Capital Region PRISM

Integrated Pest Management & A Framework of Response

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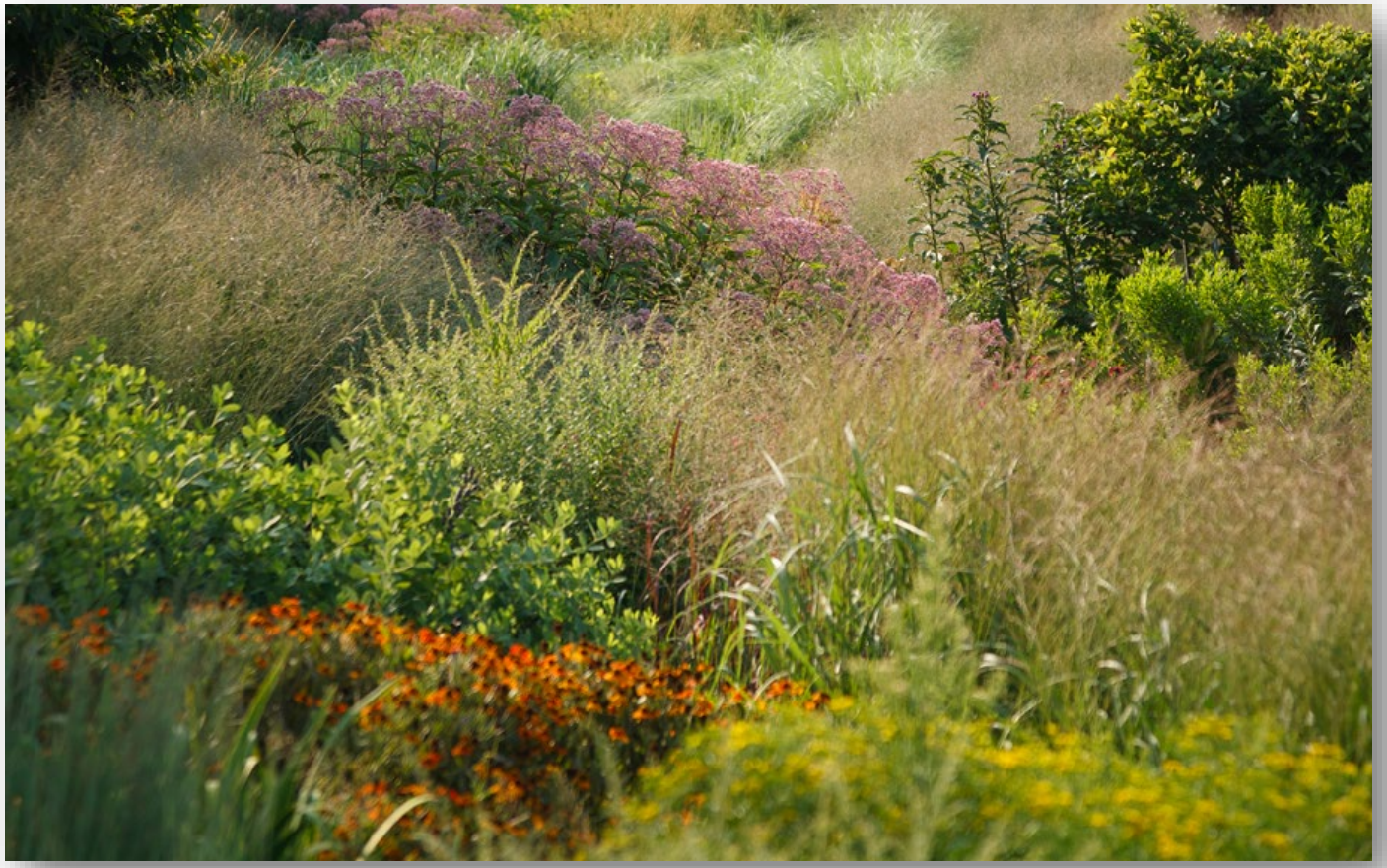
INVASIVE SPECIES MANAGEMENT
CAPITAL REGION



Partnerships for Regional Invasive Species Management

NEW YORK STATE
INVASIVE SPECIES MANAGEMENT

Capital Region PRISM Partnership for Regional Invasive Species Management

INVASIVE SPECIES MANAGEMENT
CAPITAL REGION

Hosted by Cornell Cooperative Extension Saratoga County

The New York State Department of Environmental Conservation provides financial support to the Capital Region PRISM via the Environmental Protection Fund.

