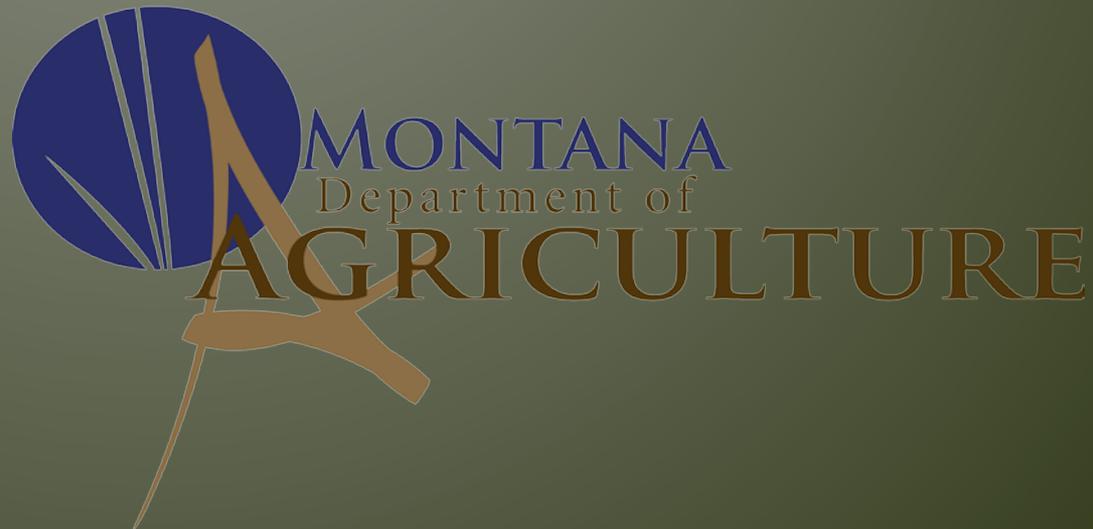


EAB MANAGEMENT OPTIONS

Ian Foley, Montana Department of Agriculture

406-444-9454

ifoley@mt.gov



EAB OPTIONS

- What to do????
 - Nothing. Let nature take it's course.
 - Liability.
 - “Chicago Actress Dies After Being Hit by Falling Tree” -NBC Chicago 9/6/2014.
 - \$\$\$\$ removal of dead trees.
 - Remove and replace.
 - \$\$\$\$\$.
 - Sustained insecticide treatments once EAB is detected.
 - \$\$\$\$\$\$. Forever? Which trees?
 - Integrated plan including all of the above.
 - \$\$\$\$\$\$.



