MPRB Integrated Pest Management Policy and Pesticide Application Background

Operations & Environment Committee
February 20, 2019
20 years of Integrated Pest Management

- **January 1, 2000** – All Parkkeepers become licensed pesticide applicators by the Minnesota Department of Agriculture
- **March 1, 2006** – MPRB established an IPM Work Team
- **2007** – Sustainable Land Practices Work Group presents final report with recommendations for refined thresholds
- **January 24, 2008** - IPM Policy revised, presented and approved by Board of Commissioners (Policy IX-B-9).
- **April, 2016** – Board Action to eliminate the use of Glyphosate in Neighborhood parks excluding projects currently in process and enhance the IPM program with tracking and exploring new management tools
- **January 1, 2019** – Board Action to eliminate use of Glyphosate system wide goes into effect and establishes a Community and Technical Advisory Committee to research and recommend viable alternatives to glyphosate and other toxic pesticides.
Integrated Pest Management (IPM)

- A pest management strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment and non-target organisms.
  - Not a predetermined set of practices, rather a gradual stepwise process for improving pest management
  - Employ a combination of approaches, incorporating the judicious application of ecological principles, management techniques, cultural and biological controls and chemical methods to manage pests below threshold levels that cause damage
  - Implementation requires a thorough understanding of pests, their lifecycles, environmental requirements, and natural enemies. As well as the establishment of a regular systematic program for surveying for pests and damage.
  - When treatment is necessary, the least toxic and most target-specific management tool is selected.
A pest management strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment and non-target organisms.
Diverse Landscapes

Street Trees  Neighborhood, Regional Parks & Parkways  Natural Areas

Golf Courses  Gardens  Athletic Fields
Internal Management Areas

**Asset Management**
- Neighborhood & Regional Parks
- Park Buildings
- Formal Gardens
- Athletic Fields
- Public Access Beaches & Aquatic Facilities
- Parking Lots & Sidewalks

**Environmental Management**
- Natural Areas
- Bodies of Water

**Forestry**
- Park Trees
- Boulevard Trees

**Golf**
- Golf Course Grounds
MPRB Current Practices & the IPM Policy in Action
Pesticide Definition

Pesticide active ingredients are described by the types of pests they control or how they work. People often use the term "pesticide" to refer only to insecticides, but it actually applies to all the substances used to control pests.*

Well known pesticides include:
  • insecticides
  • herbicides
  • rodenticides
  • fungicides

Less well-known pesticides include:
  • disinfectants
  • attractants
  • plant defoliants
  • swimming pool treatments
  • plant growth regulators

*Information from United States Environmental Protection Agency
IPM Policy in Action

• Significant reduction in annual use of liquid pesticides and herbicides since 2008.
• Park Board staff employ a variety of methods to reduce need for pesticide applications.
  • Physical, mechanical, cultural, biological, and educational tactics are all employed to prevent damage or before chemicals are utilized.
WHY:

MPRB is subject to Minnesota Noxious Weed Law.  
(MN Statutes, sections 18.75 to 18.91)

Requires public and private land owners and managers to manage specific species of plants.

**Eradicate List** – Must be eradicated by killing the above and below ground parts of the plant.

**Control List** – Must be controlled to prevent the maturation and spread of propagating parts.

**Restricted Noxious List** – May not be sold, transported without a permit, or intentionally planted in Minnesota.

**Specially Regulated Plants** - Must be eradicated or controlled for public safety along trails and public access areas.
Current Pesticide Use Practices

**Asset Management**
- Noxious weed management in regional parks & formal gardens
- Plant health issues within formal gardens
- Maintain turf standards on tier 1 athletic fields
- Rodents within buildings
  - Building cleaning
  - Swimming Pools

**Environmental Management**
- Noxious weed management within natural area
- Invasive species management identified as threats

