

INVASIVE PLANTS
IN WISCONSIN

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.

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NPM

Japanese hop

(*Humulus japonicus*)

Japanese hop acts as an annual or a perennial, depending on climate. Plants grow up to 35' long with downward-pointing, rough, prickly hairs on stems and leaves. Stems are light green to reddish in color and twist counterclockwise around objects.

Legal classification in Wisconsin:

Prohibited/Restricted

Leaves: Opposite, palmately lobed in five or more parts, 2–5" long. Leaf stalks (petioles) are as long as or longer than the leaves. Spines at the base of each petiole point toward the soil surface.

Flowers: Midsummer to early fall, lasting for about two months. Male and female flowers are found on separate plants (dioecious) where the leaf attaches to the stem (leaf axil). Male flowers are dull green and borne on stalks that grow upward to 10" long and 5" wide. Individual flowers are only 0.12" across. Female inflorescences consist of a series of overlapping bracts that can reach 1.5" across. At the base of each bract are two inconspicuous flowers that are pale green and grow in downward-drooping clusters.

Fruits and seeds: Small (0.12" wide), dry, scale-like seeds that are easily dispersed by wind or water.

Roots: Shallow fibrous roots.

Similar species: Common hop (*Humulus lupulus*) leaves are three-lobed or lack lobes. Bur cucumber (*Sicyos angulatus*; native) lacks prickly hairs, has tendrils, and the leaves have much less pronounced lobes. Virginia creeper (*Parthenocissus quinquefolia*; native) and several cinquefoil (*Potentilla*) species have no prickly hairs and leaves that are deeply divided into five leaflets.

Ecological threat:

- Invades flood plains, stream banks, roadsides, old fields, forest edges, and waste areas. Prefers sunny, moist areas with bare ground, but will also grow in shadier areas, especially if they are disturbed.

Non-chemical control Removal

Effectiveness in season: 70–90%

Season after treatment: 50–70%

When acting as an annual, it can be pulled any time of the year. When acting as a perennial, the most effective time to pull is in late spring or early summer. In either case, remove as much of the root and vine as possible, since the plant can reroot from both roots and stems. If the vine has climbed a tree, below-ground removal only is required. If seeds are present during removal, avoid movement off site unless material can be transported without spreading seed. Three years of removal are typically needed to eradicate an infestation.

Mowing

Effectiveness in season: 70–90%

Season after treatment: 50–70%

Mowing or cutting many times a year can control newly established populations after three years, but established populations will only be suppressed. Use a mower that bags cut material or rake and bag cut material after mowing. Dispose of cut material in a landfill or burn it to avoid potential for above-ground tissue resprouting.

Prescribed burning

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

Spring burns can kill germinating seedlings and young plants. Fire can also suppress above-ground growth of established plants, depending on fire intensity. After the fire, established plants will quickly resprout or reroot and reinvade areas; this management method is not recommended unless integrated with other techniques. A handheld propane torch can be effective for treating seedlings. Use caution when burning where vines climb into trees since hop could carry fire into the crown of trees.

Manipulation of the environment

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

Seeding infested areas with grasses and/or sedges can suppress populations. Japanese hop grows most readily on bare soil and seeding desirable plants can eliminate bare ground. This method is especially effective when used after herbicide treatment.



Chemical control

Pre-emergence

Apply herbicide directly to soil. These products will only damage plants that germinate after the herbicide has been applied. They will not damage established plants that are tolerant to the herbicide. Use lower rates on areas where less dense populations are expected and higher rates on areas where denser populations are expected.

pendimethalin*

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

Common name: Pendulum Aquacap

Rate: 100–134 fl oz/A (3.0–4.0 lb a.i./A)

Timing: Apply prior to germination of seedlings. While spring applications will maximize control, fall or winter applications may also suppress seedlings the following spring, depending upon environmental conditions.

Remarks: Reduced efficacy can be expected if < 0.5" of rainfall occurs within 30 days of application.

Caution: Do not apply directly to water or to areas where surface water is present. Do not exceed applications of 67 fl oz/A on home lawns, parks, schools, and playgrounds.

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. The most effective treatment timing for hop is in the summer immediately after leaf and flower formation.

2,4-D*

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

Common name: Many

Rate:

broadcast: 1.0–2.0 lb a.e./A

spot: For a 3.8 lb a.e./gal product.
 0.5–2.0% (0.02–0.08 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out. Reapply if additional seedlings germinate after application.

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. Reapply if additional seedlings germinate after application.

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.

dicamba*

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

Common name: Banvel

Rate:

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

Timing: Apply when target species is actively growing and fully leafed out. Reapply if additional seedlings germinate after application.

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.

glyphosate*

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

Common name: Roundup

Rate:

broadcast: 0.75–1.0 lb a.e./A
spot: For a 3 lb a.e./gal product.
1.0–2.0% (0.03–0.06 lb a.e./gal)

Timing: Apply when target species is actively growing and fully leafed out. Reapply if additional seedlings germinate after application.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since glyphosate is not selective. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

metsulfuron*

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

Common name: Escort

Rate:

broadcast: 1 oz/A (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.

Remarks: This product provides pre-emergent control during the application year.

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.

sulfometuron*

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

Common name: Oust

Rate:

broadcast: 1.0 oz/A (0.75 oz a.i./A)
spot: Equivalent to broadcast rates.

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

Remarks: This product provides pre-emergent control during the application year.

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.

triclopyr*

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

Common name: Garlon 4

Rate:

broadcast: 16 fl oz/A (0.5 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. Reapply if additional seedlings germinate after application.

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.



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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