



# GREEN Cheyenne INDUSTRY WORKSHOP



**URBAN  
FORESTRY**  
DIVISION

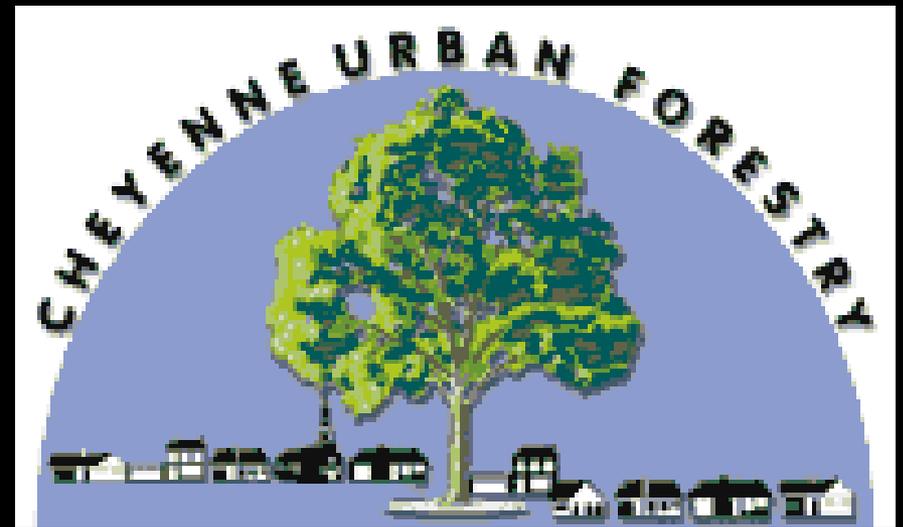
Cheyenne Urban Forestry Division  
520 West 8th Street  
Cheyenne, WY 82001  
307-637-6428



