GreenWood Tree Farm Fund, LP
GWR Boardman Tree Farm
Background

- Managed by GreenWood Resources for GTFF since 2007

- Phase I: Pulp production (1992 to 2000)
  - 600 TPA
  - Intensive fertilization except for a few control blocks (60, 90, 120, 150 kg N/ha on yrs. 1, 2, 3, 4 respectively), plus P and Zn.

- Phase II: Sawlog production (2000 to present)
  - Conversion and thinning of stands from 600 to 218 TPA
  - Review of nutrition program (2007) observed lack of response to fertilization
  - No fertilization except for a few blocks starting in 2008

- Phase III: Sawlog production and intercropped planting for bioenergy
Phase II (Sawlog production)
Phase II

- Monitoring
  - Growth (84 growth monitor plots)
  - Foliar Nutrients

- DRIS using norms for poplar (Leech and Kim, 1981)

\[ \text{DRIS Score} = \sum |\text{DRIS Index}| \]

\[ r^2 = 0.67 \]
Phase II

- Foliar nutrient concentrations vary with age
Phase II

- Growth and foliar nutrition

Diameter growth (cm y⁻¹)

- DN
- TD
Phase II

- Growth and foliar nutrition

\[ \text{Diameter growth (cm yr}^{-1} \text{)} \]

- DN
- TD
Phase II

- Fertilization effect on leaf N concentration
Phase II

- Fertilization effect on tree growth

![Graph showing diameter growth vs age (yr) with two different conditions: Fert and No Fert.](image-url)
Phase II (Summary)

- Foliar N and Ca show greatest variation with age
- Nutrient imbalance increase with age (DRIS scores)
- Nutrient imbalance is negatively correlated with growth
- Positive correlation of growth and foliar nutrition
- Marginal effect of fertilization on foliar nutrition
- No definitive effect of fertilization on growth
- DRIS indices & scores have been useful so far for fertilization prescriptions
- More data needed to fully assess DRIS as a monitoring tool
Phase III

- Future plans:
  - Improve monitoring (fill in gaps in data)
  - Develop LAI vs. Growth relationships
  - Fertilization Trials

- Challenges:
  - Clone effects
  - New products/production systems

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<thead>
<tr>
<th></th>
<th>Sawlogs</th>
<th>Biomass</th>
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<tbody>
<tr>
<td>Stocking (TPA):</td>
<td>218</td>
<td>1100</td>
</tr>
<tr>
<td>Rotation length (years)</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Nutrient removal rates:</td>
<td>?</td>
<td>?</td>
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</tbody>
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Phase III
(Intercropped bioenergy planting)
Thank You!