

Japanese stiltgrass (*Microstegium vimineum*)

- Non-native
- Summer annual grass
- Wetlands, woodlands, utility easements, parks, lawns, and landscapes



Microstegium vimineum in its native range

- Native to East Asia
– Vietnam to Korea
- Not very invasive in natural habitats
- Problematic in managed landscapes



Microstegium vimineum control

- Goal of a control program:
Remove the invasive and re-establish native habitat
- But How?



Current management guidelines*

- Prevent seed production
- Methods
 - Hand-removal
 - Mechanical (weed whack)
 - Glyphosate (Roundup)
- When? Late Season



* Tu. 2000. Elemental Stewardship Abstract by The Nature Conservancy,

Questions about these guidelines

- Non-selective methods like mowing and glyphosate kill native species too.

Questions about these guidelines

- To be effective, mowing must be very short and just before flowering*
- Earlier mowing allows plants to regenerate and flower
- Later mowing allows seed production in the litter



Questions about these guidelines

- Non-selective methods like mowing and glyphosate kill native species
- Even hand removal can significantly disturb the soil and native species



Are there alternatives?

- Can selective removal earlier in the season prevent competition with economic species or native vegetation?
- Are there tools for such a strategy?

Herbicides labeled for Japanese Stiltgrass control

- Plateau (imazapic)
 - Pre and Post control of stiltgrass, sedges, some dicots (Gov. customers only)
- Acclaim Extra
 - Post control in turf and landscapes

Lots of herbicides labeled to control other summer annual grasses

- PRE: Dinitroanilines, dithiopyr, metolachlor, napropamide, oxadiazon, many others
- POST:
 - Selective: fenoxaprop, fluazifop, sethoxydim, clethodim, MSMA, quinclorac
 - Nonselective: Glyphosate, glufosinate, diquat, paraquat,

Microstegium Control (8 WAT)



Control

Barricade

Devrinol

Gallery

Preemergence control?

- In commercial forests – feasible but need additional data and labels
- In parks, grounds, turf and landscapes – easy, lots of options, need labels
- In at-risk habitats, moist forests and wetlands – probably not desirable to treat with residual herbicides than might reduce recruitment of native species

Selective herbicide options



Non-Treated



Acclaim Extra
(fenoxaprop)



Vantage
(sethoxydim)

2001 POST test
2 applications - 8 WAT

Selective postemergence control of other summer annual grasses

- Growth stage and application timing are important considerations.
- Pre-tiller to 5 tillers is ideal (usually early summer)
- Larger plants require higher doses and multiple applications



Timing experiment

- Herbicides
 - Acclaim Extra
 - Vantage
 - Plateau
- Timing
 - Early season
 - Mid season
 - Late season



Herbicide, rate, and frequency



- Herbicides
 - Acclaim Extra
 - Vantage
- Rates - 1/2X, 1X
- # Applications
 - 1 application (mid-season)
 - 2 applications (4 wk interval)

Herbicide, rate, and frequency

21 Oct 2003



Vantage 1/2X-1 app



Vantage 1/2X-2 app



Vantage 1X-1 app



Vantage 1X-2 app

Preliminary summary

- Acclaim, Vantage, and Plateau each controlled Jap. Stiltgrass
- “Wide window” for applications – early through late summer.
(Application timing is not as critical for stiltgrass as for other summer annual grasses)
- Multiple applications (even at $\frac{1}{2}$ rates) were more effective than single applications

So What?

We can control Japanese stiltgrass, but to what end?

- Can we encourage native species recruitment?
- Can we have a long-term impact on Japanese stiltgrass populations?

Conventional vs. selective treatment comparisons

- Compare hand-removal, mechanical removal, and Roundup with selective herbicide (Acclaim)
- Determine effects on native plant recruitment, establishment, and diversity

Conventional vs. selective



Roundup



Weed Whack



Acclaim

Conventional vs. selective

- 3-yr experiment...
- Compare species recruitment, abundance and diversity
- Percent cover
 - Visual estimates



Conventional vs. selective

Acclaim Extra - Selective



Roundup – Non-Selective



Selective vs. non-selective



Sept 2003

2 seasons of treatment

Preliminary summary

- Easy to control
 - Selective
 - Non-selective
- Selective treatments more conducive to native plant recruitment and establishment
- More resilient to further invasion?

What does that mean?

- What will happen after we control microstegium?



Information

- Lots on the web – just search and you will be surprised
- New information on NEWSSS web site:
www.newss.org/default/publication/microstegium/index.htm