MANAGEMENT & PRIORITIZATION

Invasive Species Management is an ongoing, iterative process.

- Five basic steps in management.
- Consider the phenology of the plant and best time for treatment

1. Goals
   - Prevention, Eradication, Suppression Exclusion….
2. Prioritization of Species or Locations
3. Developing a Plan
4. Selecting and Implementing Actions
5. Post Treatment Monitoring and Restoration

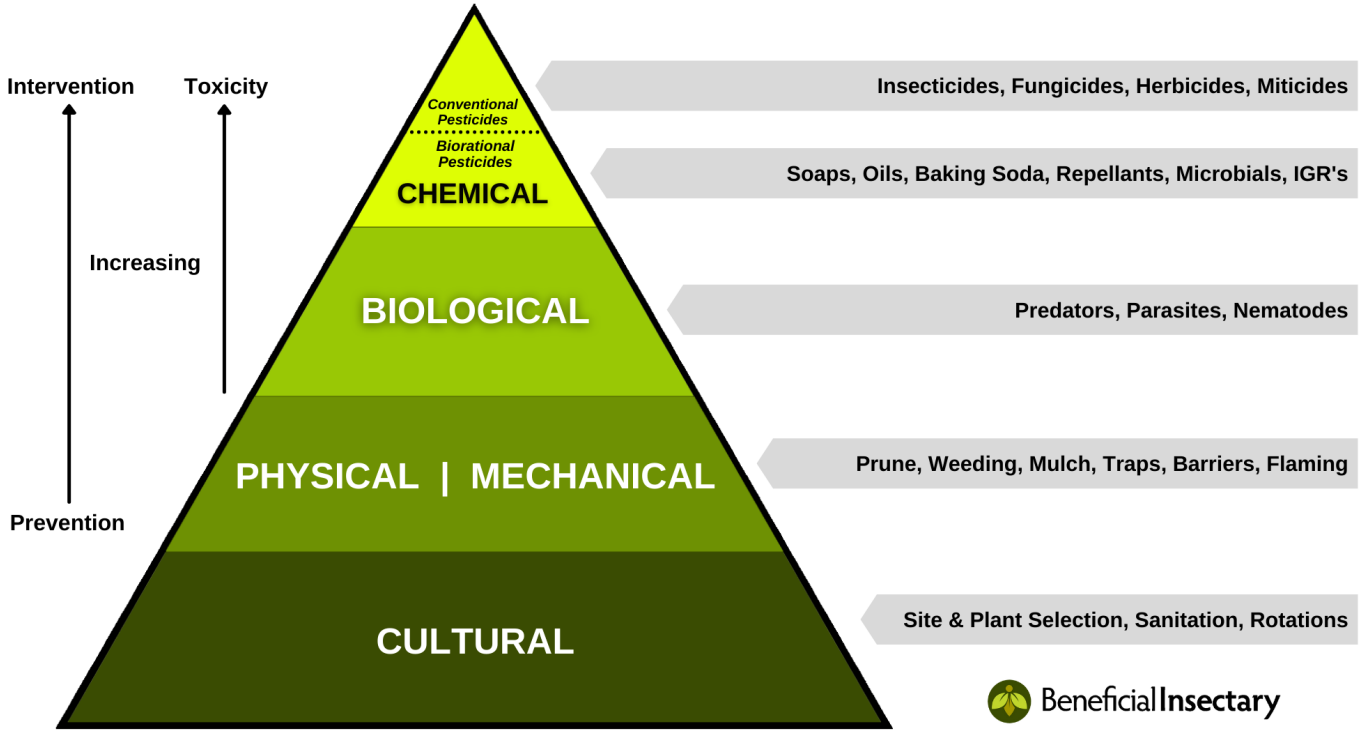
Integrated Pest Management (IPM)

Adaptive ecosystem-based approach exploring multiple control options targeting invasive species.

