

Sawmill Financial Aspects

GRADEYIELD.xls
Spreadsheet Analysis

Small-Log Sawmill Costs

- Capital cost
- Processing cost
 - Logs
 - Manufacturing
 - Overhead

Small-Log Mill Capital Cost

- SUBSTANTIAL capital investment!
- Economy of Scale—investment cost must be supported by allocation of conversion costs
- What is the minimum production rate required to service the investment?
 - PNW & SE—100 MMBF/year
 - Intermountain—50+ MMBF/year
 - Grade/specialty mill—10+ MMBF/year

Small-Log Mill Capital Cost

- Cost of mill equipment is only 20-25% of total capital investment cost
- Quality of sawmill technology should never be compromised!
- Level of investment is controlled by
 - Available timber supply
 - Financial feasibility
 - Access to capital

PNW Small-Log Dimension Sawmill Investment Summary

- Minimum sawmill size – 100 MMBF
- Investment - \$20 million—turnkey operation
- Payback – 8 years
- Return on Investment – 15% minimum return desired

Intermountain Small-Log Sawmill Investment Summary

- Minimum sawmill size – 50 MMBF
- Investment - \$8 to 12 million—turnkey operation (highly variable)
- Payback – 8 years
- Return on Investment (ROI) – 15% minimum return desired

Intermountain Small-Scale Sawmill Investment Summary

- Minimum sawmill size – 10 MMBF
- Investment - \$1 to 2 million—turnkey operation
- Payback – 5 years
- Return on Investment (ROI) – 15% minimum return desired

Small-Log Mill Processing Cost (cost of converting logs to lumber)

70% - Log cost

22% - Manufacturing cost

8% - Overhead costs

Small-Log Mill Processing Cost

- Per unit log cost (\$/MBF) is directly related to sawmill efficiency—maximize lumber recovery
- All other costs are primarily controlled by volume production—use economies of scale to drive down per unit costs (\$/MBF)
- These reinforce the importance of reasonable production rate with high recovery

PNW Dimension Sawmill Profits (1999 dollars, HCMA Consulting)

- Adjusted log cost—\$240/MBF lumber tally
\$600/MBF* log scale ÷ 2½ (lumber yield factor)
- Total manufacturing cost—\$100/MBF
- Total cost—\$340/MBF
- Sales average—\$360/MBF
- Profit margin—\$20/MBF (or 5½% before taxes)

* Delivered log cost, bd. ft. log scale basis

Intermountain Sawmill Profits (P. Pine - Dimension Only)

- Adjusted log cost—\$258/MBF lumber tally
- Total manufacturing cost—\$105/MBF
- Total cost—\$386/MBF
- Sales average—\$315/MBF (w/out residuals)
- Profit margin—loss of \$71/MBF

* Delivered log cost, bd. ft. log scale basis

Intermountain Sawmill Profits (P. Pine - Dimension & Boards)

- Adjusted log cost—\$295/MBF lumber tally
- Total manufacturing cost—\$105/MBF
- Total cost—\$400/MBF
- Sales average—\$336/MBF (w/out residuals)
- Profit margin—loss of \$64/MBF

* Delivered log cost, bd. ft. log scale basis

Intermountain Sawmill Profits

(P. Pine - Dimension, Boards, Shop & Clears)

- Adjusted log cost—\$295/MBF lumber tally
- Total manufacturing cost—\$105/MBF
- Total cost—\$400/MBF
- Sales average—\$509/MBF (w/out residuals)
- Profit margin—\$109/MBF

* Delivered log cost, bd. ft. log scale basis

Sawmill Bottomline Question\$

- What is the profit contribution by species?
- How much can I afford to pay for logs?
- What is the best product mix?
- How about log mix?
- Do I lose money on any logs—**which ones?**
- How much did a sawmill improvement project add to my bottomline?

