



## Japanese stiltgrass (*Microstegium vimineum*)

### Description

- Refer to the DCNR Invasive Exotic Plant Tutorial stiltgrass page ([http://www.dcnr.state.pa.us/forestry/invasivetutorial/Japanese\\_stiltgrass.htm](http://www.dcnr.state.pa.us/forestry/invasivetutorial/Japanese_stiltgrass.htm)).
- Herbaceous, annual, warm-season grass.
- Tolerant of full sun to heavy shade.
- Has a sprawling growth habit, with a canopy height between 12 and 24 inches.
- Seedheads emerge late-August to early-September.
- Infestations commonly start along road or trail edges, then spread outward.

### Management Keys

As a plant, stiltgrass is not hard to suppress. However, treatment often begins after stiltgrass has spread extensively and established a persistent seedbank, making control difficult.

#### Target the Seedbank

To eliminate stiltgrass, you have to prevent seed production, and exhaust the seed lying in wait in the soil. You should plan on at least a five-year process.

#### Prevention is Easier

If stiltgrass is just getting onto your site, determine where it's coming from. Shale and gravel for roadwork are common sources. Roadwork where stiltgrass is already established spreads it even further.

#### Mechanical Control

Small infestations of stiltgrass are readily pulled. A trimmer can be effective later in the season (Figure 1), if you cut the stiltgrass off at ground level. A lawnmower cuts too high and will not work, as stiltgrass is a common weed in turf.

#### Early Control

It is common to first observe stiltgrass along roads or trails. The infestation tends spread along the road or trail, then spread away into the understory. It is relatively easy to treat stiltgrass while it occurs as a narrow, linear infestation.

#### Recommended Herbicides

Stiltgrass is susceptible to a number of herbicides, allowing you to tailor a program that fits your schedule

and the plant community you are trying to preserve.

Preemergence herbicides that are effective against stiltgrass include *pendimethalin* ('Pendulum'), *imazapic* ('Panoramic'), and *sulfometuron* ('Oust XP').

*Imazapic* and *sulfometuron* can also be applied postemergence for effective control of stiltgrass. *Pendimethalin* will have the least effect on non-target species of these three materials, but it is also the least flexible to use. *Pendimethalin* must already be in the soil where the seed is germinating – it has to be absorbed by the emerging root tip to be effective. *Pendimethalin* has no effect on already established vegetation.

*Imazapic* and *sulfometuron* provide more flexibility in terms of application timing, but they will cause more injury to non-target herbaceous plants than *pendimethalin*.

Three postemergence herbicides that are effective against stiltgrass include *glyphosate* ('Aquanat'), *glufosinate* ('Finale'), and *quizalofop* ('Assure II'). *Glyphosate* is non-selective and systemic, and will injure all treated vegetation. *Glufosinate* is also non-selective, but it is a 'contact' herbicide, so the damage to treated non-target plants will be limited to where the spray contacted the plant.

The herbicide *quizalofop* only injures grasses. Stiltgrass is affected by *quizalofop* at low rates, so you can control stiltgrass but leave native woodland grasses such as whitegrass (*Leersia virginica*), nimblewill (*Muhlenbergia schreberi*), and autumn bentgrass (*Agrostis perennans*) largely intact.

#### Alternate Groundcover

If conditions permit, you should try to establish a groundcover to compete with the stiltgrass. If there already is groundcover, try to encourage its growth. Turf that is mowed too short and too often is more prone to stiltgrass infestation than a properly maintained turf.

#### Be Persistent

Stiltgrass can only be effectively controlled with repeated, annual effort. If you back off one season, the seedbank will be replenished, and your progress to date will be set back.



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Figure 1. The objective of stiltgrass management is to prevent seed set. Stiltgrass is effectively controlled with preemergence or postemergence herbicide applications, and small infestations can be hand-pulled or cut at ground level.