NO TREATMENTS ARE RECOMMENDED UNTIL EAB IS CONFIRMED WITHIN 10-15 MILES OF YOUR TREE



United States
Department of
Agriculture

Cooperative Emerald Ash Borer Project

Initial county EAB detections in North America

August 1, 2014

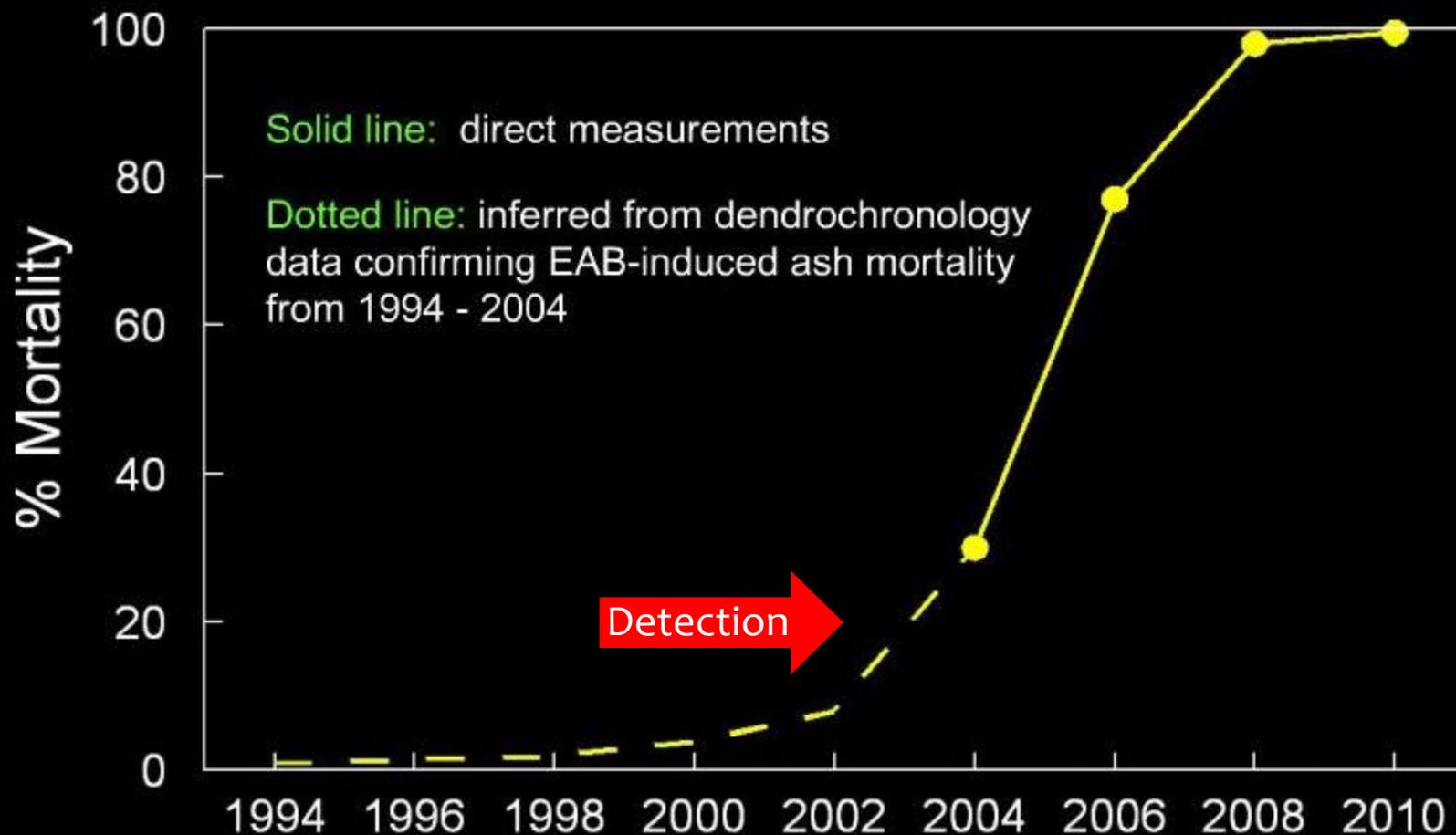


DO NOTHING



EAB-Induced Ash Mortality in the Upper Huron River Watershed, SE Michigan

Exponential Increase in Ash Mortality (> 4 inch dbh)



FIRST STEP TO SOMETHING: URBAN TREE INVENTORY

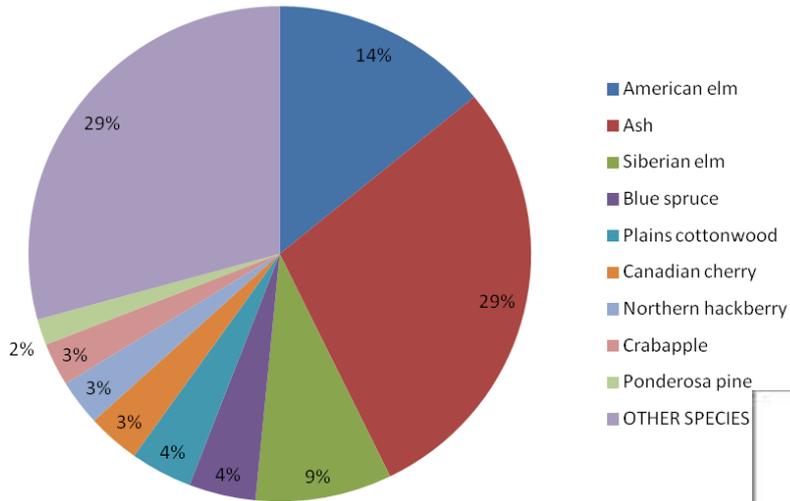
Table 4. Estimated cost to Montana communities in the 3-10 year period after EAB introduction.