**URBAN  
FORESTRY**  
DIVISION

**January 25, 2019  
8:00am - 3:30pm**

# Stress Factors of The High Plains Urban Forest





SQUEEZIN

Grape

Peach

Lemonade

Hurricane

Go Orange Mango

Go Strawberry

Margarita

Watermelon

BUNN

BUNN

BUNN

FROZEN COCKTAIL BLENDS

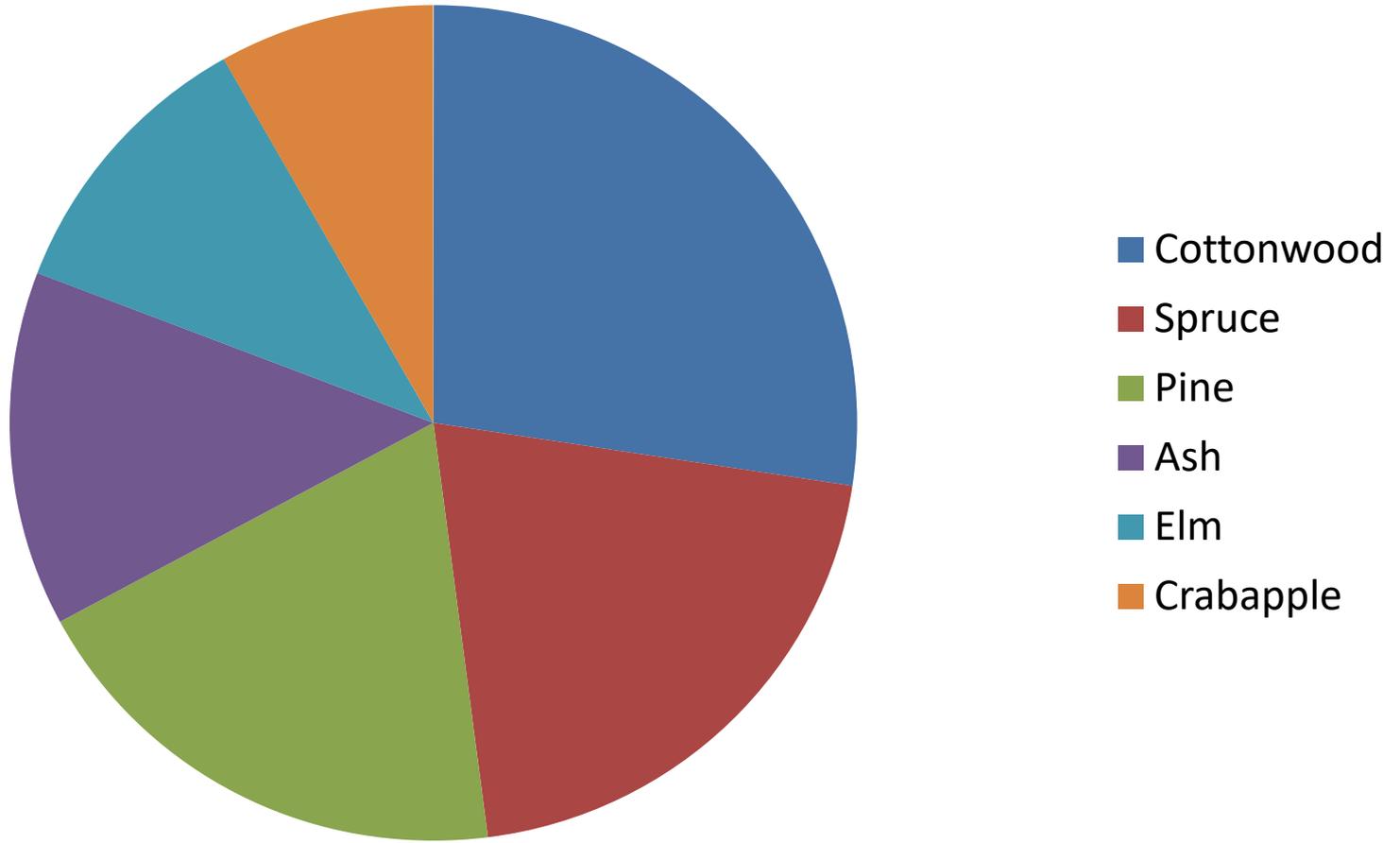
FROZEN COCKTAIL BLENDS



KIWANIS  
COMMUNITY  
HOUSE

4603

# Top Street Trees in Cheyenne



\*Cheyenne Urban Forestry, December 2018

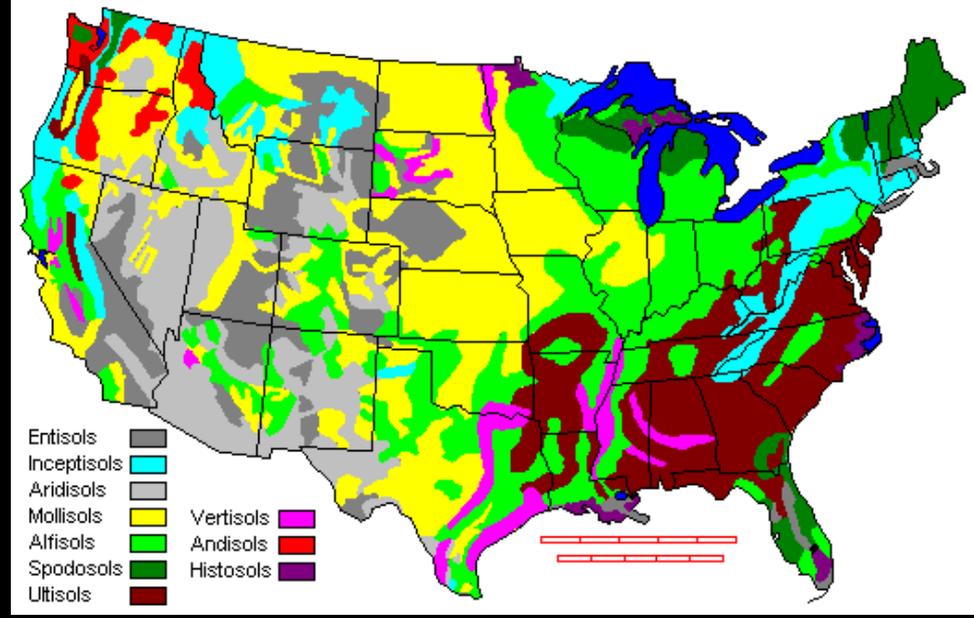
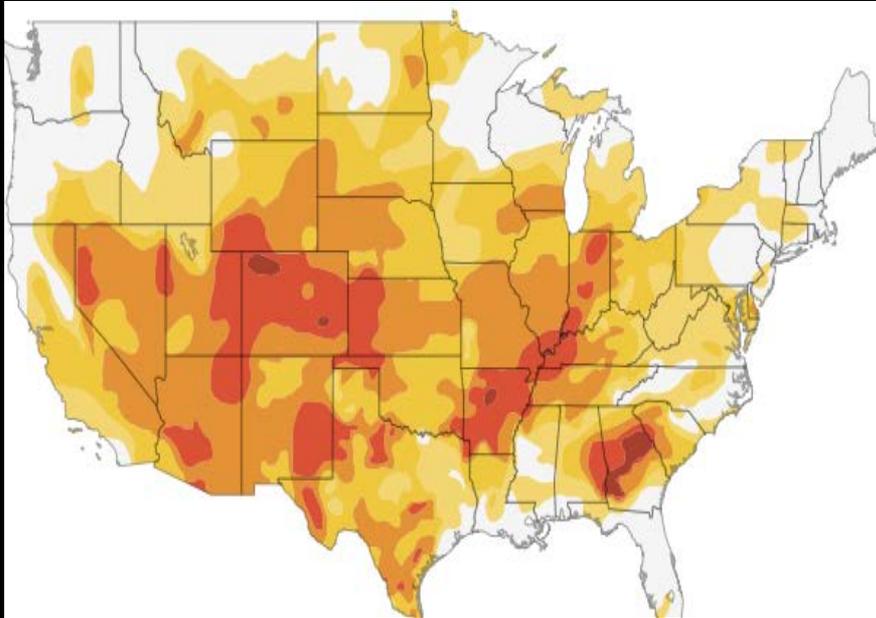
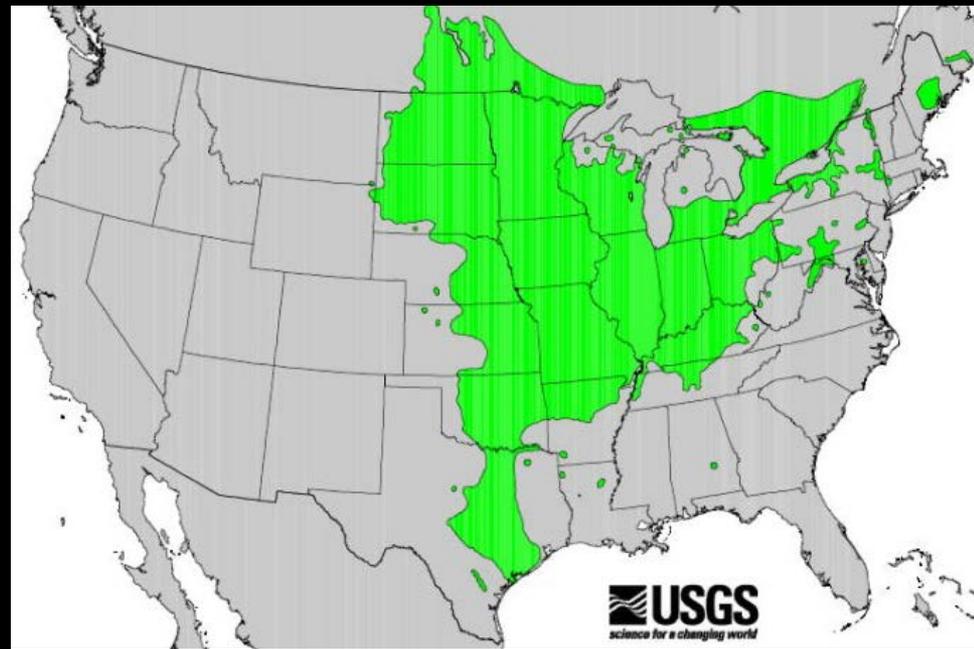
Plant's Native Range

