triclopyr: 0.01 lb a.e./gal + 2,4-D: 0.02 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out.

Caution: Do not apply directly to water or to areas where surface water is present. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

triclopyr + fluroxypyr*

Effectiveness in season: 70–90%
Season after treatment: 50–70%

Common name: Pasturegard HL

Rate:
broadcast: 16–32 fl oz/A (triclopyr: 0.4–0.75 lb a.e./A + fluroxypyr: 0.12–0.25 lb a.e./A)
spot: Equivalent to broadcast rates.

Timing: Apply when target species is actively growing and fully leafed out. Applications after the stem has begun to branch out are most effective.

Caution: Do not apply directly to water or to areas where surface water is present. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

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