



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 stiltgrass

(*Microstegium vimineum*)

Japanese stiltgrass is an annual grass 1–3' (occasionally up to 5') tall that grows in branching, sprawling mats. Its stems resemble a narrow, delicate bamboo.

Legal classification in Wisconsin:
Prohibited

Leaves: Pale green, alternate, narrow, lance-shaped, up to 3" long, and lightly hairy. Pale, silvery stripe of reflective hairs along midrib of upper leaf surface. Turn yellow to orange in fall.

Flowers: Late summer to early fall. Slender stalks 1–3" long covered in 0.25" long flowers and found where the leaf attaches to the stem (axil) and at the end of stems.

Fruits and seeds: Dry fruits containing a single seed each (achene). Fruit has bristles (awns).

Roots: Shallow, spreading roots. Spread by rooting at stem nodes that touch the ground.

Similar species: Perennial whitegrass (*Leersia virginica*; native) lacks the stripe on the upper leaf surface, has hairy nodes (stiltgrass has smooth nodes), flowers earlier, and stays green in the fall (stiltgrass becomes yellow). Pennsylvania smartweed (*Polygonum pennsylvanicum*; native) and lady's thumb (*Polygonum persicaria*; exotic) can form masses of grass-like plants, but their flowers are pink and bead-like.

Ecological threat:

- Invades forested wetlands, floodplain forest, moist woodlands, old fields, rights-of-way, stream banks, ditches, roadsides, and trails.

Non-chemical control Removal

Effectiveness in season: 90–100%
Season after treatment: 50–70%

Pulling is an effective treatment for individual plants throughout the year, but is easiest in the late summer to early fall when plants are larger. Pulling will disturb the soil and can expose stiltgrass seeds in the soil. Pulling later in the growing season will provide less time for seeds in the soil to germinate and reproduce. Pulling should be repeated for at least seven years to ensure the seed bank is exhausted. Bag and dispose of material in a landfill since plants can root from the nodes, and seeds are easily spread.

Mowing

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

Mow or cut plants as close to the ground as possible in late summer or early fall after flowering, but before seeds are present. Monitor the site a week after initially mowing to identify plants that were not cut; then remove them before they produce seeds. Continue to monitor the site for at least seven years to ensure that the seed bank is exhausted. Cutting plants earlier can result in cut plants regrowing and flowering earlier than they would if left undisturbed.

Prescribed burning

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

Spring burns can kill germinating seedlings and suppress above-ground growth of established plants, depending on fire intensity. However, stiltgrass seeds in the seed bank will germinate soon after the fire and reinfest areas. Fall burns are preferred as long as they are timed before seeds are produced since they remove the heavy mats of vegetation that stiltgrass produces and prevent seed production. This can result in improved cover of desirable understory species the following growing year. A handheld propane torch can be effective for treating seedlings and adult plants.

Manipulation of the environment

Effectiveness in season: 90–100%
Season after treatment: 50–70%

Flooding for more than three months or intermittent flooding during the growing season can control adult stiltgrass, but seeds can survive up to ten weeks of constant flooding.

Chemical control

Pre-emergence

Apply herbicide directly to soil. These products will only damage plants that germinate after the herbicide has been applied. Damage to established plants is rare. Use lower rates on areas where less dense populations are expected and higher rates on areas where denser populations are expected.



dithiopyr*

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

Common name: Dimension Ultra 40WP

Rate: 1.25 lb/A (0.5 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 before target species germinates.

Caution: Do not apply directly to water or to areas where surface water is present.

oryzalin*

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

Common name: Surflan AS

Rate:

broadcast: 64–96 fl oz/A
 (2.0–3.0 lb a.i./A)

spot: Equivalent to broadcast rates.

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: 64 fl oz/A will provide 2–4 months of control. 192 fl oz/A will provide 8–12 months of control. Wait two months between applications at the 64 fl oz rate, and wait eight months between applications at the 192 fl oz rate.

Caution: Do not apply directly to water or to areas where surface water is present. Applications can result in bare ground since oryzalin is not selective if applied at higher rates and can remain in the soil for several months, depending on application rates.

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.

prodiamine*

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

Common name: Barricade 4FL

Rate: 16–32 fl oz/A (0.50–1.0 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.

Caution: Do not apply directly to water or to areas where surface water is present. Do not apply more than 48 fl oz/A per year.

trifluralin*

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

Common name: Treflan

Rate:

broadcast: 16–32 fl oz/A
 (0.5–1.0 lb a.i./A)

spot: Equivalent to broadcast rates.

