



Enhanced Fibre Production and Management of Lodgepole Pine

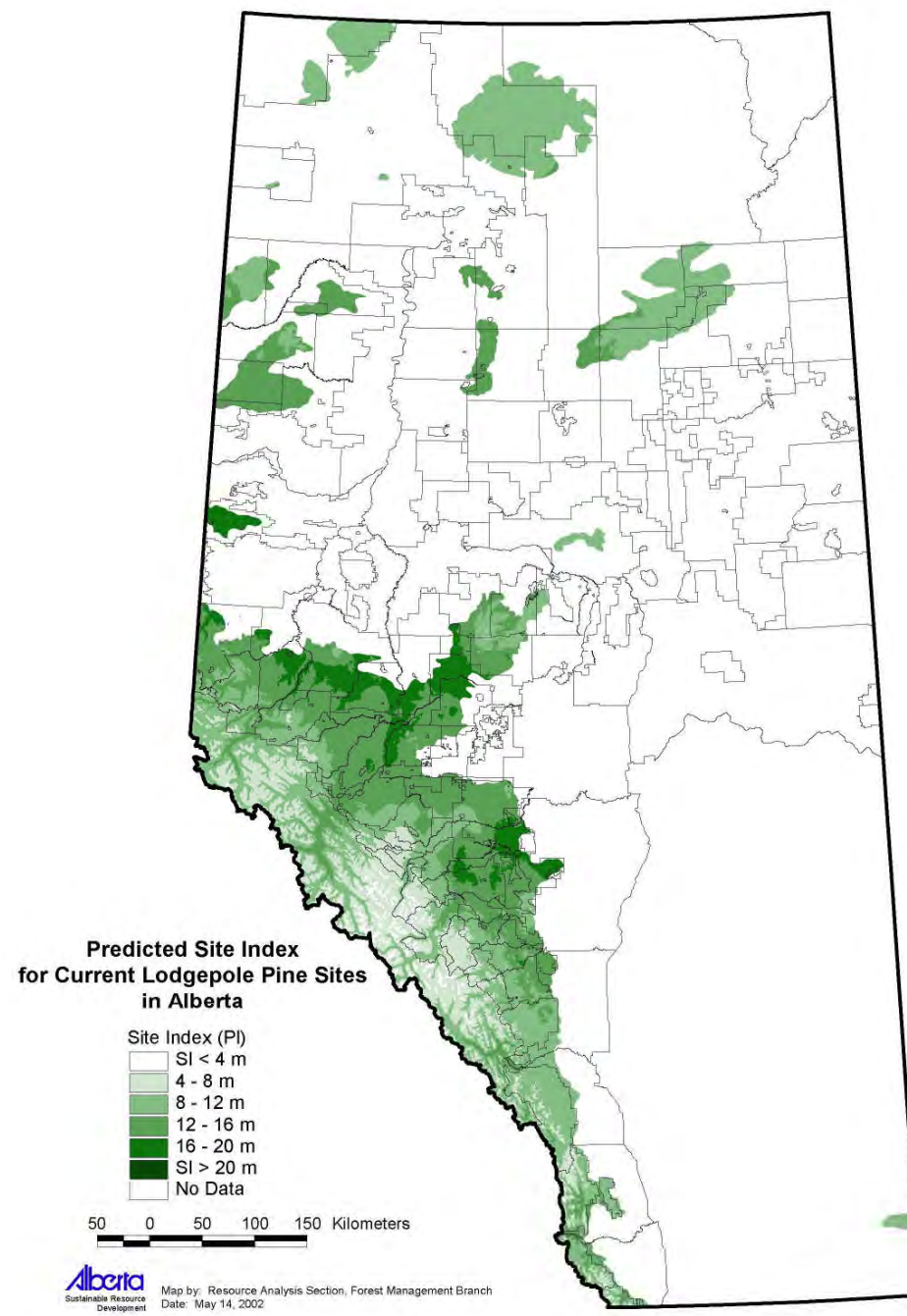
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Joint CIF/SAF Convention, Edmonton, Alberta**

Presentation Outline

- **Range, importance, and characteristics**
- **Growth and yield research**
- **Enhanced productivity in regenerated stands**
- **Ongoing work in Alberta**
- **Trends in post-harvest stands**
- **Opportunities, threats and uncertainties**
- **Priorities for enhanced management**



A close-up photograph of a pine branch with a small, brown, textured cone. The branch is covered in long, thin, green needles. The background is blurred, showing more of the tree's foliage.