30 Year Drought

Soil Type

Cultural Practices

Invasive Pests



# Pest

- Species Affected
- How To Identify
- Life Cycle
- Control



What are you seeing?

What are you doing?

# Coors

## LIGHT

### The Silver Bullet



# Green Ash



# Lilac Ash Borer

- Fraxinus spp.
- Identify
  - Round Exit Hole
  - Lots Of Frass
- Life Cycle
  - Emerge in April/May
  - Females live 1 week
  - Larvae chew into bark
  - Over winters as mature larvae under bark

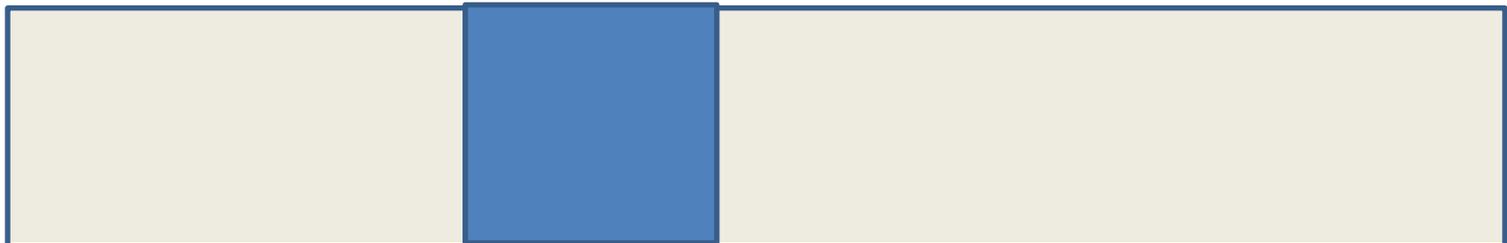


# Lilac Ash Borer Mgt



- Control
  - Boost Plant Health
  - Water and Mulch
  - Trunk Spray Tengard
  - Trunk Injection (Emamectin Benzoate)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



# Ash Bark Beetle

- Fraxinus spp.
  - Green & White Ash
- Identify
  - Cluster of Exit Holes
  - Galleries Under Bark
- Life Cycle
  - Over Winter Under Bark
  - Galleries in Spring
  - Up to 3 Generations



# Ash Bark Beetle Management



- Control
  - Boost plant health
  - Water and mulch
  - Canopy Spray Tengard (April/May)
  - ?Trunk Injection (Emamectin Benzoate)?
  - **Remove Tree**

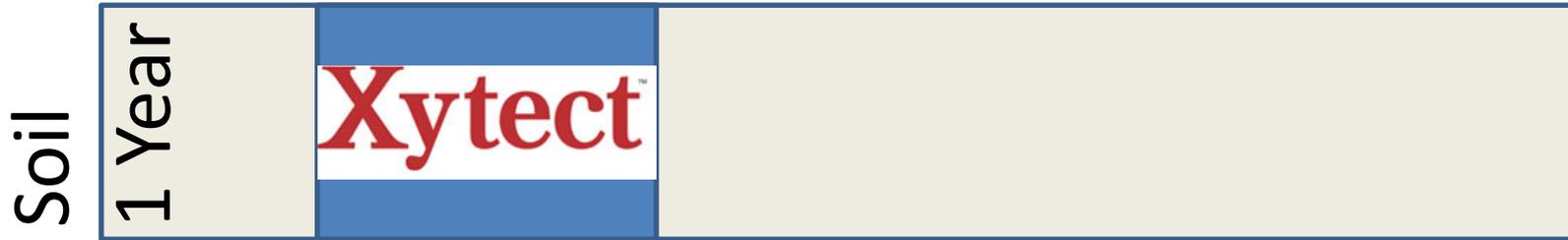
# The Emerald Ash Borer

- Fraxinus spp.
- Identify
  - “D-Shape” Exit Hole
  - Galleries Under Bark
- Life Cycle
  - Emerge as adults May/June (no sawdust)
  - Lay eggs mid-July
  - Eggs hatch, larvae bore into vascular tissue of tree
  - Over Winter Under Bark



# Emerald Ash Borer Management

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



# Ash Flower Gall

- Fraxinus spp. (Male Trees)
- Identify
  - “Ball-Like” Masses
  - New Galls = Green
  - Old Galls = Brown
- Life Cycle
  - Winter Under Buds
  - Mites Feed During Leaf-Out
  - Females Lay Eggs in Galls