**Golf**
- Maintain turf standards

**Forestry**
- No use internally but allowance of use by permitted arborist contractor
IPM Policy in Action
Forestry

- Residents permitted to treat street trees for pests by permit
- Emerald Ash Borer biological control with MDA
- Diversity tree planting to limit future operational liability
- Design standards and planting practices
- Sanitation of diseased and/or infested trees

Prevention

Chemical

Biological

Mechanical

Cultural
IPM Policy in Action
Neighborhood Parks

- Vinegar solution trialed in some locations
- Rodenticide application by contractor
- Removal of mulched beds in favor of turf which can be mowed to control weeds
- Trapping and/or removal of pests such as rodents or wasps
- Hand pulling, weed whipping, mowing, smothering and/or burning of weeds

Prevention

Chemical

Cultural

Biological

Mechanical
• Have employed various methods for weed control:
  – Brush torch weeds in paved areas
  – Weed whips to scalp weeds
  – Hand pulling
  – Woodchips

• Have explored alternative herbicides
  – A.D.I.O.S (sodium base)
  – Avenger (citric base)
  – SummerSet All Down Concentrate (23% Acetic Acid 14% Citric Acid)
IPM Policy in Action
Regional Parks & Parkways

- Limited use of herbicides to control noxious weeds as needed
- Rare use for aesthetics and restoration projects
- Rodenticide application by contractor

Prevention

Chemical

Cultural

Biological

Mechanical

- Removal of mulched beds in favor of turf which can be mowed to control weeds
- Trapping and/or removal of pests such as rodents or wasps
- Hand pulling, weed whipping, mowing, smothering and/or burning of weeds
IPM Policy in Action
Regional Parks & Parkways

• Victory Memorial experiment 2009 – 2011
  • Green Guardian – Concentrated Molasses Extracts
  • North Side of the Drive from Queen Av to Russell Av

• Have explored alternative herbicides
  • A.D.I.O.S (sodium base)
  • Avenger (citric base)
  • Horticultural Vinegar
IPM Policy in Action
Formal Gardens

Prevention

- Limited use of herbicides to control noxious weeds
- Limited use of fungicide & insecticide
- Removal of infected plant material to reduce probability of pest carry over
- Avoid susceptible plant material
- Hand removal of Japanese beetles
- Hand pulling, weed whipping, mowing, smothering and/or burning of weeds

Chemical

Cultural

Biological

Mechanical
What Else Have We Tried?

- Solarization/Smothering
- Burning
- Vinegar Solution
- Manual Removal
Solarization and/or Smothering

This technique is utilized when larger beds are being cleared or prepped to be fully replanted. Black plastic has been found non-effective to eliminate Canada Thistle even in highly controlled planting beds.

- Low cost
- Minimal labor

- Long term planning needed
- Ineffective against certain weed species
- Not useable in the confined spaces of formally planted areas
Burning
This technique is utilized on hardscapes such as paver walkways within certain formal gardens.

- Quick results

- Labor intensive due to repeat applications necessary for control (Does not effect root system)
  - Safety concerns
  - Limited to hardscapes
Horticulture Vinegar Solution & Avenger (Organic Herbicide)
Tested but not regularly utilized at this point in time.

- Alternative to other herbicides
- Labor intensive due to repeat applications necessary for control (Does not effect root system)
  - Safety concerns
  - Soil health (acid + salts)
Hand Pulling (tighter spaces)
This technique is utilized most frequently.

Timed Cutting Back (larger, more open spaces)
Secondary manual removal technique

- Avoid chemical use
- Instant visual improvement
- Prevents a seed bank build up

- Labor intensive
- Triggers some weeds to multiply and spread
- Time sensitive
IPM Policy in Action
Natural Areas

- Limited use of herbicides to control noxious & invasive weeds
- Limited use in ecological restoration work
- Release of natural predators targeted at invasive/noxious weeds
- Goats

Prevention

- When applicable, avoid susceptible plant material

Chemical

- Limited use of herbicides to control noxious & invasive weeds

Cultural

- Prescribed burns
- Manual and mechanical removal

Biological

- Goats

Mechanical
Biological Controls

- **Purple Loosestrife** control in wetland areas. Partnership with MnDNR started in the early 1990’s to release leaf feeding weevils. Successful control program has been established.