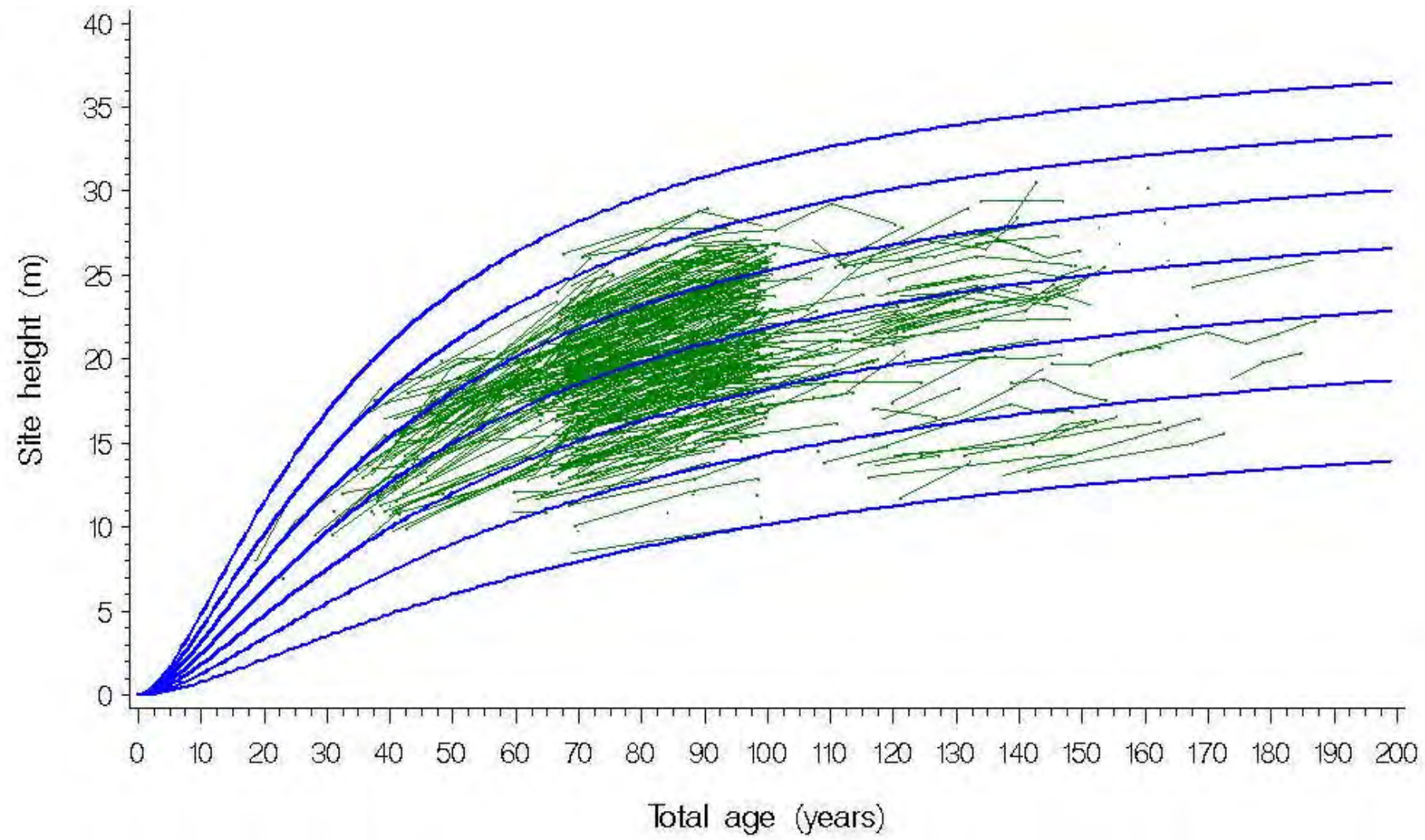
Alberta's Provincial Tree

- Serotinous
- Precocious
- Prolific
- Genetically variable
- Frost hardy
- Drought resistant
- Tolerant to waterlogging
- Pioneering