Community	Estimated ash trees	Low Costs (\$)	High Costs (\$)
Bozeman (1995)	43,800	19,710,000	65,700,000
Billings (2009)	16,000 (city owned)	7,200,000	24,000,000
Missoula (2009)	15,900	7,155,000	23,850,000
Helena (2011)	5,621 (city owned)	2,529,450	8,431,500
Great Falls (2009)	42,000	18,900,000	63,000,000
Forsyth (2008)	188	84,600	282,000
Glendive (2004)	925	416,250	1,387,500
Red Lodge (2008)	201	90,450	301,500
Roundup (1989)	1,264	568,800	1,896,000

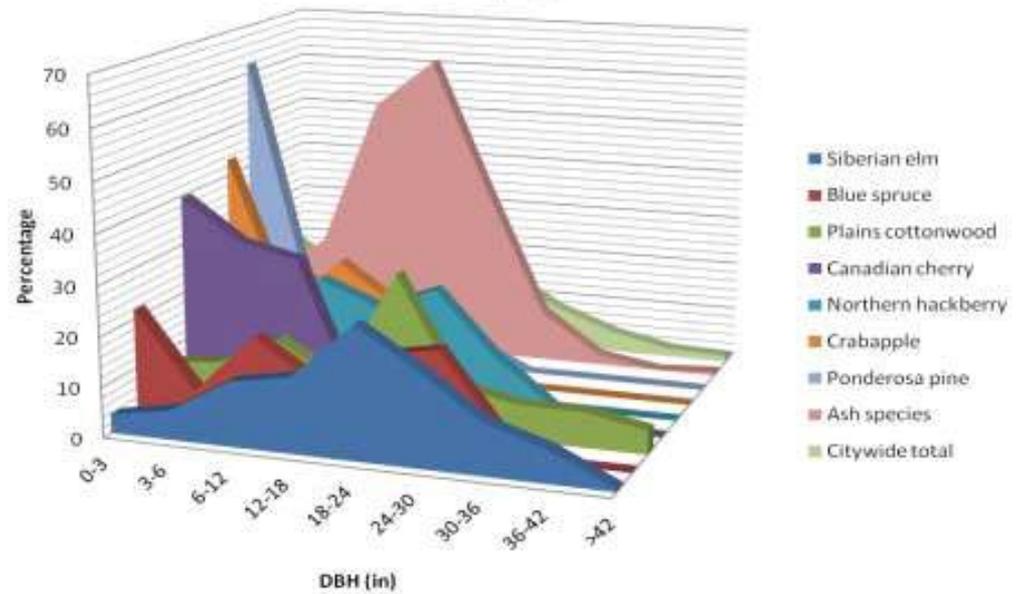
= EAB impacts are about \$500 per tree on average depending on removal, replacement, treatment, liability, etc.



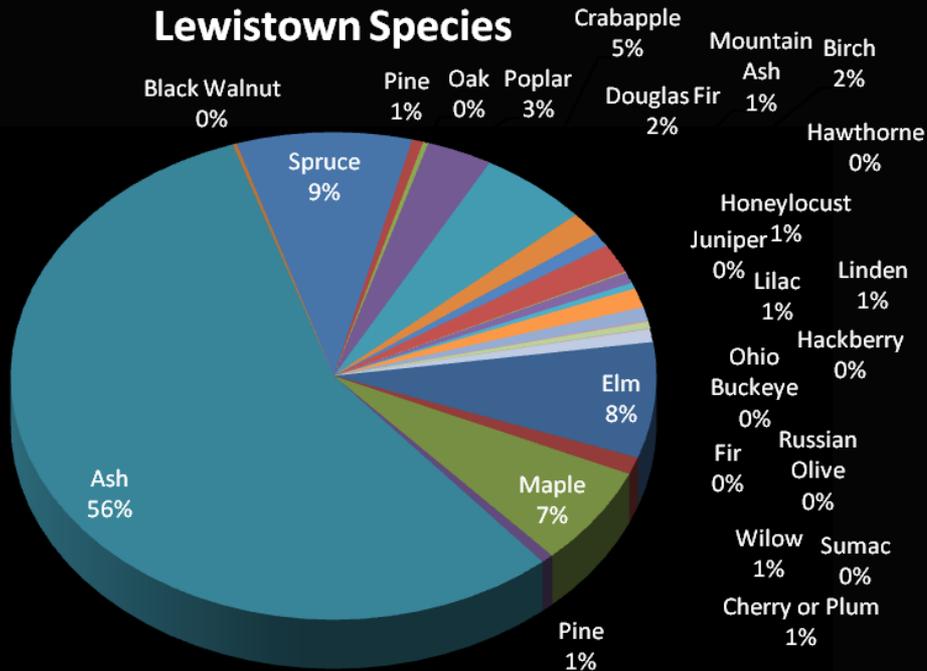
Sidney Species Distribution



Relative size distribution of Sidney's top species (%)



