Virulence of *Leptographium terebrantis* and *Grosmannia huntii* on Loblolly Pine Families Under Drought Stress

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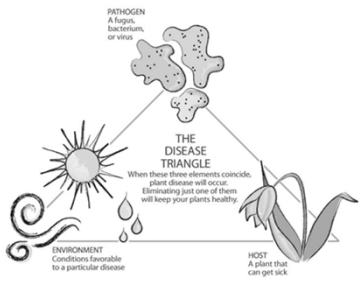
Introduction

- Forests of the southeastern USA have experienced severe droughts
- Drought events significantly affect tree growth and development
- Drought - predisposing factor to Southern Pine Decline (SPD)
- Fungi associated with SPD
  - blocks vascular tissue
  - alters plant physiology

Disease Triangle



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Objectives

- To determine the combined effect of the soil moisture and pathogenic stress in loblolly pine
- To understand how families susceptible and tolerant to loblolly pine will respond to *G. huntii* and *L. terebrantis* under moisture stressed conditions

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Methodology

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Watering Treatment

Watering Treatments
- Normal Moisture (Field Capacity)
- Moderate Drought (1/2 Field Capacity)
- Severe Drought (1/3 Field Capacity)

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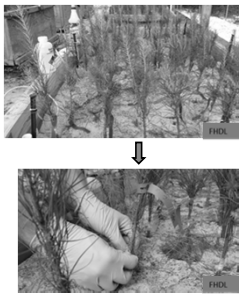
Fungal and Control Treatments

- *Leptographium terebrantis*
- *Grosmannia huntii*
- Wound
- Wound + media
- No wound



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Methodology

- Monthly measurements until 3 months
  - monthly mortality
  - SPAD chlorophyll reading

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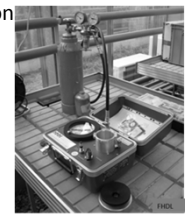
Final Measurements

- 12 weeks following fungal inoculation
  - water potential
  - SPAD chlorophyll reading
  - number of terminal buds
  - relative water content
  - stomatal conductance



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Other Measurements

- Lesion length width and depth
- Occlusion length width and depth
- Seedling height and RCD
- Seedling biomass

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Research Impacts

- Improve our understanding of how the native and non-native fungi affect the loblolly pine in moisture stressed conditions
- Helps to understand how the susceptible and tolerant families respond to these fungi in moisture stressed conditions

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