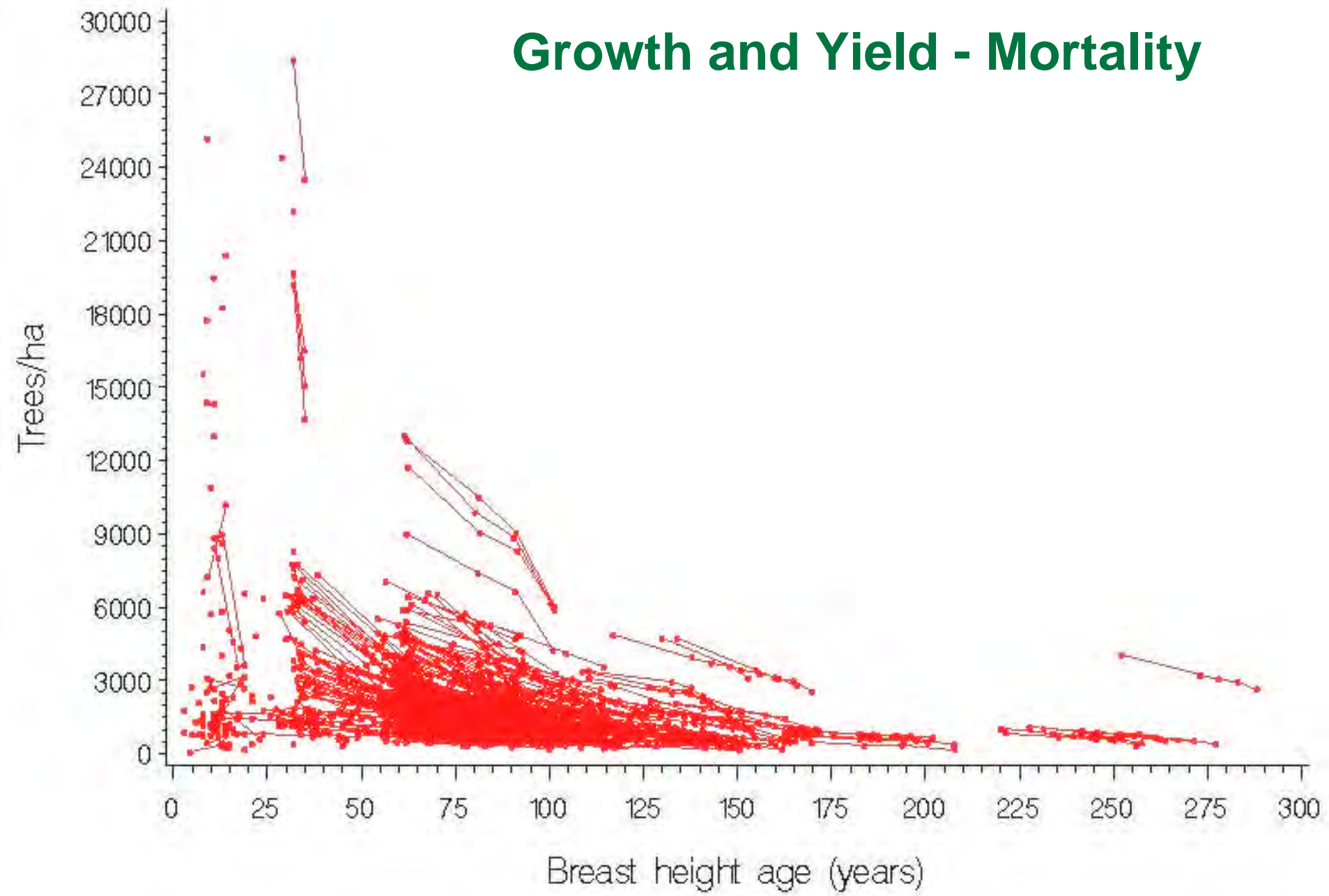
Stagnation / Repression



Growth and Yield – Height and Site Index



Growth and Yield - Mortality



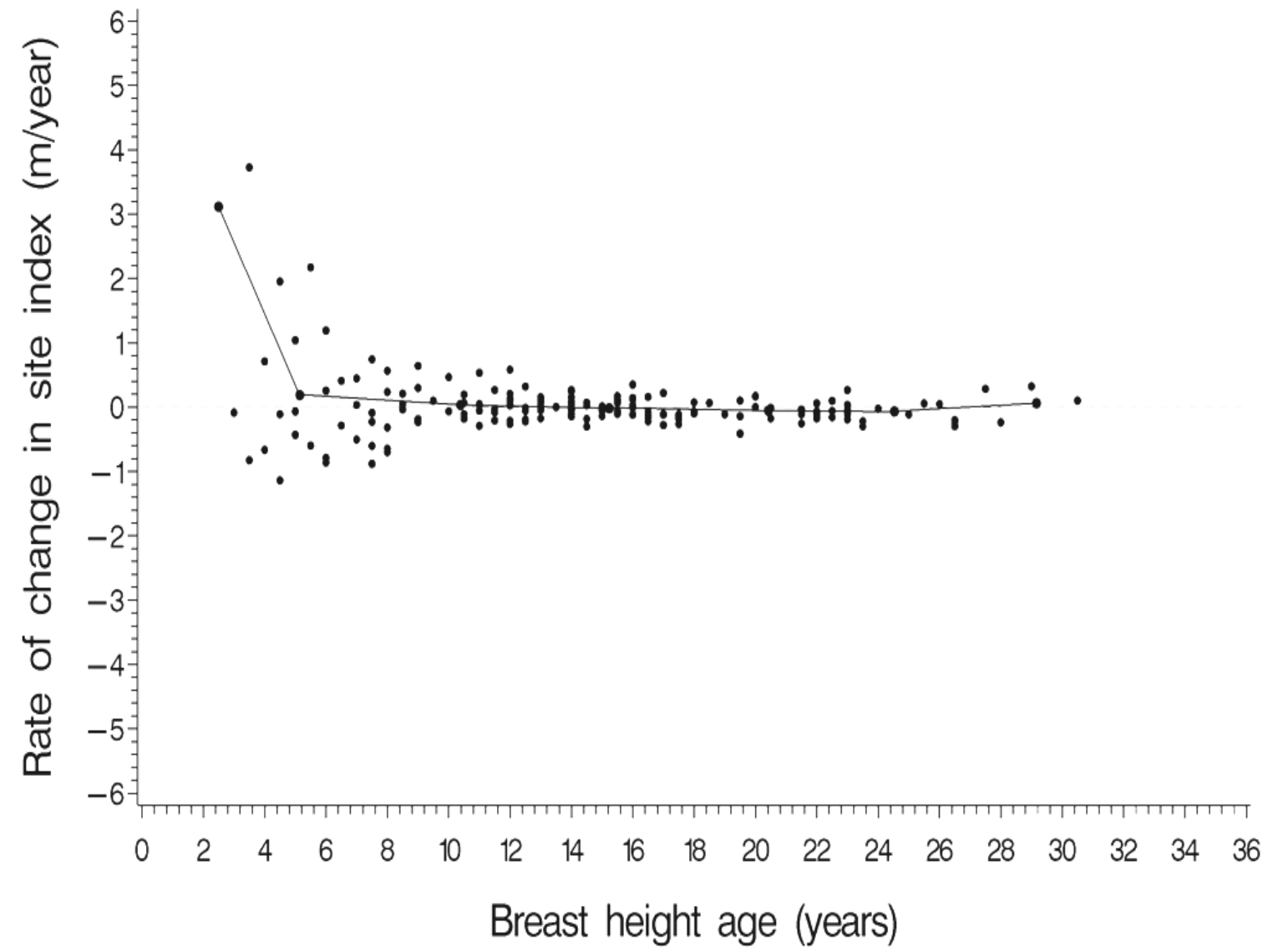
Growth and Yield – Research Trials



Productivity in Regenerated Stands



Rate of Change in Post-harvest Site Index Estimates





