Forest Resources and Wood Waste Use in Horticulture

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Wood-based Substrates
- Pine Tree Substrates
- Whole tree Substrates
- Clean Chip Residual

Many tree species tested
Dr. Brian Jackson – Forest Resources & Wood Use in Horticulture

Loblolly Pine – *Pinus taeda*

Hardwood vs Pine - 4 Weeks

Root Growth of Woody Plants
Root Growth of Annual Plants

Production of Wood Substrates
Processing Differences?????

4 Different Chippers/Shredders

6.0% fines
7.8% fines
10.5% fines
15.6% fines

Variables Affecting Processing

- Hammer mill size
- Air handling system
- Wear of hammers
Variables Affecting Processing

- Tree Species
- Machinery used to reduce particle size of pine logs after harvest
- *Moisture Content of Wood

Moisture at Grinding

No Shelter....Oops!
“Engineering” Wood Components

Hammer Milled Products
Tree Harvesting and Substrate Storage
Variation in Pine Bark Supplies

Analysis Conducted
- pH and EC
- Seedling Grow Tests (toxicity test)
- Physical Properties
- Particle Size Distribution
- White Wood (% & Volume)
- Physical Properties with WW removed
- Cambium (% & volume)
- Wettability (Hydration Efficiency)

So Why The Differences??
- Time of year of bark removal from trees
- Method of bark removal from trees
- Initial processing method of raw bark
- Method, type, and timing of screening
- Time of aging