- **Spotted Knapweed and Leafy Spurge** control on Cedar Lake Regional Bike Corridor and Victory Prairie. Partnership with MDA releasing flower and root feeding weevils in 2003. Control is working on all sites.

- **Eurasian Water Milfoil** control research with University of Minnesota. No control to date due to fish predation.
Prescribed Burning

Weather conditions must be exact:
- Wind speed
- Humidity levels
- Air temperatures

Additionally:
- No MnDNR red flag warnings
- No MnPCA air quality alerts
- Working around special events (Bike to Work day in May)
Goats

➢ Common buckthorn is the primary target of this work; other invasive species include, honeysuckle, Siberian elm and garlic mustard.
➢ Treatments in 2017 and 2018

Before – May 30, 2017

After – June 2, 2017
IPM Policy in Action
Golf

- Pesticides used on an as needed basis to maintain turf standards

Prevention

- Utilize different turf varieties that require less inputs such as no-mow varieties in non-play areas

Chemical

- Annual soil testing as needed

Cultural

- Regular aeration, topdressing, & overseeding

Biological

- Frequent mowing to prevent seed dispersal of weeds

Mechanical
IPM Policy in Action
Golf

➢ Increased No-Mow areas in an effort to create more natural areas
➢ 5 Golf Courses as Certified Audubon Cooperative Sanctuary
  • Gross, Meadowbrook, Columbia, Theodore Wirth Championship & Par 3
IPM Policy in Action
Tier 1 (Premiere) Athletic Fields

- Prevention
  - Annual soil testing as needed
  - Regular aeration, topdressing, & over-seeding

- Chemical
  - Herbicide used on an as needed basis to maintain turf standards

- Cultural
  - Frequent mowing to prevent seed dispersal of weeds

- Biological

- Mechanical
IPM Policy in Action
Tier 1 (Premiere) Athletic Fields

- **Bossen Athletic Complex**
  *newly renovated 2016-2018
  (6 softball field warning track only)

- **Niemen Athletic Complex**
  (5 baseball/softball field warning track, fence line, batting cages only)

- **Parade Field**
  (1 baseball field hardscape around bleachers only)
What Else Have We Tried?

- BURNING
- VINEGAR SOLUTION
- MANUAL REMOVAL
IPM Policy in Action
Tier 1 (Premiere) Athletic Fields

Burning
This technique has been tested on hardscapes.

- Quick results
- Ok to use on Ag Lime surfaces

- Labor intensive due to repeat applications necessary for control (Does not effect root system)
  - Safety concerns (fire)
  - Not effective on asphalt
Horticulture Vinegar Solution
Tested but not regularly utilized at this point in time.

- Alternative to other herbicides

- Labor intensive due to repeat applications necessary for control (Does not effect root system)
  - Safety concerns
  - Soil health (acid + salts)
IPM Policy in Action
Tier 1 (Premiere) Athletic Fields

Timed Cutting Back (larger, more open spaces)
Secondary manual removal technique

- Avoid chemical use
- Instant visual improvement
- Prevents a seed bank build up

- Labor intensive
- Triggers some weeds to multiply and spread
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Glyphosate Usage Map 2017-2018

Applications Areas (2017-2018)

- Bossen Field
- East River Rd. & Franklin
- Longfellow Gardens Prairie
- Loring Park Pond
- Minnehaha RP
- Minnehaha – Wabun
- Neiman Sports Complex
- North Mississippi RP
- Parade Park
- West River Rd. & 38th
- West River Rd. Savannah at 36th St.
- MPRB Golf Courses

Glymphosate Application Locations
Questions?

www.minneapolisparks.org