Foothills Growth and Yield Association

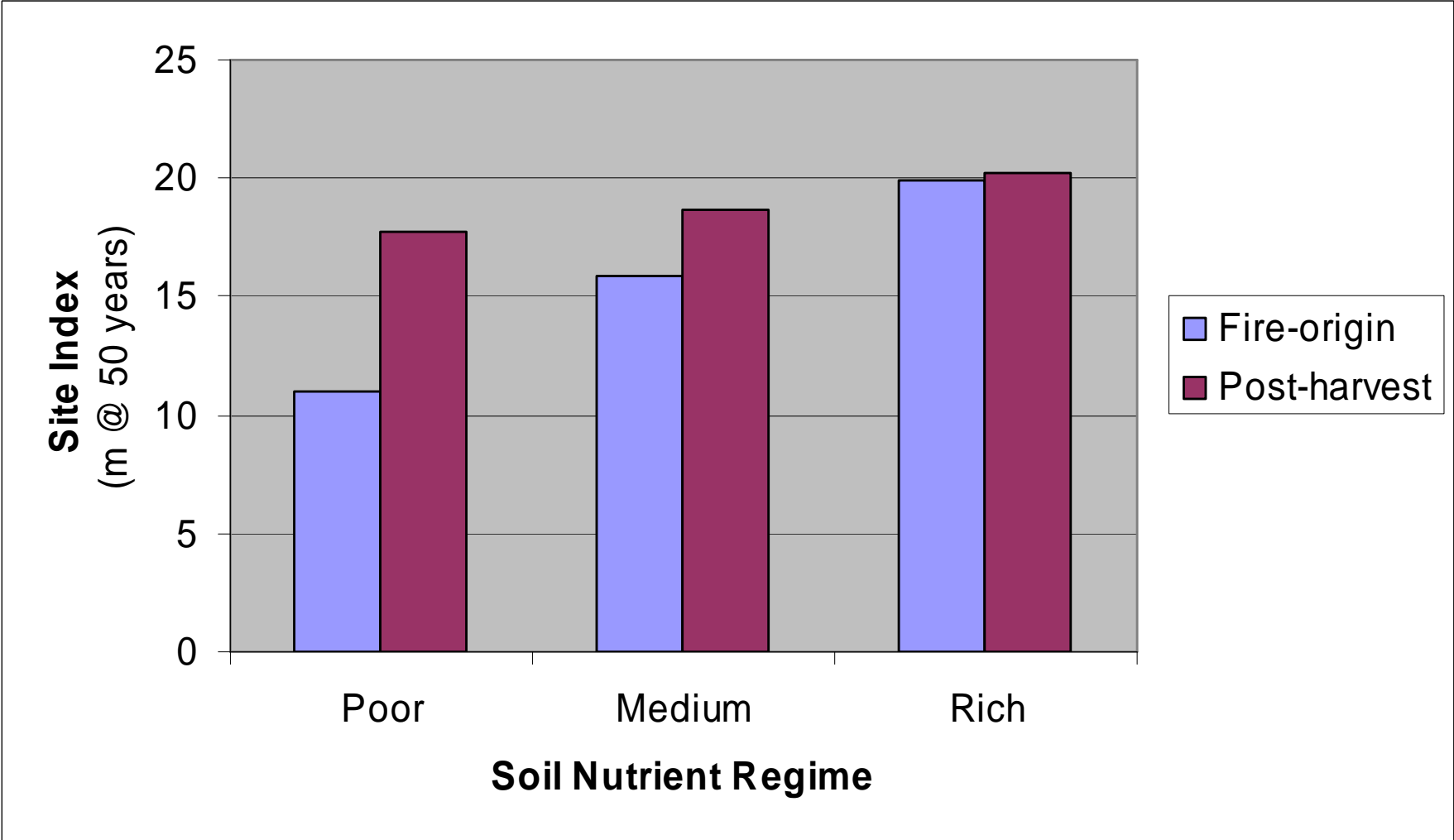


Projects

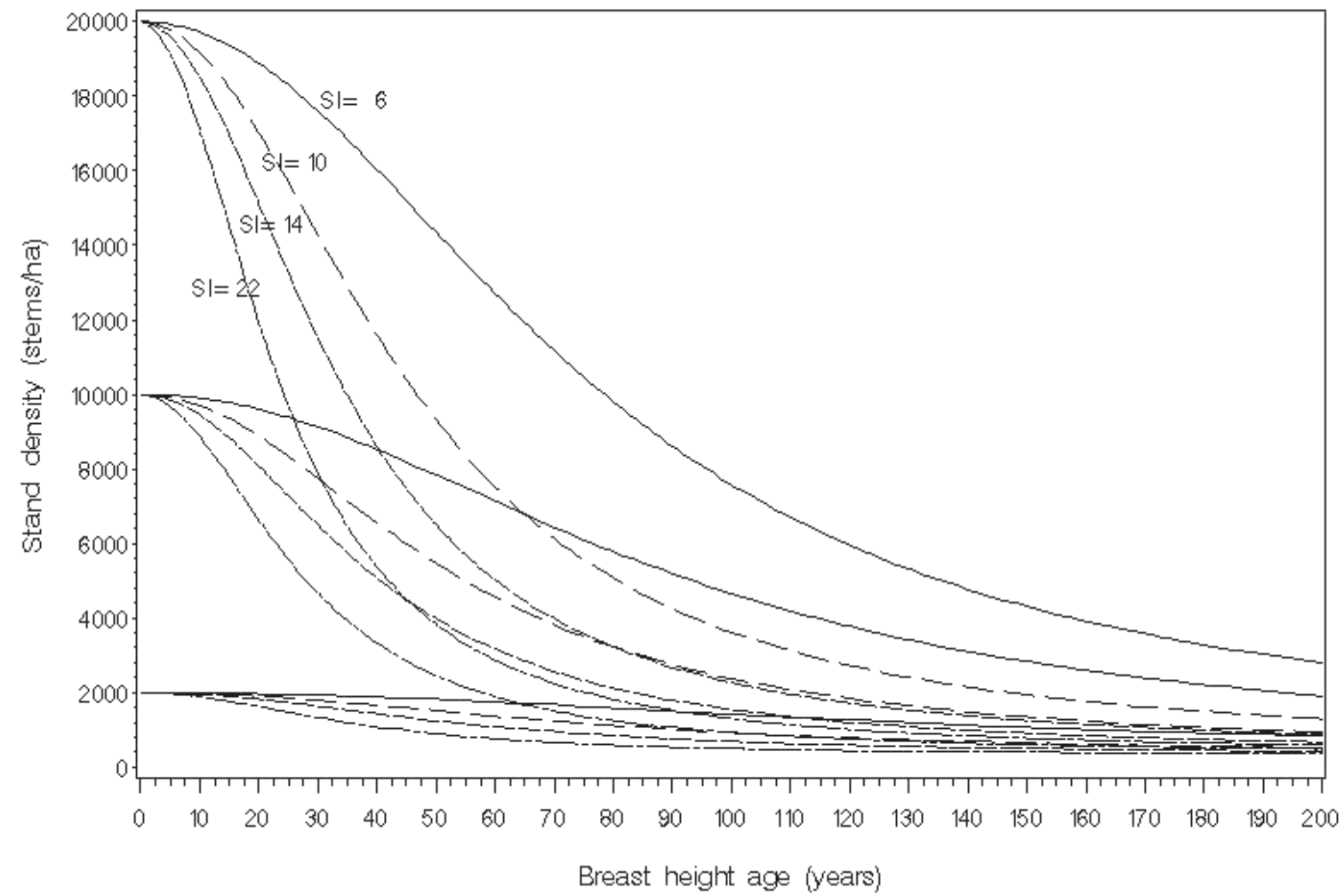
- Lodgepole pine regeneration
- Comparison of pre-harvest and post-harvest productivity
- Cooperative management of historic research trials
- Nutrition and density management