- Selecting from a range of manual, mechanical, chemical, cultural and biological control methods.
- The goal is to maximize effective control and to minimize negative environmental, economic, and social impacts.

IPM control method(s) reflect the available

- Land use goals, Funding, Time, Values of the Community, Labor and Require Dedication Over Years



UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES
"Statewide Integrated Pest Management Program" https://www2.ipm.ucanr.edu/What-is-IPM/ 1996-2019

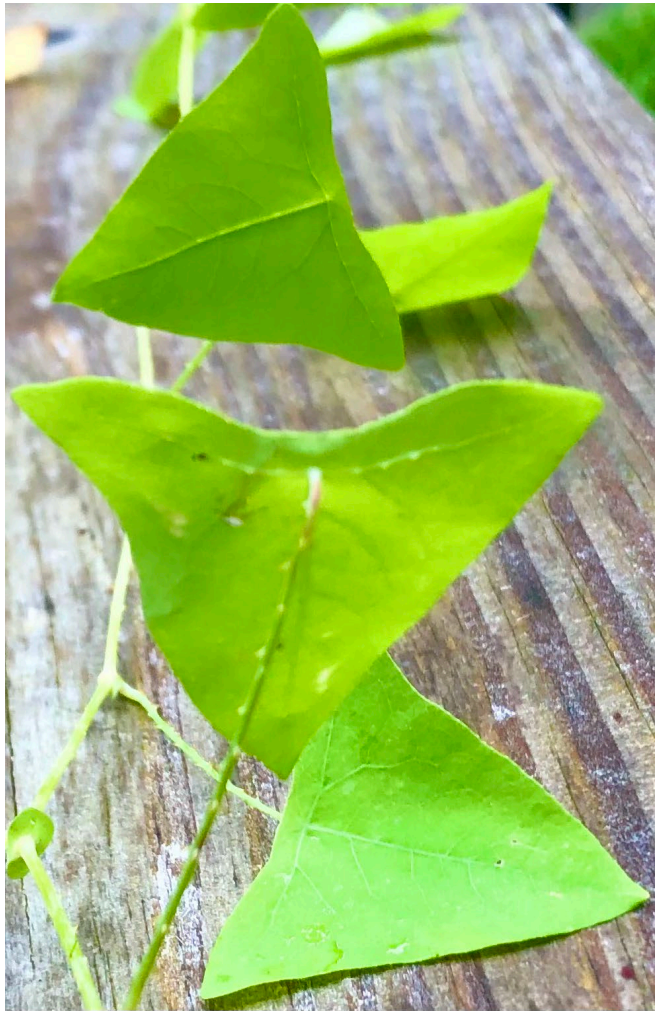
IPM Programs Combine Management Approaches for Greater Effectiveness.

Manual and Mechanical Controls

- hand pulling, grubbing, cutting, girdling, grazing, hoeing, mowing, and/or excavating.
- includes barrier techniques with mats, mulches for weed management

Cultural Controls

- Practices that reduce pest establishment, reproduction, dispersal, and survival.
- Limiting exposed soil with restoration



IPM Programs Combine Management Approaches for Greater Effectiveness.