Lewistown Species



City (year of data)	Percentage of Ash (Fraxinus sp.)
Bozeman (1995)	~60%
Billings (2009)	44.50%
Helena (2011)	62.30%
Missoula (2009)	5-10%
Great Falls (2009)	~50%
Forsyth (2008)	31%
Glendive (2004)	24%
Red Lodge (2008)	9.50%
Roundup (1989)	63%

Denver metro area (including Boulder) has ~1.5 million ash trees. The city has estimated it would cost over a \$1 billion to remove and replace all of the ash trees in Denver. Only 20% of the trees in Denver are ash.

Helena, Great Falls, or Bozeman may have the highest percentage of green ash of any city in the United States?

EAB OPTIONS

- What to do????
 - Nothing. Let nature take it's course.
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 - \$\$\$\$ removal of dead trees.
 - Remove and replace.
 - \$\$\$\$\$\$.
 - Sustained insecticide treatments once EAB is detected.
 - \$\$\$\$\$\$. Forever? Which trees?
 - Integrated plan including all of the above.
 - \$\$\$\$\$\$.





State of Illinois
 Department of Agriculture
 Bureau of Environmental Programs

DECLARATION OF NUISANCE

NOTICE IS HEREBY GIVEN by the Illinois Department of Agriculture, Bureau of Environmental Programs, pursuant to the Insect Pest and Plant Disease Act (505 ILCS 90/14) that the Illinois Department of Agriculture is declaring all plants and plant products thereof infested with the Emerald Ash Borer (*Agrilus planipennis* Fairmaire), specifically but not limited to Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus Americana*), Black ash (*Fraxinus nigra*), as well as several horticultural varieties of ash, to be a nuisance in the State of Illinois and should be eradicated. The beetle is currently confined to portions of Kane and Cook Counties. There is currently no known treatment to control Emerald Ash Borer. Therefore, in accordance with 505 ILCS 90/15, eradication of infested trees according to Department guidelines will be required by the owner, or other persons in possession or control of the infested trees. The responsible party must remove all infested trees by the deadline and method specified by the Department. Failure of the property owner, or person in possession or control of the property to remove the infested trees will result in the tree removal by the State of Illinois and the expenses incurred by the State of Illinois shall be collected in a civil action against the person liable.

This declaration shall be effective this 19th day of July 2006.




 Charles Hartke, Director

What Does Green Mean?



Tagging of City and private trees for Emerald Ash Borer (EAB) has begun. City parkway trees will be tagged first with residential trees to follow. Staff will begin tagging public street trees on the east side of town and work west. Tagging trees on private properties will occur where the greatest threat to public health or safety or public properties exists. Trees infested with EAB will be identified with a green ribbon and a green tag. Residents will receive a door hanger letting them know the City was at their home as well as receive a certified letter by mail notifying them that their private trees are required to be removed. The letter will require the removal of the infested ash tree(s) within 30 days of receipt of the letter as they have been deemed a threat to public health or safety or public properties.

If you have any questions or concerns please contact the Forestry section @ 847-810-3563.

For additional information on EAB please visit the Forestry section on the City's website www.cityoflakeforest.com

THE MINNEAPOLIS PLAN: REMOVE AND REPLACE

- Total Canopy Replacement
 - There are an estimated 210,000 Ash trees on both private and public property in the City of Minneapolis (38,000 boulevard trees).
 - “All ash trees will become infested with EAB and eventually die.”
 - “Proactively removing trees before they die reduces the risk of damage and injury caused by limbs falling from dead and dying ash trees.”
 - The ash canopy replacement plan is funded through an annual \$1.2 million levy that was first passed in 2013. This levy needs to be passed annually to fund the eight year plan.
 - Forestry crews anticipate replacing 5,000 ash trees each year for eight years.
 - While the MPRB is not using chemical treatments on ash trees, residents may treat non-symptomatic boulevard ash trees with insecticide at their own expense. All ash treatments must be applied by a licensed and permitted tree care company.
- **The research suggests that they will be able to “keep up” with removals for 2-3 years, but by year 5 most of the trees will be dead and the “death curve” will catch up with the removal plan.**

