

# Mycorrhizal Fungicide Resistance

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# Fungicides kill fungi



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# Summary

- Do mycorrhizae develop resistance to fungicides?
- How might new chemistries impact mycorrhizae?

# Motivation

- Bayleton registration, 1984.
- Eliminated Ferbam and reduced work.
- Bayleton harms mycorrhizae.
  - However, it does not always kill mycorrhizae.
- Resistance may develop under 35 years of these conditions.

# Motivation

- How do the replacements to Bayleton damage mycorrhizae?
  - Proline, etc.

# Previous Work

- Research around the time of Bayleton registration focused on questions similar to ours.
- Lab work gave a baseline for understanding toxicity.
- Field research helped us to understand if or when the toxicity occurred.
- Field research compared Bayleton treatment to Ferbam and no treatment.

# Previous Work

- Bayleton harms mycorrhizal fungi in the lab, esp. *P. tinctorius*.
  - Triadimenol is even more harmful.
- Seedlings have toxic levels of fungicides late into the season when analyzed in lab.

# Previous Work

- Rates in the field are sometimes sufficient to cause significant harm.
- “Dramatic” decreases in *P. tinctorius* are reported in cases of newly fumigated soil.
- Seedling quality not always harmed.
- Mycorrhizae **do fruit** later in the year.



# Previous Work

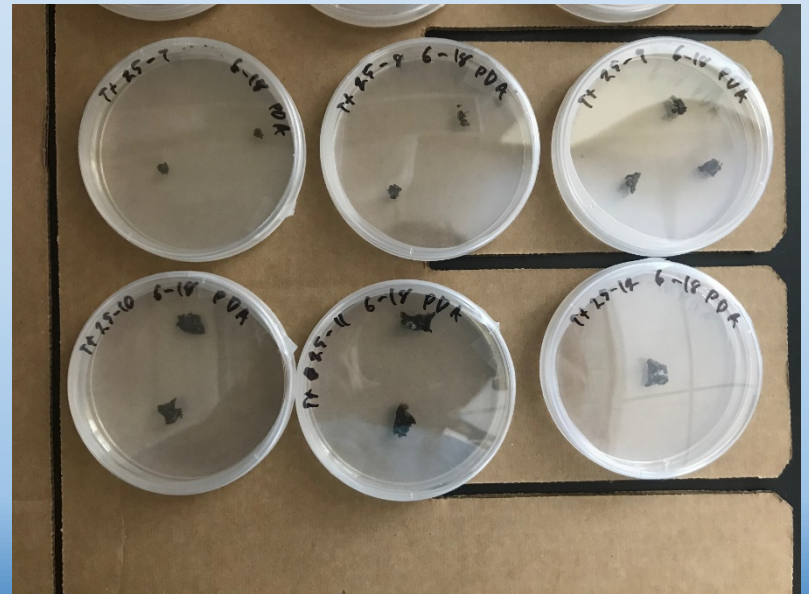
- “Results may vary”
- Consensus is:
  - Bayleton does harm mycorrhizae but the affect decreases or goes away late in the season.

# Our Goals

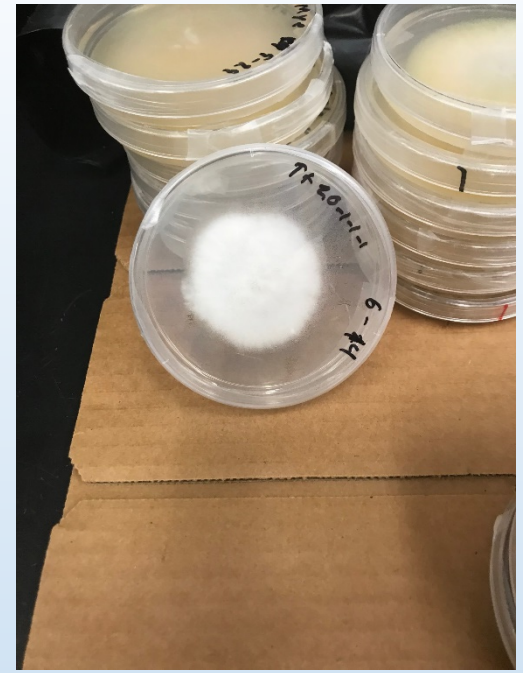
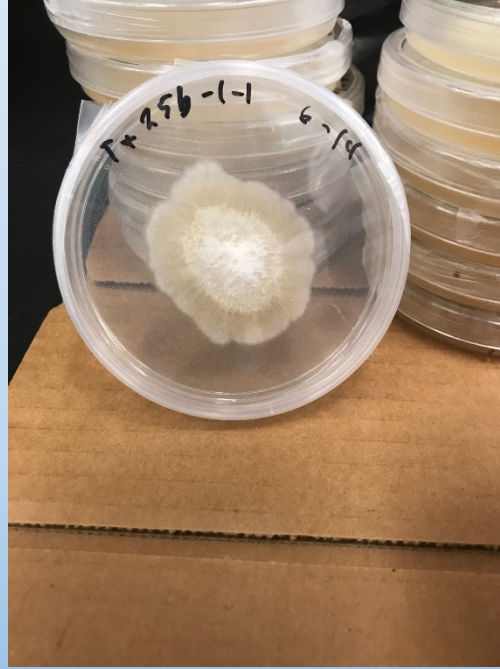
- To Determine:
  - If after 35 years, *Thelephora terrestris* and *Pisolithus tinctorius* have developed greater resistance to Bayleton.
  - Potential effects of Proline.
  - Potential effects of other promising chemistries.

# The Work

- Grow mycorrhizal fungi from natural sources, pre-Bayleton collections, and operating nurseries.
- Evaluate the resulting strains for resistance to Bayleton in the lab.
- Currently working to isolate strains.







# Where the Coop-eration Begins

- We need fruiting bodies of *P. tinctorius* and *T. terrestris*.
- Contact me
- Shipping:
  - Package in double paper bags
  - Please expedite shipping and pack with leak proof ice.
  - Ship to:  
ATTN: Will Harges,  
Southern Forest Nursery Management Cooperative  
3301 School of Forestry and Wildlife Sciences Bldg.  
Auburn, Alabama 36849

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Questions?