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: Use higher rates in finer soils. Apply to soil, but keep away from plant roots and foliage. Water-in or lightly rake-in immediately after application.

Caution: Do not apply directly to water or to areas where surface water is present.

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.

aminopyralid*

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

Common name: Milestone

Rate:

broadcast: 5–7 fl oz/A
 (0.08–0.1 lb a.e./A)

spot: Equivalent to broadcast rates.

Timing: Apply any time during the summer, but before seeds are produced.

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

clethodim*

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

Common name: Envoy

Rate:

broadcast: 12–16 fl oz/A
 (0.1–0.12 lb a.i./A)

spot: 0.33–0.66% (0.003–0.006 lb a.i./gal)

Timing: Apply any time during the summer, but before seeds are produced. Two applications during the growing season are recommended.

Caution: Do not apply directly to water or to areas where surface water is present. Overspray or drift to desirable grasses should be avoided since even minute quantities of the spray may cause severe injury to grasses.

fluazifop*

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

Common name: Fusilade

Rate:

broadcast: 16–24 fl oz/A
 (0.25–0.4 lb a.i./A)

spot: 0.5% (0.01 lb a.i./gal)

Timing: Apply any time during the summer, but before seeds are produced. Two applications during the growing season are recommended.

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. Fluazifop can remain in the soil for 1–2 months, 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 fluazifop is applied and surface water features. Overspray or drift to desirable grasses should be avoided since even minute quantities of the spray may cause severe injury to grasses.

glufosinate*

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

Common name: Finale

Rate:

broadcast: 128–192 fl oz/A
 (1–1.5 lb a.i./A)

spot: 1.5–3% (0.015–0.03 lb a.i./gal)

Timing: Apply any time during the summer, but before seeds are produced. Two applications during the growing season are recommended.

Caution: Do not apply directly to water or to areas where surface water is present. Applications can result in bare ground since glufosinate is not selective. 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.

glyphosate*

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

Common name: Roundup

Rate:

broadcast: 0.75–1.25 lb a.e./A

spot: For a 3 lb a.e./gal product. 2% (0.06 lb a.e./gal)

*Active ingredient (a.i.)

Timing: Apply any time during the summer, but before seeds are produced.

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.

imazapic*

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

Common name: Plateau

Rate: broadcast: 4–6 fl oz/A
(0.06–0.1 lb a.e./A)

spot: 0.25–1.5% (0.005–0.03 lb a.e./gal)

Timing: Apply any time during the summer, but before seeds are produced.

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. Imazapic can remain in the soil for months, 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 imazapic 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.

imazapyr*

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

Common name: Arsenal

Rate: broadcast: 32–48 fl oz/A
(0.5–0.75 lb a.e./A)

spot: 1.0–1.5% (0.02–0.03 lb a.e./gal)

Timing: Apply any time during the summer, but before seeds are produced.

Caution: Use product labeled for aquatic use if potential exists for solution to contact surface waters. Applications can result in bare ground since imazapyr is not selective and can remain in the soil for several months to more than a 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.

pelargonic acid*

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

Common name: Scythe

Rate: broadcast: 75–200 gal/A of a 3.0–5.0% solution (0.13–0.2 lb a.e./gal)

spot: 3.0–5.0% (0.13–0.2 lb a.e./gal)

Timing: Apply any time during the summer, but before seeds are produced.

Caution: Do not apply directly to water or to areas where surface water is present. Applications can result in bare ground since pelargonic acid is non-selective. Overspray or drift to desirable plants should be avoided since even minute quantities of the spray may cause severe injury to plants.

sethoxydim*

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

Common name: Segment

Rate: broadcast: 26–51 fl oz/A
(0.2–0.4 lb a.e./A)

spot: 1.5–2.25% (0.015–0.02 lb a.e./gal)

Timing: Apply any time during the summer, but before seeds are produced. Two applications during the growing season are recommended.

Caution: Do not apply directly to water or to areas where surface water is present. Overspray or drift to desirable grasses should be avoided since even minute quantities of the spray may cause severe injury to grasses.

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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Authors: Brendon Panke is an associate research specialist and Mark Renz is an assistant professor of agronomy, College of Agricultural and Life Sciences, University of Wisconsin-Madison, and Cooperative Extension, University of Wisconsin-Extension. Cooperative Extension publications are subject to peer review.

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