# Ash Flower Gall Mgt



- Control
  - Boosting plant health may help (?)
  - Full-Canopy Spray at Leaf-Out (Carbaryl)
  - Trunk Injection (Emamectin Benzoate)

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Sprays

Injection

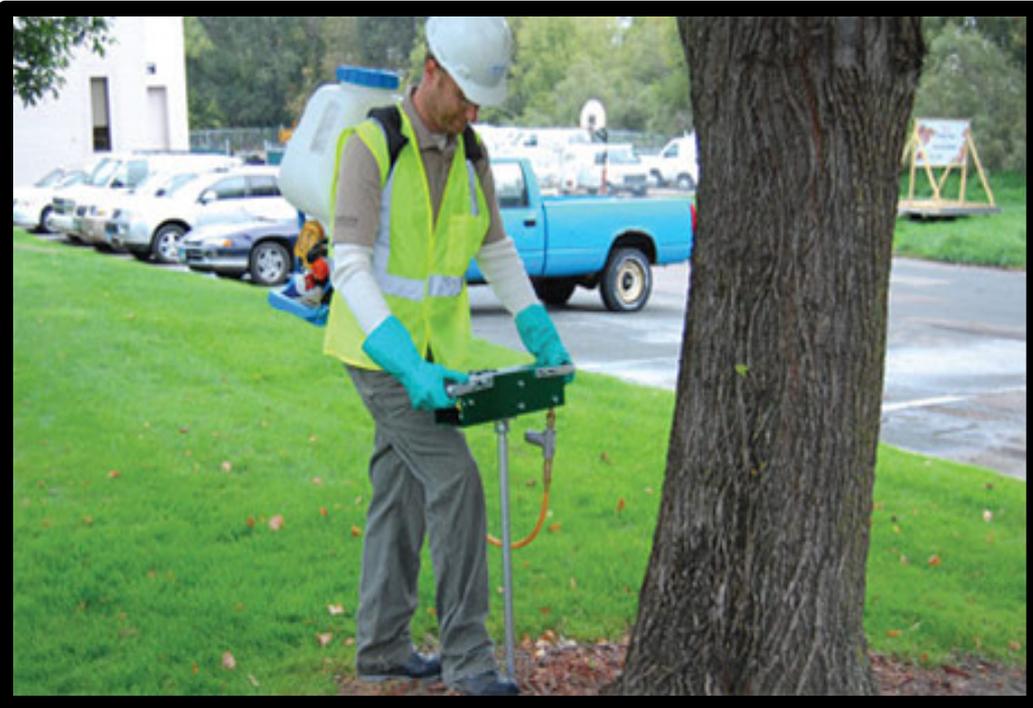


# Leaf-Curl Aphid

- *Fraxinus pennsylvanica*
- Identify
  - Disfigured Leaves
  - Honeydew/Sooty Mold
  - Aphids
- Life Cycle
  - Continuous Reproduction
  - Typically Lower canopy
  - 1 Egg in Fall \*\*



# Leaf-Curl Aphid Mgt



- Control
  - Lady Bugs !!
  - Don't Foliar Spray
  - Soil Apply Xytect Early
  - Soil Apply Lepitect (when active)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Soil

**Xytect™**

**Lepitect™**



# IPS Beetle

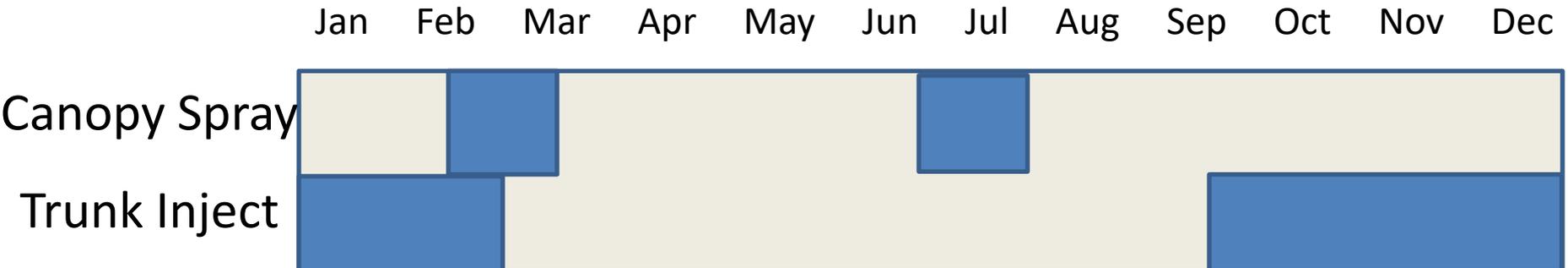
- Spruce, Pine, Fir
  - Weak trees first, but eventually all trees
- Identify
  - Multiple Small Exit Holes
  - Top-Down Death to Tree\*
  - Reduced Plant Vigor
- Life Cycle
  - 1<sup>st</sup> Emergence- Temps > 50
  - 2<sup>nd</sup> Generation Late Summer
  - DRAWN in by Pheromones



# IPS Beetle Management



- Control
  - Water and Mulch
  - Sanitation
  - Spray TenGuard
  - Direct Trunk Inject (Em. Benzoate)



# Pine Needle Scale

- Spruce, Pine, Fir
- Identify
  - Thinning Canopy
  - Small White “Blisters”
  - Infested Needles Drop
  - Appears “Silver”
- Life Cycle
  - Emerge in Late May
  - Feed on Needles
  - Lay Eggs Under Armor
  - Up to 2 Generations