Biological Control

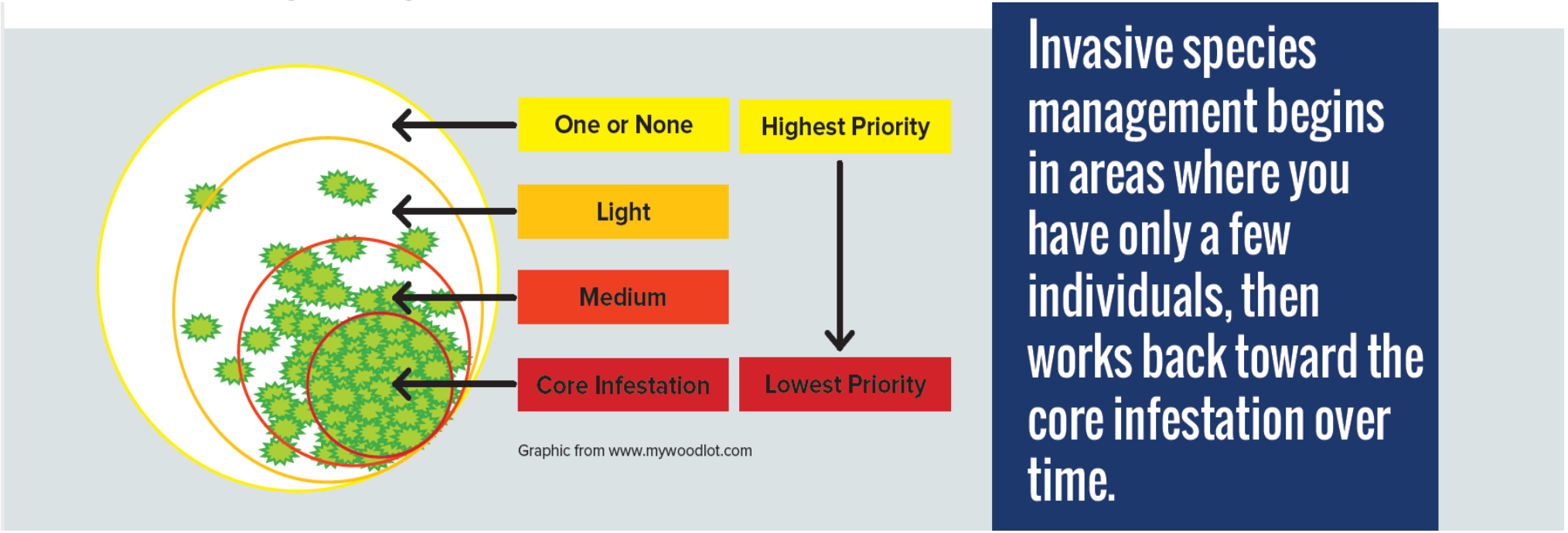
Natural enemies like predators, parasites, pathogens, and competitors to feed on or disrupt an invasive species. A form of control not eradication.

Chemical Control

Pesticides are selected and applied in a way that minimizes their possible harm to people, non-target organisms, and the environment.

Prioritization

- **With a selected control strategy start with low density satellite populations then into the core of the infestation.**
  - Less difficult to more intensive, expensive and time consuming.
  - Strategy prevents minor, manageable infestations from
  - becoming larger



The New York State Department of Environmental Conservation "Managing Invasive Plants In Riparian Areas

Woody Vines, Shrubs, Trees and most Herbaceous Plants

- As different as invasive species are from each other, ***most*** are managed using the same set of tools and practices.

  Depend on

  1. the overall management goals
  2. resources available for management.

Physical Control	**Combined Control**	**Chemical Control**
Removal by Hand	Cut-Stump	Foliar Application
Cutting and Mowing	Girdle Treatment	Basal Bark Application
Girdling	Stem Injection	
Prescribed Grazing		
Prescribed Burning		
Direct Heating		

There is no silver bullet management tool or practice that works in all situations

https://woodyinvasives.org/management/directed-heating-spot-burning/

WOODY VINES AND SHRUBS

Many invasive woody vines and shrubs can be managed using comparable techniques. The following species can be managed using the general BMPs included in this section:

All Honeysuckles ***Lonicera spp. & Lonicera japonica***
Buckthorn ***Rhamnus cathartica & Frangula alnus***
Barberry ***Berberis thunbergii & B. vulgaris***
Japanese snowball ***Viburnum plicatum***
Multiflora ***Rosa multiflora***
Bittersweet ***Celastrus orbiculatus***
Porcelain berry ***Ampelopsis glandulosa***
Autumn olive ***Elaeagnus umbellate & E. angustifolia***
Scotch broom ***Cytisus scoparius***
Wineberry ***Rubus phoenicolasius***
Winged euonymus ***Euonymus alatus***

Herbaceous Plants and Vines

Herbaceous plants can also be managed using these comparable techniques.