EAB OPTIONS

- What to do????
 - Nothing. Let nature take it's course.
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 - \$\$\$\$\$\$.
 - Sustained insecticide treatments once EAB is detected.
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NO TREATMENTS ARE RECOMMENDED UNTIL EAB IS CONFIRMED WITHIN 10-15 MILES OF YOUR TREE

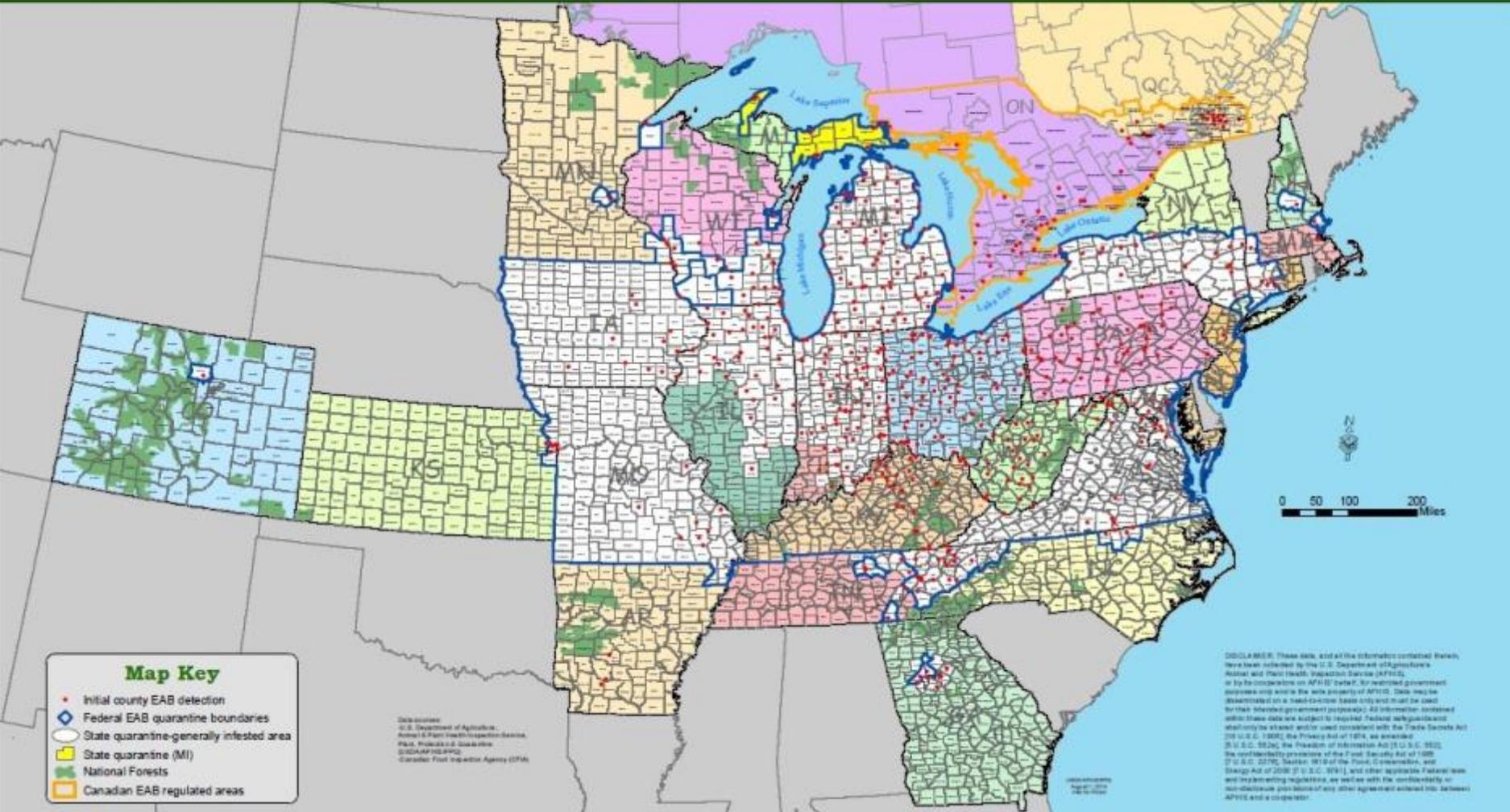


United States
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EAB Risk Management