# Pine Needle Scale Management



- Control
  - Boost Plant Health
  - Water/Mulch
  - Dinotefuran

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Soil or  
Trunk

**Transtect**<sup>TM</sup>



**Transtect**<sup>TM</sup>

# Spruce Spider Mites

- Many Different Types
- Cool or Warm Season Mite
- Identify
  - Shake/Smear Paper Test
  - Mostly in Warm/Dry Summer
  - Stippling on Needles
- Life cycle
  - \*Depends on Species
  - Multiple Generations per Year
  - Eggs Over-Winter on Needles



# Spider Mites Management

- Control



- Blast Canopy With Water
- Contact Spray with Miticide
- Soil apply Lepitect before or during infestations  
(mid-July = warm season)

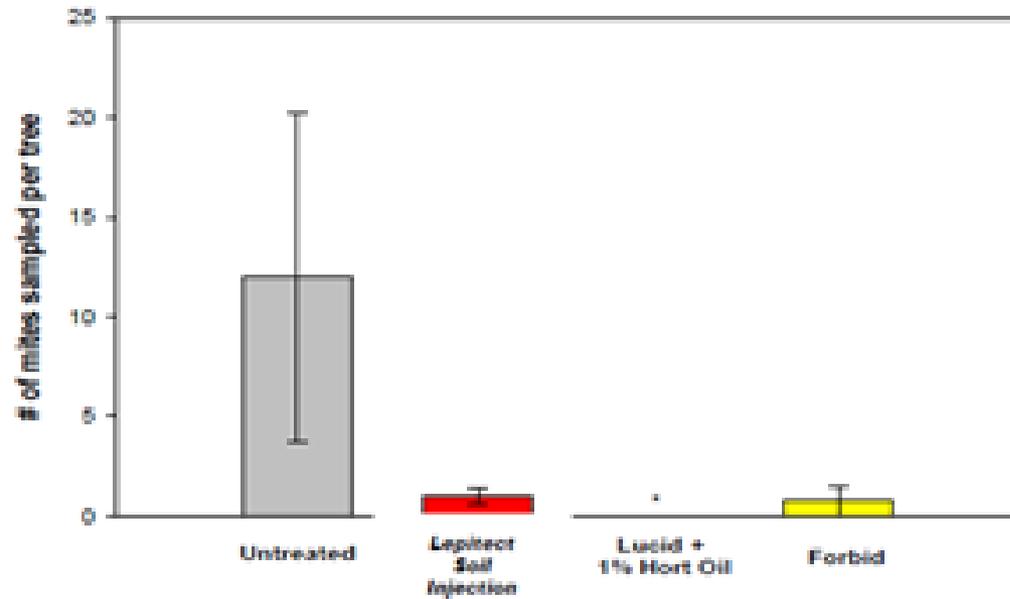
***Lepitect***<sup>™</sup>

# Lepitect™

## Lepitect

Spruce Spider Mite on Balsam Fir

27 Days After Application



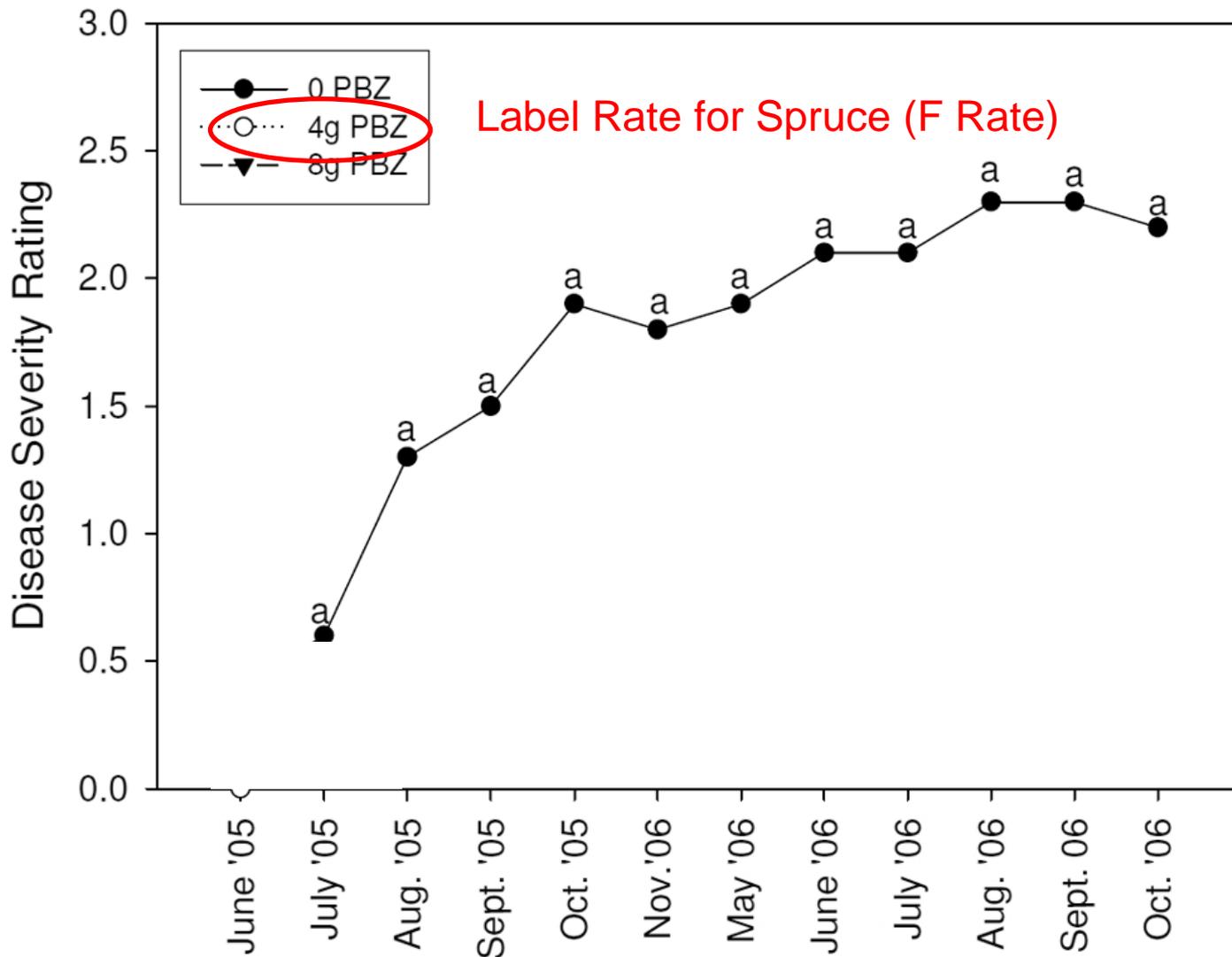
# Cytospora Canker on Blue Spruce:

- Disease Exacerbated by Drought

The Morton  
Arboretum 



# Cytospora Canker Disease Severity Rating



Poplar spp.

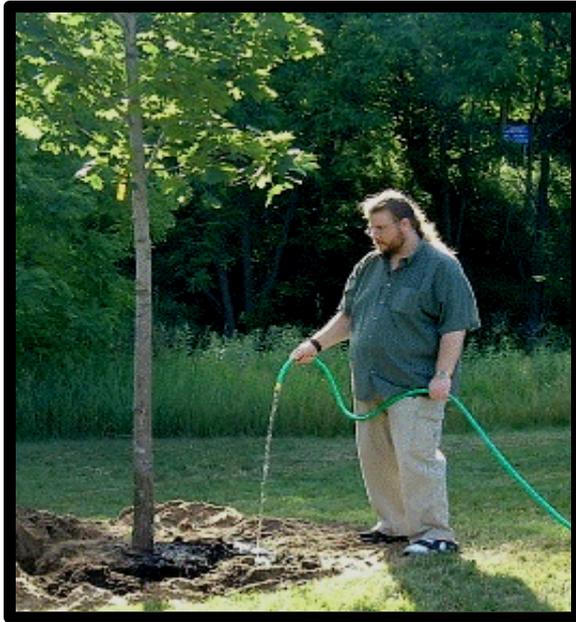


# Cytospora Canker

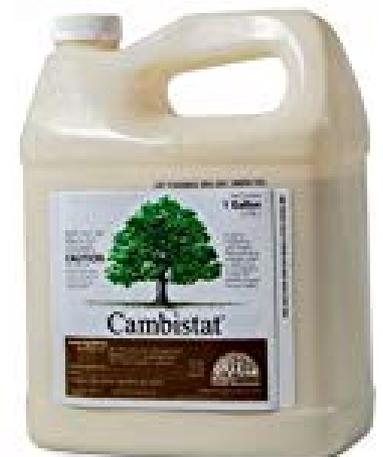
- Many Species – poplars spp
- Identify
  - Tree Oozing
  - Cankers with a Smelly Liquid
  - Canopy Dieback
- Life Cycle
  - Attacks Weak/Stressed Trees
  - Spreads When Wet/Warm



# Cytospora Canker Mgt



- Control
  - Plant Resistant Trees
  - Boost Plant Health
  - Keep Watered/Mulch
  - Remove Infections
  - Cambistat May Help\*



# Oystershell Scale

- Over 130 Host Plants
- Identify
  - Leaf Yellowing
  - Small Branch Dieback
  - 3.5 mm Long “Comma Shape”
  - Found on Bark
- Life Cycle
  - Eggs Hatch in Late Spring
  - Adults Feed, Lay Eggs, Die ...
  - Multiple Generations



# Oystershell Scale Management



- Control
  - Increase Plant Health With H<sub>2</sub>O and Mulch
  - Use Scrub Pad
  - Transtect in Early May
  - Contact Spray Hort. Oil

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Soil/Bark

**Transtect™**

Dormant Spray



# Poplar Vagabond Aphid

- Aspens/Cottonwood
- New Growth
- Feed in Spring Inside Gall



# Poplar Twiggall Fly

- Aspens/Cottonwood
- Newer Growth
- Eggs Laid = Gall
- Hatch as Maggots in Fall



## Poplar Vagabond Aphid

- Soil Apply Lepitect During Leaf-Out
- Water Product In



## Poplar Twiggall Fly

- Soil Apply Imidicloprid 1 Month Prior To Leaf-Out
- Water Product In



# Crabapple



# Fire Blight

- Crabapple, Hawthorne, Pear, Mountain Ash
- Identify
  - Look Wilted
  - Fruit Ooze, Black Cankers
  - Shepherd's Crook
- Life Cycle
  - Bacteria Spreads During Warm/Wet Springs
  - Open Wounds



# Fire Blight Mgt

- Control
  - Resistant Varieties
  - Winter Prune Infections
  - Soil Apply Cambistat
  - Trunk Injection of Bacastat (OTC)
  - CuPRO Spring Sprays