Garlic mustard	*Alliaria petiolata*
Giant hogweed	*Heracleum mantegazzianum*
Indian cup plant	*Silphium perfoliatum*
Japanese hops	*Humulus japonicus*
Knapweed spp.	*Centaurea stoebe & C. jacea*
Lesser celandine	*Ficaria verna*
Mile-a-minute	*Persicaria perfoliata*
Purple loosestrife	*Lythrum salicaria*
Swallow-wort spp.	*Vincetoxicum louiseae & V. rossicum*
Sweetclover spp.	*Melilotus albus & M. officinalis*
Wild parsnip	*Pastinaca sativa*

Trees

And here is a short list of trees,

Japanese angelica tree	***Aralia elata***
Japanese tree lilac	***Syringa reticulata***
Norway maple	***Acer platanoides***
Tree-of-heaven	***Ailanthus altissima***

1.Digging/Pulling

Manual management effectiveness :

- Hand digging, grubbing, and pulling is an effective method for containing or locally eradicating infestations
  - Most effective when performed before seed
  - Attack the root ball and deal with the seed bank

Methods:

- Dig up each stem by the base remove entire root system
- Disturbed soil should be tamped down
- Soil disturbance can cause seed germination.
- Monitor for resprouts.

1.Digging/Pulling

Methods:

- Top cut large over brush and let it sit a season,
- Complete another cut after resprouts occur.
- Remove stump in the next season.
- Consider a chemical treatment

2.Cutting/Mowing

Mechanical Effectiveness: Brush hogging, cutting, mowing can be effective in containing large sized infestations of invasive woody plants.

- Must be repeated annually to reduce an infestation size
- Roots are still present to resprout
- Seeds in the soil are unaffected by this technique.

Methods: Cut invasive woody vines and shrubs at ground level either manually or with motorized equipment.

- Just before seed production,
- Follow-up will be required within a growing season
- Some shrubs respond positively to cutting
- Do not use a weed-whacker on plants with saps or oils that cause chemical burns and rashes.


YANMAR

3.Herbicide

Effectiveness: can be effective in containing or locally eradicating medium sized infestations and suppressing large infestations.

- glyphosate, triclopyr, or imazapyr based herbicides
- imazapyr may inhibit regrowth (seeds) for several months or years
- (Snapshot)

Methods*:*

- Timing of Application should be performed as recommended
- Consult the herbicide product label for recommended dilution rates and to ensure the target species, desired application technique, and habitat type (upland vs. wetland) are listed and approved.

MANAGEMENT OPTIONS

Application techniques:

a) ***Wiper, Spot, or Wicking Application***

- sponge tip applicator or cloth glove applicator.

b) ***Stem injection application***

(hollow stemmed species) - stem injection tool with a short, stout needle or pipet.

Disposal: Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.

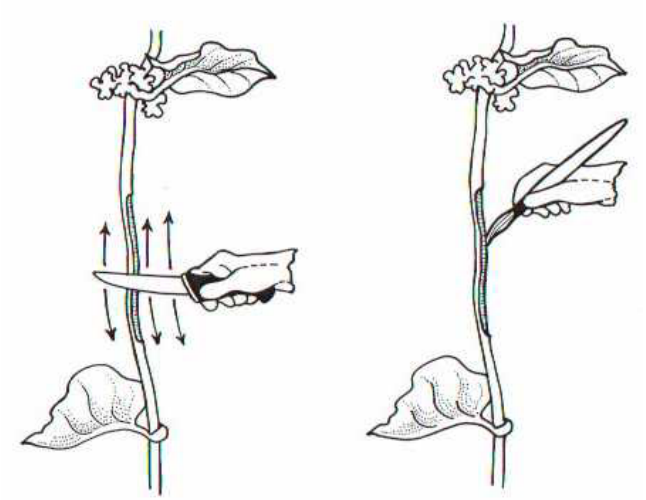
Application techniques:

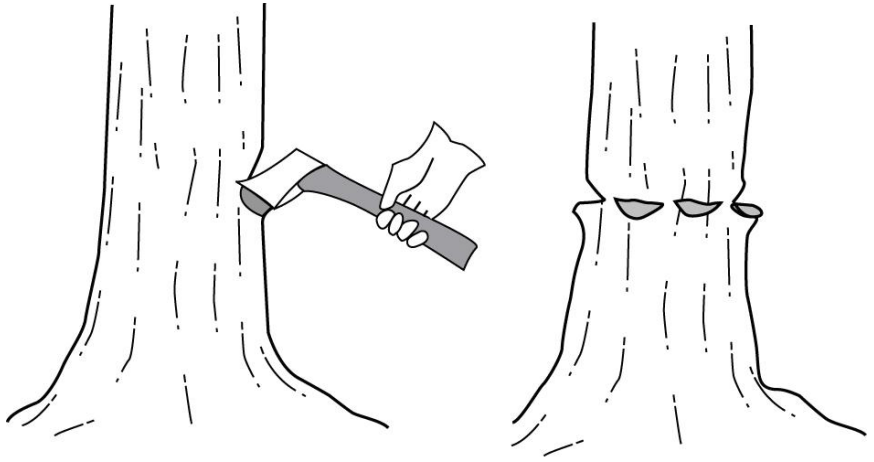
c) ***Hack and squirt/drill and fill***

– ax or drill

d) ***Cut stump application / or Cut and Swab***

- commercial-grade spray bottle or backpack sprayer with adjustable nozzle
- wash bottle, eye dropper, or paintbrush





Application techniques:

e) Basal bark application

f) Foliar spray application

- commercial-grade spray bottle or pack sprayer with adjustable nozzle
- boom/broadcast sprayer.

Disposal:

Manual or Mechanical

- Woody debris can be mulched/chipped and left on-site or burned if allowed under local laws and regulations.
- Non-fruit bearing plants can be propped against or suspended from nearby tree trunks/branches with their roots exposed to decompose. They can also be arranged into brush piles for wildlife habitat.

Chemical

- Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required

PRODUCT LABEL IS THE LAW

Disclaimer

- Please note that neither Cornell Cooperative Extension of Saratoga County nor any representative thereof makes any representation of any warranty, express or implied, of any particular result or application of the information provided by us or regarding any product.
- If a product is involved it is the sole responsibility of the user to read and follow all product labeling instructions and to check with the manufacturer or supplier for the most recent information. Nothing contained in this information should be interpreted as an express or implied endorsement of any particular product or criticism of unnamed products.
- With respect to any information on pest management the User is responsible for obtaining the most up-to-date pest management information. The information we provide is no substitute for pesticide labeling. The User is solely responsible for reading and following manufacturer's labeling and instructions.

Rules for Efficient and Safe Use of Herbicides

1. Develop an Integrated Plant Management approach.
2. Use chemical control as only ONE piece of your prevention and management strategy.
   - Chemicals should only be used when another approach will not be effective.
3. Do not use higher concentrations than are required by the label. It is critically important to apply the correct formulation and concentration of herbicide with the appropriate method at the appropriate time of year. This will depend upon the invasive, the site, and the size of the infestation. Using more herbicide does NOT make the formulation more effective.
4. The label found on the pesticide container is the law. Read this label in its entirety. It will teach you what concentrations to use, what protective clothing to wear, how to apply the product, and what environmental and human health hazards are associated with the chemical.
5. Hire a contractor to manage large infestations.
   - In order to ensure effective treatment and minimal damage to nontarget species, it is recommended that a landowner contract a certified herbicide applicator who specializes in invasive plant management.
6. A pesticide applicators license is required to purchase certain chemicals.
7. Use aquatic formulations within ten feet of water. Commonly available glyphosate formulations are not permitted to be used in wetland areas. Contact your Regional NYS DEC Pesticide Office for help.