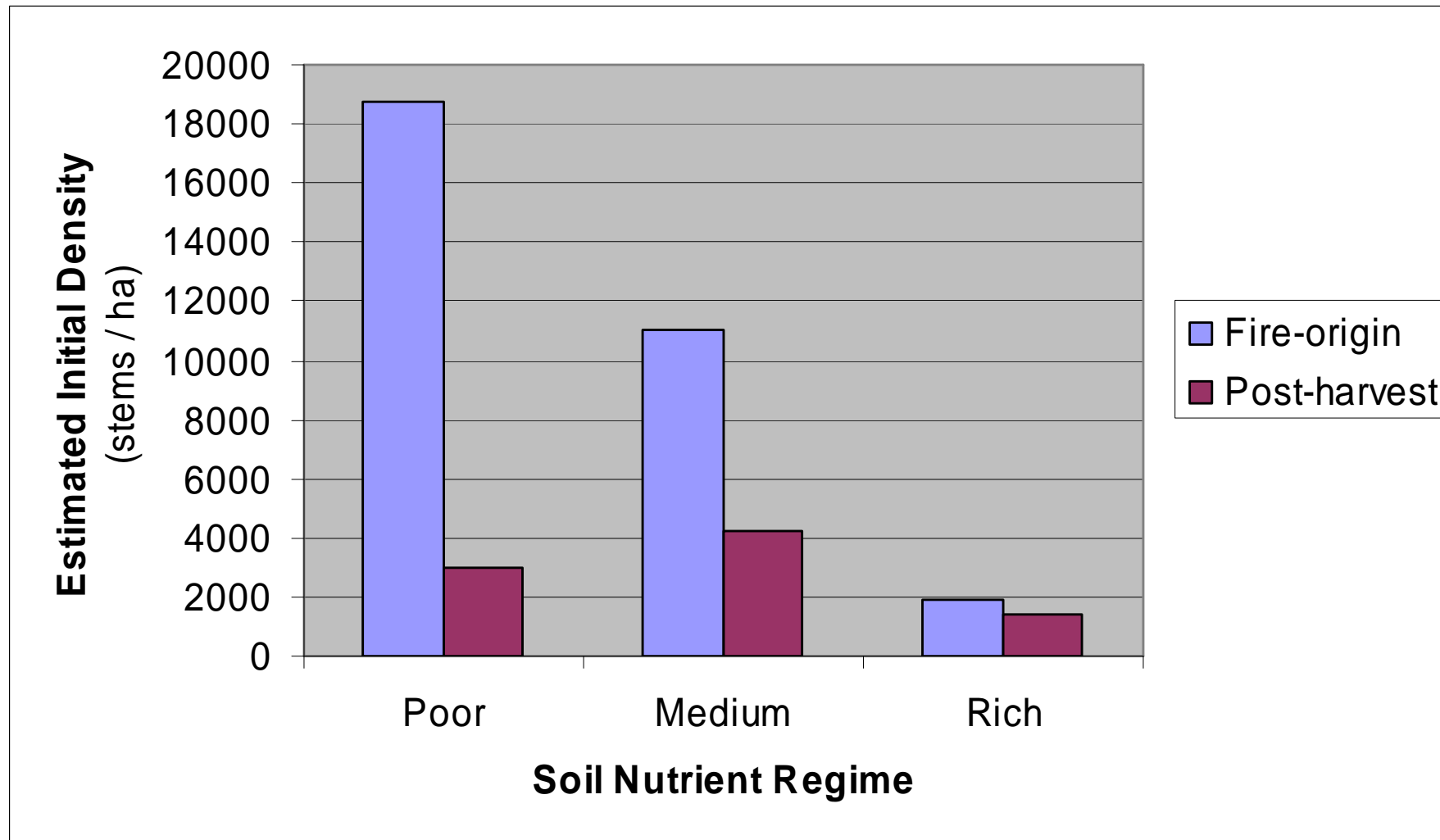
Trends in Regenerated Stands – Site Index