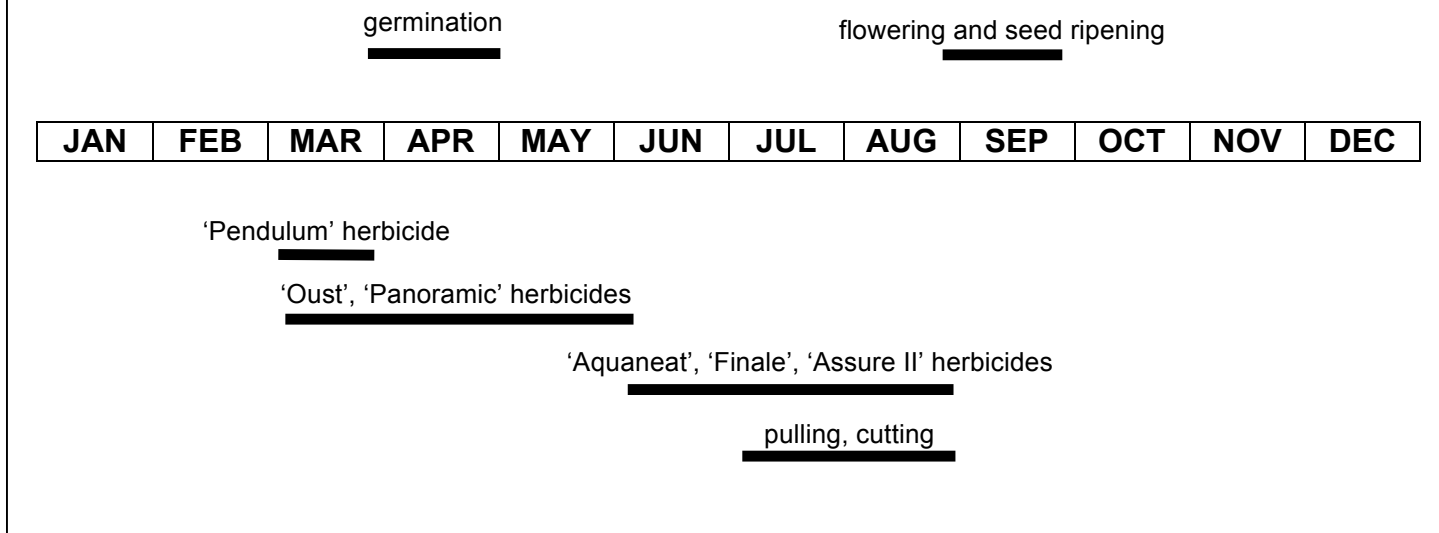


Table 1. Prescriptions for elimination of Japanese stiltgrass focus on preventing seed set. Stiltgrass is susceptible to a number of herbicides suitable for use in parks. Small infestations can be pulled or cut at ground level, which facilitates the use of volunteers.

timing	treatment	product rate	comments
early- to mid-March	'Pendulum Aquacap'	4.2 qts/acre	Preemergence applications of 'Pendulum' ( <i>pendimethalin</i> ) prevent stiltgrass establishment, and have little effect on plants that are already present. It is critical that <i>pendimethalin</i> be applied two to three weeks prior to germination to allow rainfall to move it into the soil profile. <i>Pendimethalin</i> is also effective against mile-a-minute.
early-March through May	'Panoramic' or 'Oust XP'	8 to 12 oz/acre or 1 to 3 oz/acre	'Panoramic' ( <i>imazapic</i> ) and 'Oust XP' ( <i>sulfometuron</i> ) have pre- and postemergence activity against stiltgrass. Preemergence applications will cause less damage to non-target species than postemergence applications. There comes a point in the season when you are better off using an herbicide that is not soil active (see below), to reduce the impact on non-target plants.
mid-May through August	'Aquaneat' or 'Finale' or 'Assure II'	24 oz/acre or 4 qts/acre or 4 oz/acre	'Aquaneat' ( <i>glyphosate</i> ) and 'Finale' ( <i>glufosinate</i> ) are non-selective herbicides with no soil activity. 'Finale' only injures the parts of the plant it contacts, while 'Aquaneat' is systemic, and will kill the entire plant. 'Assure II' ( <i>quizalofop</i> ) only affects grasses, but the rate used for stiltgrass is low enough that desirable grasses such as whitegrass ( <i>Leersia virginica</i> ), and nimbwill ( <i>Muhlenbergia schreberi</i> ) are only temporarily affected.
July through August	pulling or cutting	n/a	Small infestations of stiltgrass can be mechanically controlled. If you're cutting, use a trimmer that will cut the stiltgrass at the ground line to prevent resprouting from the lower nodes of the stem. The key to this treatment is to wait so that more stiltgrass will not germinate, but finish before the seedheads emerge.

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