

# University of Wisconsin Madison Extension

Introduction to Plant Diagnostics Training Program  
Signs of Structural Disorders in Trees  
Spring 2020

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## Disclaimer

- This talk is for educational purposes only.
- This talk does not replicate the ISA Tree Risk Assessment Qualification Course, nor does this talk qualify you as Tree Risk Assessors.
- If you are interested in the ISA Tree Risk Assessment Qualification, please find more information at <https://www.waa-isa.org/events-programs/>

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## Why are we here?

- To discuss risk, and how it relates to trees
- Once we understand that, we'll know why it is important to monitor trees for defect

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## What is risk?

- Risk is the combination of the likelihood of an event, and the severity of the potential consequences
- Is it possible to live around trees without risk?

Likelihood of Failure	Likelihood of Impacting Target			
	Very Low	Low	Medium	High
Very High	Very High	High	Medium	Low
High	High	Medium	Low	Very Low
Medium	Medium	Low	Very Low	Very High
Low	Low	Very Low	Very High	High
Very Low	Very Low	Very High	High	Medium

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## Big Picture

- To live around trees is to accept a degree of risk.
- **\*HOWEVER\*** With management, we can mitigate risk to acceptable levels
- Benefits of trees far outweigh the risk

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Assessing Trees

- Most common defects that affect structure of trees?
  - Co-dominant Stems
  - Stem girdling roots
  - Decay

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Co-Dominant Stems

- What is this condition, why is it bad?

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What can we do about co-dominant stems?

- The A,B,C's of young tree structural pruning!

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A-Apical Dominance  
B-Bad Branches  
C-Crossing/Competing



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Stem Girdling Roots

- What are they, why are they bad?

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Planting BMP's

Six things you should know when planting a tree.

1. **Call Before You Dig** - Several days before planting, call the national 811 hotline to have underground utilities located.
2. **Handle with Care** - Always lift trees by the root ball. Keep roots moist until planting.
3. **Digging a Proper Hole** - Dig 2 to 5 times wider than the diameter of the root ball with sloping sides to allow for proper root growth.
4. **Planting Depth** - The trunk flare should sit slightly above ground level and the top-most roots should be buried 1 to 2 inches.
5. **Filling the Hole** - Backfill with native soil unless it's all clay. Tamp in soil gently to fill large air spaces.
6. **Mulch** - Allow 1 to 2 inch clearance between the trunk and the mulch. Mulch should be 2 to 3 inches deep.

For more tree-planting tips and information, visit [arborday.org](http://arborday.org).

Source: © Arbor Day Foundation

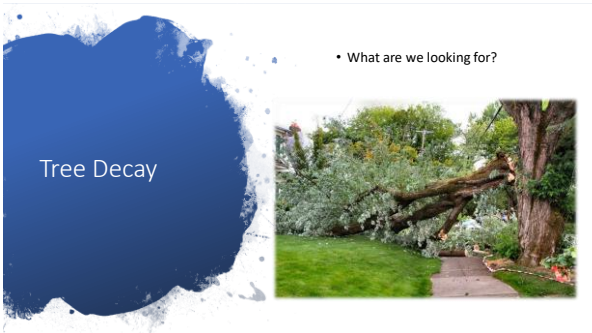
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• What are we looking for?

Look for fruiting bodies (conks, mushrooms)

Look for cracks, seams, bulging

Look for insect infestations

Cavities too!



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2 primary types of wood decay

White Rot

Brown Rot



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Fungal fruiting bodies to be aware of

- The following fungal fruiting bodies are typically found on declining/dead trees.
- Decay at base of trees often leads to failure

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*Armillaria spp.*



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*Ganoderma lucidum*



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*Ganoderma applanatum*  
(Artist's conk)



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*Laetiporus sulphureus*  
(Chicken of the Woods)



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What will an Arborist look at during a risk assessment?



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- Dieback, crown thinning, foliage discoloration
- Lean
- Overextended branches
- Trunk Taper
- Inspect trunk, root flare, root zone

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3 levels of risk assessment

- Level 1 Limited Visual
- Level 2 Basic Assessment
- Level 3 Advanced

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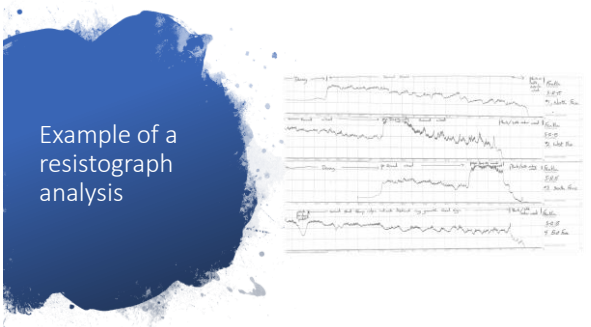
Tools in Advanced Risk Assessment

- Open cavity
- Increment borer
- Resistance recording drills
- Sonic tomography
- Resonance testing
- Aerial lift/UAV

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Questions?

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