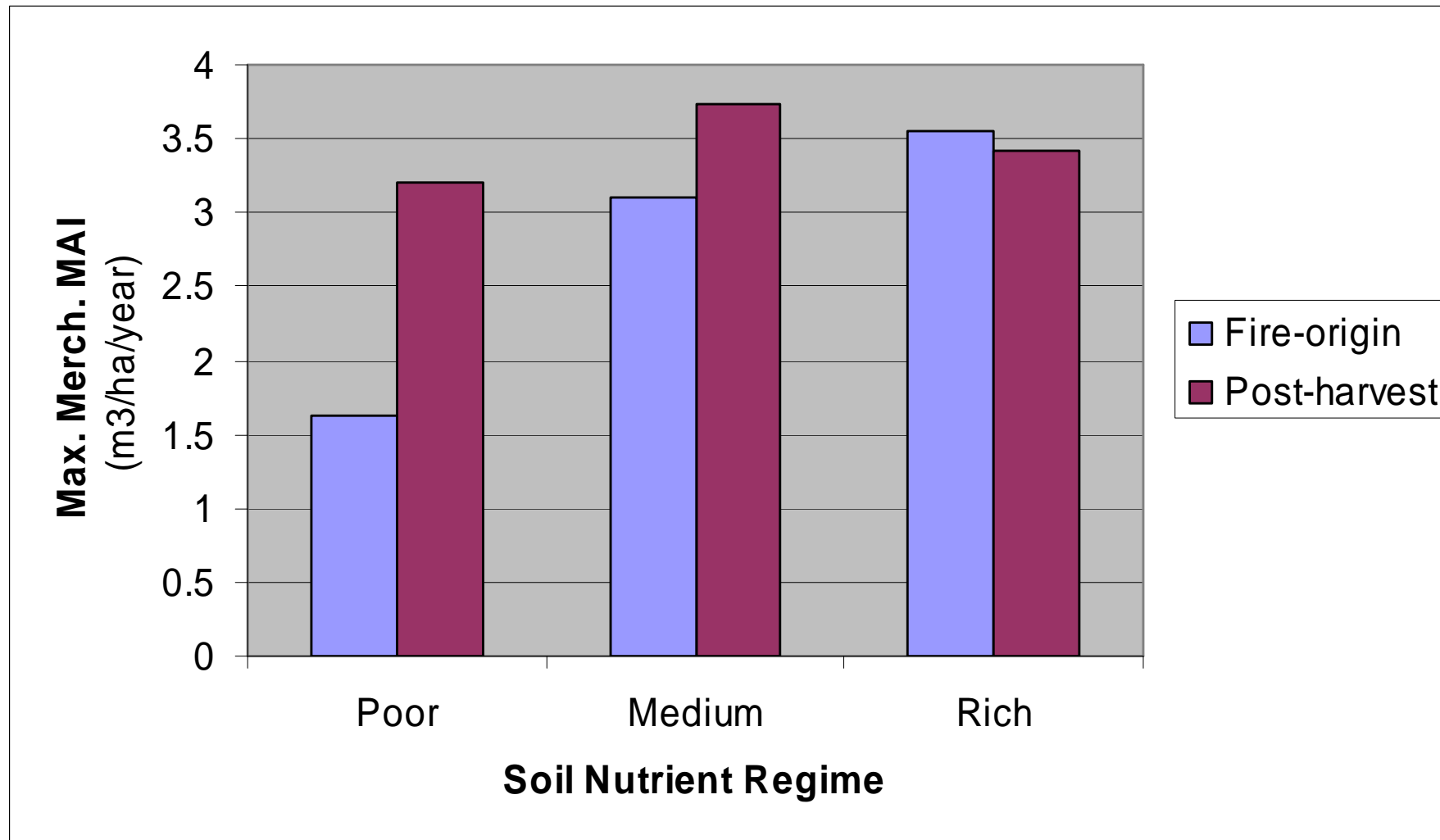
Lodgepole Pine Mortality Function



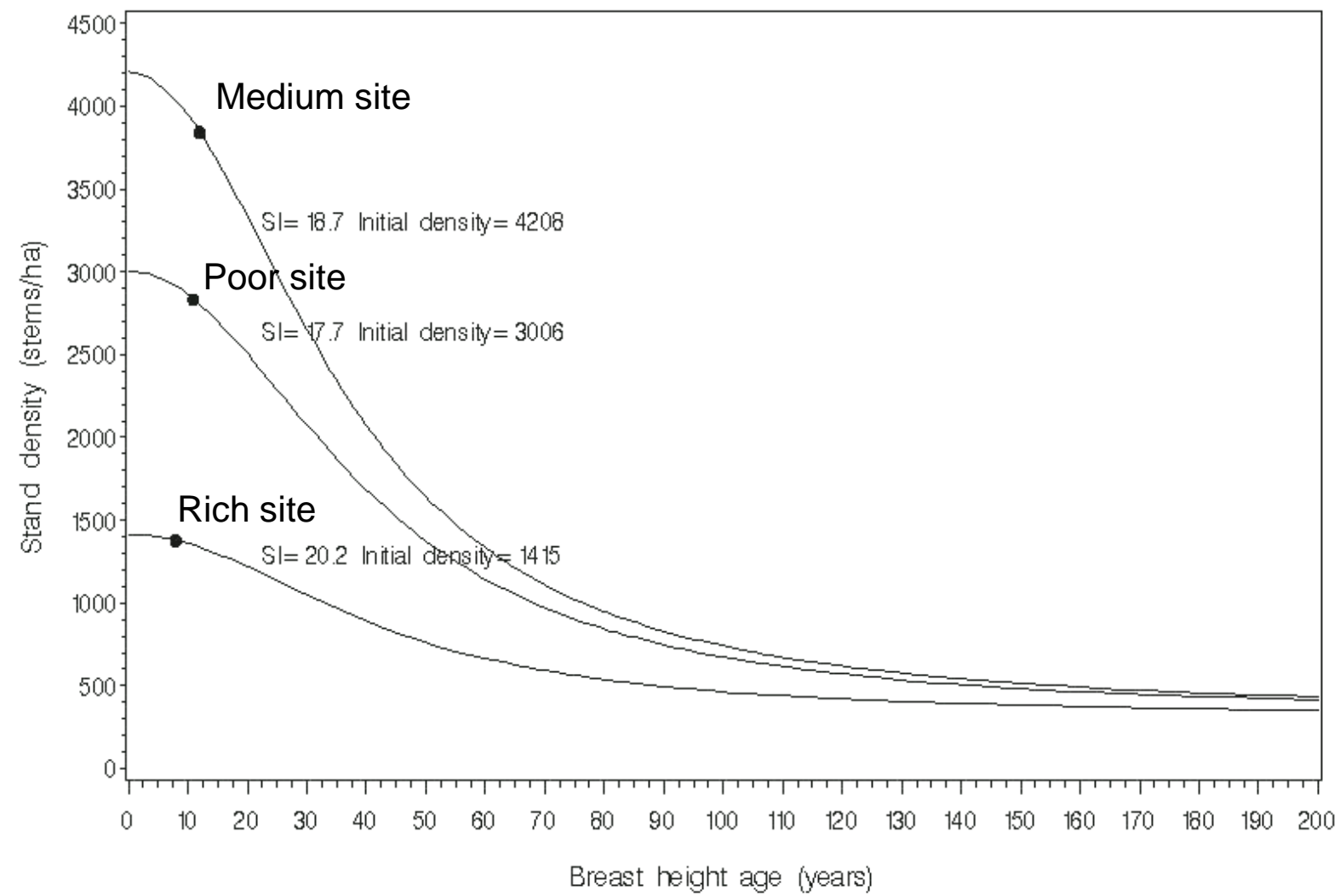
Trends in Regenerated Stands – Density



Trends in Regenerated Stands – Volume Production

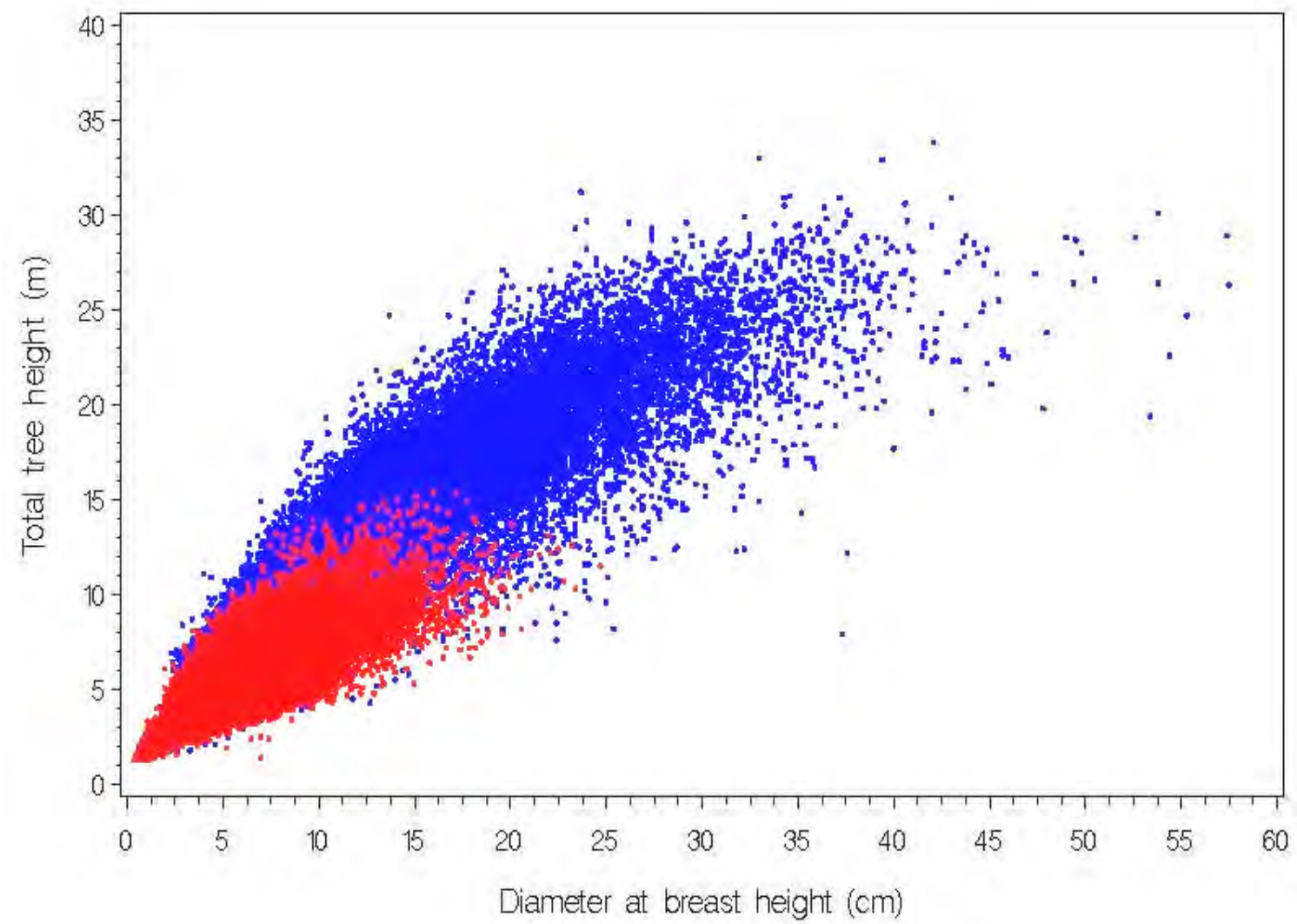


Trends in Regenerated Stands – Density





Trends in Regenerated Stands – Stem Taper



Opportunities: Thinning



Opportunities: Fertilization



Opportunities: Thinning and Fertilization



**Opportunities:
Density Management in Young Stands**



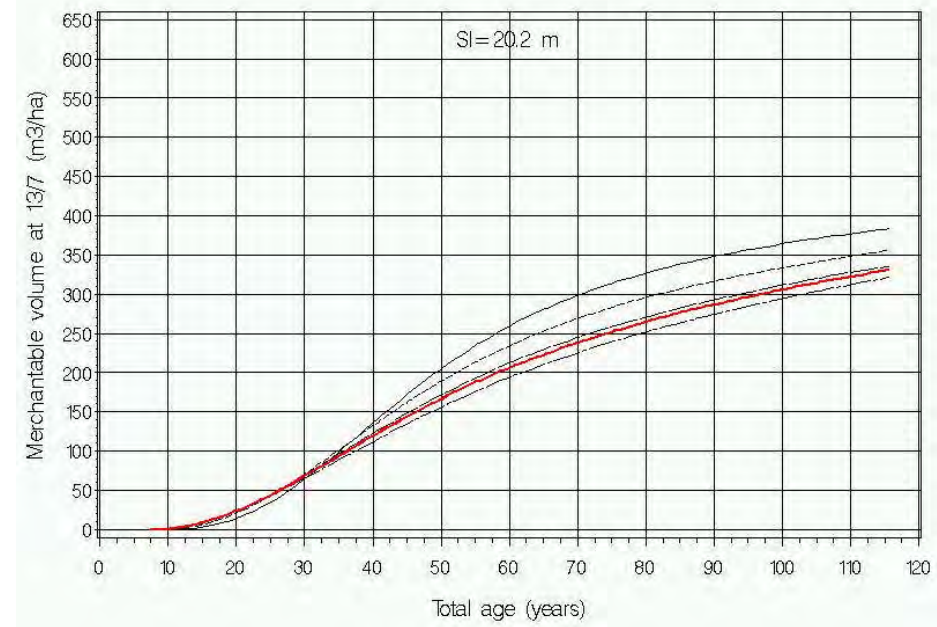