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Soil

Cambistat®

Trunk Inject

BACASTAT

# Pine spp.





# Pine Wilt Disease

- Non Native 2-3 Needle Pines
  - (Scots, Austrian, Mugo)
- Identify (Field)
  - Top Down
  - Green Fades to Yellow
  - Rapid Decline/Death
  - Mid-Summer
  - Blue Stain and Light Weight
- Life Cycle
  - Nematode is Vectored by the Pine Sawyer Beetle (March)



# Pine Wilt Management

## Preventative **ONLY**



- Control
  - Plant 5 Needle Pines
  - Boost Plant Health
  - Keep Watered/Mulch
  - Remove infested trees
  - Trunk Injection with Aracinate or Em. Benz (Spring prior to adult beetle flight)(March)\*

# American Elm



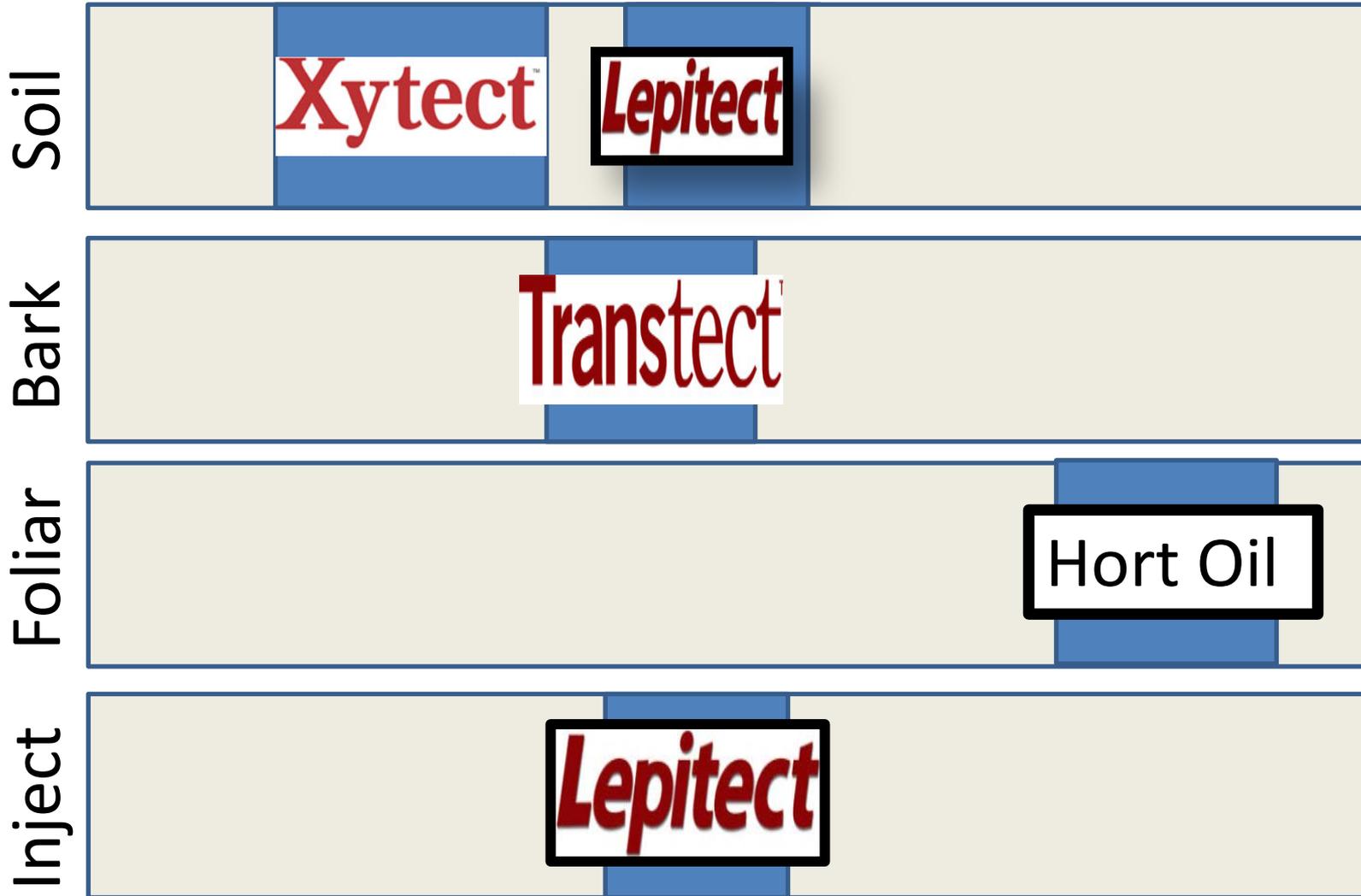
# European Elm Scale

- Mostly American Elm
  - (Hackberry & Zelkova)
- Identify
  - Honeydew/Sooty Mold
  - Branch Dieback
  - Thin Canopy
- Life Cycle
  - Deposit Eggs Late May
  - Crawlers Late June Feed on Leaves (3 - 4 weeks)
  - Move To Woody Twigs