Questions?

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CLONAL PLANTS

The following species are characterized by extensive rhizome systems and the ability to spread clonally via root and/or stem fragmentation, which presents unique management challenges.

Common reed grass	***Phragmites australis***
Knotweed species	***Reynoutria ssp.***
Yellow iris	***Iris pseudacorus***

Application techniques:

a) Foliar spray application

- *Common reed grass* - cut the stem near the base and fill its hollow cavity with 2-5ml of glyphosate-based herbicide. Most herbicide product labels recommend a 50% solution.
- *Yellow iris* cut a flowering stalk and inject the plants fleshy pith with 0.5-1ml of glyphosate-based herbicide

b) Clip and drip or stem injection application:

- *Knotweed spp.* Using a stem injection system or pipet, deliver 5ml of glyphosate-based herbicide directly into the plants hollow stem. Injections are typically made above the 2nd node from the ground.

DISPOSAL

Manual Mechanical Disposal:

- Bag and remove all plant parts from site. Solarize by placing bagged plant material in the sun for at least two-weeks and then dispose of in an approved landfill. Do not compost invasive plant material.

Chemical Disposal:

- Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.

GRASSES

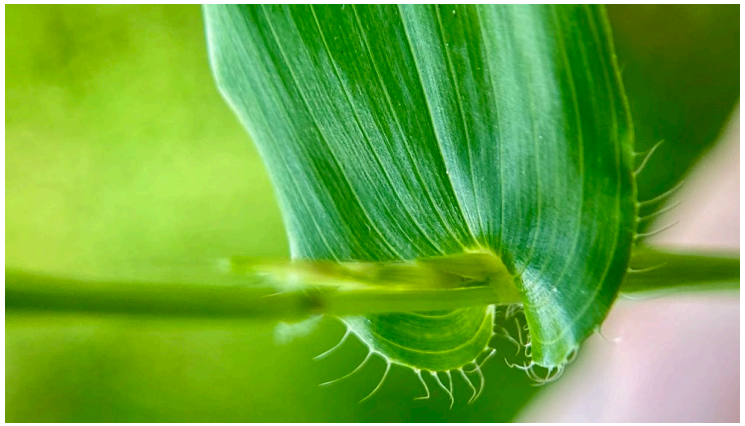
Due to their similar biology and growth habits, most invasive grasses can be managed using comparable techniques.

Japanese stiltgrass (*Microstegium vimineum)*

Reed canary grass (*Phalaris arundinacea)*

Slender false brome (Brachypodium sylvaticum)

Small carpetgrass (*Arthraxon hispidus)*



Digging/Pulling /Cutting/Mowing

Manual management effectiveness:

- Digging or hand pulling is an effective method for suppressing or locally eradicating invasive grasses.

Mechanical Management Effectiveness:

- Cutting or mowing can be effective in containing or suppressing small to medium sized infestations of grasses.
  - ✓ dormant seeds in the soil need to be then depleted (3-5 years)
  - ✓ performed prior to seed set
  - ✓ check the life cycle of the plant
  - ✓ Repeated pulling and mowing er season

Herbicide

Chemical Effectiveness:

- Invasive grasses can be effectively controlled by glyphosate-based herbicides.

Methods: Apply glyphosate-based herbicide close to peak growth, but before seed production.

a) ***Wiper or Wicking Application***
- sponge tip applicator with wick or cloth glove applicator.

b) ***Foliar Spray Application***

Disposal: Leave for two weeks following treatment. No disposal is required

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