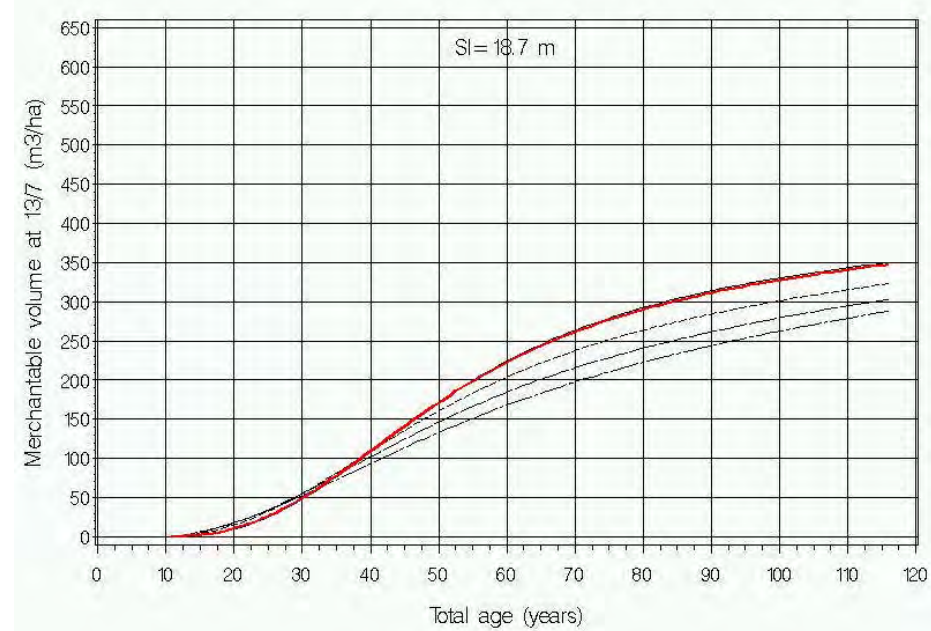
Projected volumes for stands regenerated at different initial densities on rich, medium and poor sites

(Black curves are volumes predicted for initial densities of 1111, 1600, 2500, and 4444 stems per ha. Red curves represent average observed densities.)

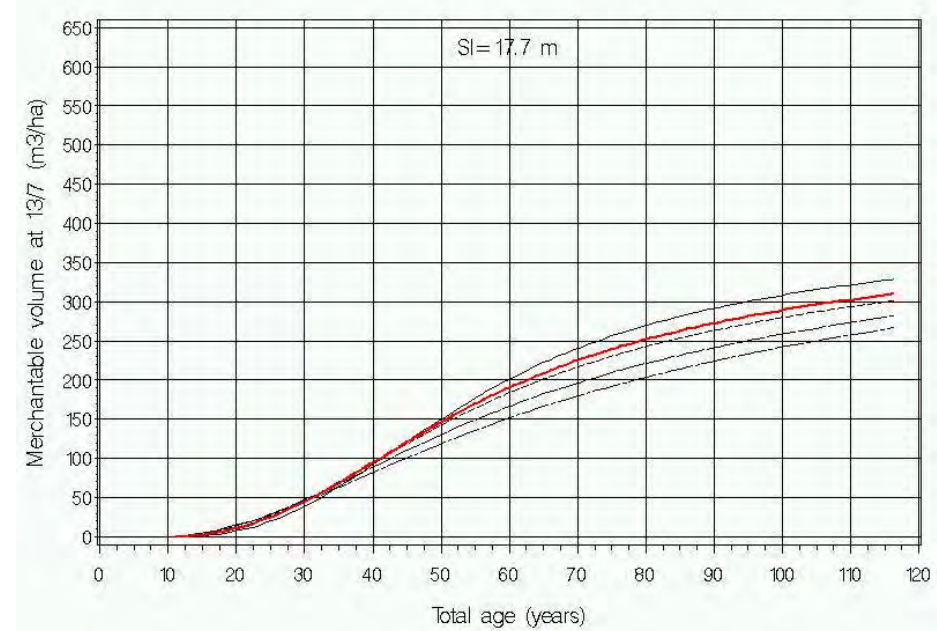
Rich



Medium



Poor





Risks









Priorities for Enhanced Management

- **Forecasting**
- **Monitoring**
- **Risk management**
- **Integration of knowledge**
- **Selective intensification**

Conclusions

- **Post harvest timber productivity can be increased relative to that of fire-origin stands**
- **Requires improved forecasting, risk management, careful monitoring**
- **Operational emphasis should be on achieving good stocking cost effectively, to offset risks and maintain options**



Acknowledgements

- Alberta Newsprint Company
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- Alberta Sustainable Resource Development
- Foothills Model Forest
- Forest Resource Improvement Association of Alberta