# European Elm Scale Management

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

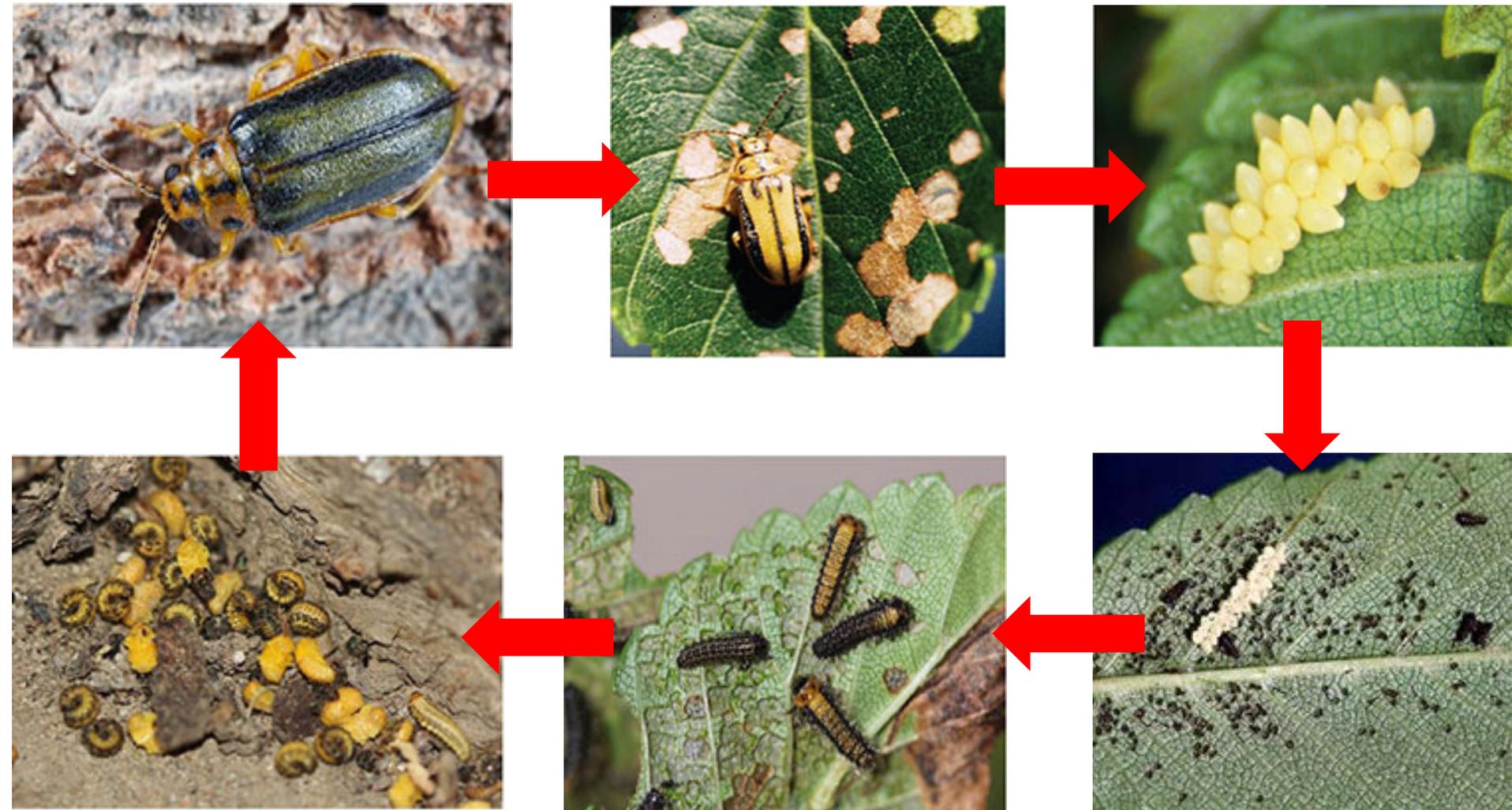


# Elm Leaf Beetle

- Elm
- Identify
  - Chewing Leaves into “Lace”
  - Yellow Egg Masses
  - Changing Colors
  - Cool Beetles!
- Life Cycle
  - NEXT SLIDE!



# Elm Leaf Beetle Life Cycle



# Elm Leaf Beetle Mgt

- Control – Outside:
  - Early Spring Imidicloprid
  - Canopy Spray Bifen

- Control – Indoors:

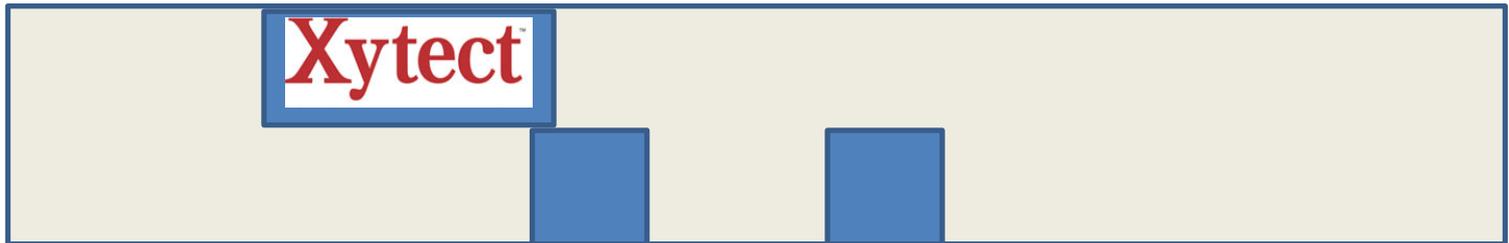


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Soil

**Xytect**

Canopy Spray



# What Can We Do?

- Biodiversity & Native Species
- Resistant Varieties
- Prune Out Infections



# What Can We Do?





# Do Nothing?



~~Silver Bullet~~



Arborist Toolbox





**Rainbow Treecare<sup>TM</sup>**  
**Scientific Advancements**

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