Treatment Vs. Removal/Replace

- **Method of Treatment**
 - Trunk Injection
 - Arbor-Jet Air Hydraulic (Based on Time Study)
 - Emamectin Benzoate (Tree-age)
 - 2 Year Control
- **Target Generally Healthy Ash >8" DBH – 27,000 Trees**
- **\$35/Tree/Year (16"DBH)**
- **\$800,000/Year**
- **Removal/Replace**
 - 33,000 Total Ash Trees
- **Average Removal & Replacement Costs per 12" Tree:**
 - Removal = \$350
 - Replanting = \$400
 - **Total per Tree = \$750**
- **Total Removal & Replacement Cost = \$27,000,000**

EAB Risk Management

Ash Street Tree Removals/Replacement

- **Removal/Replace on our Schedule (15-20 Yrs. vs. 3-5 Yrs.) * Manage the “Death Curve”**
 - 1) **Poor Condition Ash Trees Immediately**
 - 2) **Ash Trees Under Wires**
 - 3) **Untreated Ash Trees <8”dbh**
- **Diversify Tree Plantings**
 - **Intra-block Diversity**
 - **City-wide Diversity**

*** Can do in Montana Today!**



SELECT ONLY HEALTHY TREES IN APPROPRIATE GROWING SITES FOR TREATMENT

- **Less than 30-50% dieback**
 - **Power lines**
 - **Male only?**
 - **“High Value” only?**
-
- **Its likely that based on any previously established guidance or planting recommendation, 30-50% of the urban ash trees in Montana should be pre-emptively removed today!**





PROTECT HEALTHY TREES

SECOND EDITION

Insecticide Options for Protecting Ash Trees from Emerald Ash Borer

North Central
IPM
Center

Daniel A. Herms,
Deborah G. McCullough,
David R. Smitley,
Clifford S. Sadof,
Whitney Cranshaw

- Trunk Injection (Professional applicator)
- Soil Injection (Professional applicator)
- Systemic bark spray (Professional applicator)
- Foliage cover sprays (Professional applicator)
- Soil Drench (Professional applicator and homeowner)
- Granules (homeowner)

 THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL
AND ENVIRONMENTAL SCIENCES

MICHIGAN STATE
UNIVERSITY

PURDUE | LOCAL FACES
EXTENSION | COUNTLESS CONNECTIONS

Colorado
State
University
Extension

Insecticide Formulation	Active Ingredient	Application Method	Recommended Timing
<i>Products Intended for Sale to Professional Applicators</i>			
Merit® (75WP, 75WSP, 2F)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Safari™ (20 SG)	Dinotefuran	Soil injection or drench	Mid- to late spring
Transect™ (70WSP)	Dinotefuran	Soil injection or drench	Mid- to late spring
Xylam® Liquid Systemic Insecticide	Dinotefuran	Soil injection or drench	Mid- to late spring
Xytect™ (2F, 75WSP)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Azasol™	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Imicide®	Imidacloprid	Trunk injection	Mid- to late spring after trees have leafed out
TREE-äge™	Emamectin benzoate	Trunk injection	Mid- to late spring after trees have leafed out
TreeAzin®	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Safari™ (20 SG)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Transect (70 WSP)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Zylam® Liquid Systemic Insecticide	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Astro®	Permethrin	Preventive trunk, branch, and foliage cover sprays	Two applications at 4-week intervals; first spray should occur at 450-550 degree days (50°F, Jan. 1); coincides with black locust blooming
Onyx™	Bifenthrin		
Tempo®	Cyfluthrin		
Sevin® SL	Carbaryl		
<i>Products Intended for Sale to Homeowners</i>			
Bayer Advanced™ Tree & Shrub Insect Control	Imidacloprid	Soil drench	Early to mid-spring
Optrol™	Imidacloprid	Soil drench	Early to mid-spring
Ortho Tree and Shrub Insect Control Ready to Use Granules®	Dinotefuran	Granules	Mid- to late spring

One year protection. Spring better than fall, only tested on trees less than 22" DBH.

Provides at least 2 years of control. Has been tested and proven effective on trees up to 47" DBH.

Target adult feeding prior to egg laying.



SERA TR 05-43-24-03a

Imidacloprid - Human Health and Ecological Risk Assessment - Final Report

Prepared for:

USDA, Forest Service

Forest Health Protection

GSA Contract No. 10F-0082K

USDA Forest Service BPA: WO-01-3187-0150

USDA Purchase Order No.: 43-1387-4-3131

Task No. 24

Submitted to:

Hank Appleton, COTR

Forest Health Protection Staff

USDA Forest Service

Rosslyn Plaza Building C, Room 7129C

1601 North Kent Street

Arlington, VA 22209



Prepared by Michele Anatra-Cordone and Patrick Durkin

Submitted by:

Syracuse Environmental Research Associates, Inc.

5100 Highbridge St., 42C

Fayetteville, New York 13066-0950

Telephone: (315) 637-9560

Fax: (315) 637-0445

E-Mail: SERA_INC@msn.com

Home Page: www.sera-inc.com

December 28, 2005

Montana Environmental Protection Act (MEPA) and Article II of the Montana constitution “the right to a clean and healthful environment”.

Do your actions require MEPA review?

TREATMENT COSTS: IT DEPENDS

*“Emerald ash borer treatments costing less, working better”-
Minneapolis Star Tribune 8/8/2013*

- TREE-äge= \$10-15 per DBH inch. 18” DBH tree would cost \$180 - \$270 per two year treatment.
- Homeowner imidacloprid (Bayer Advanced)= 1 oz per inch of tree diameter = \$50-\$175 for product.

*“There is no reason for a landscape ash tree to die from emerald ash borer anymore.”
Deborah McCullough, Michigan State University*

“The treatment is so effective and so much cheaper than removal and replacement that I can’t get a single elected official to weigh in on the side of removing healthy trees because we don’t have to, and that is never popular with the public.” Milwaukee, City Forester

“Minneapolis — which is steering clear of pesticides because residents have reservations about their safety — is unlikely to be swayed by it, said Ralph Sievert, director of forestry for the Minneapolis Park and Recreation Board”



TO TREAT OR NOT TO TREAT?





GREAT FALLS STREET TREE LIST

City of Great Falls Home » Park and Recreation Home » Urban Forestry » **Street Tree List**

Street Tree List

Large Trees - 50'+

- ◆ American Linden ▶ *Tilia americana*
- ◆ Black Walnut ▶ *Juglans nigra*
- ◆ Bur Oak ▶ *Quercus macrocarpa*
- ◆ Hackberry ▶ *Celtis occidentalis*

Medium Trees 30-50'

- ◆ Honey Locust ▶ *Gleditsia triacanthos* "INTERMIS"
- ◆ Honey Locust Imperial ▶ *Gelditsia triacanthos* "IMPERIAL"
- ◆ Honey Locust Skyline ▶ *Gelitsia triacanthos* "SKYLINE"
- ◆ Little Leaf Linden ▶ *Tilia cordate*
- ◆ Little Leaf Linden Greenspire ▶ *Tilia cordate* "GREENSPIRE"
- ◆ Little Leaf Linden Glenleven ▶ *Tilia cordate* "GLENLEVEN"
- ◆ Dropmore Linden ▶ *Tilia x flavescens* "DROPMORE"
- ◆ Redmond Linden ▶ *Tilis x euchlora* "REDMOND"
- ◆ Norway Maple ▶ *Acer platanoides*
- ◆ Norway Maple Emerald Lustre ▶ *Acer platanoides* "EMERALD LUSTRE"

Small Trees 30' and less

- ◆ Japanese Tree Lilac ▶ *Syringa reticulata*
- ◆ Snowbird Hawthorne ▶ *Crataegis* sp. "SNOWBIRD"
- ◆ Toba Hawthorne ▶ *Crataegis* sp. "TOBA"
- ◆ Tatarian Maple ▶ *Acer tataricum*

- 1) plant no more than 10% of any species,
- 2) no more than 20% of any genus, and
- 3) no more than 30% of any family

ANY QUESTIONS OR DISCUSSION?

Ian Foley, Montana Department of Agriculture

406-444-9454

ifoley@mt.gov