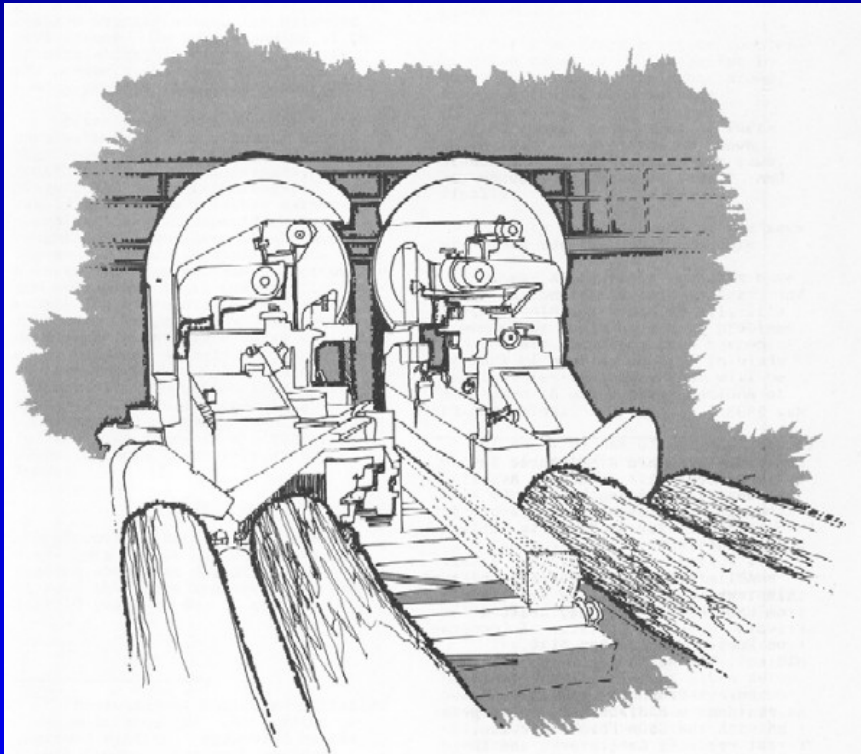
GRADEYIELD.xls

Preliminary Sawmill Feasibility

- Quick & dirty feasibility spreadsheet
- Cost data
 - Log cost (\$/MBF)
 - Sawing cost (\$/MBF)
- Product data
 - Product market prices
 - Product recovery and yield from typical logs



GRADEYIELD.xls Input Data



- Log delivered price
- Sawing cost—cost of converting logs into lumber
- Lumber recovery & grade yield
- Lumber & residue market prices

Log and Sawing Costs

- Cost of logs delivered to the yard
 - Log stumpage price
 - Harvest & stand treatment (thinning)
 - Log transportation cost
- Sawing (**variable**) costs
 - Direct labor
 - Utilities—electricity (or fuel)
 - Sawfiling and regular (daily) maintenance
 - Supplies (saws, lube, oil, grease)

Sawing Cost

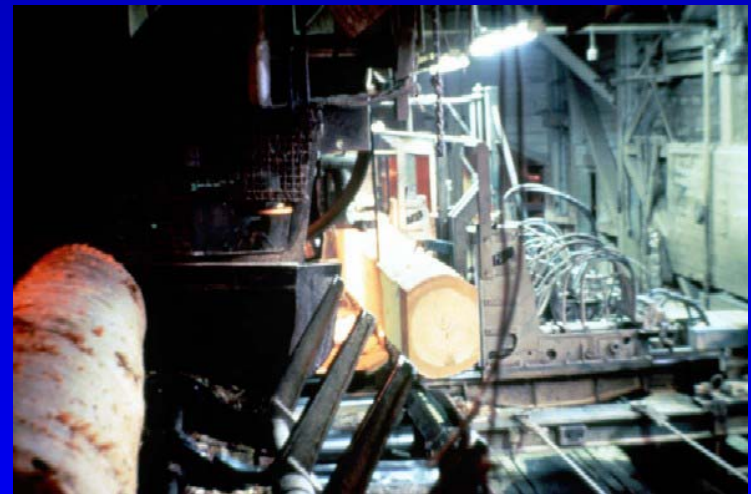
Circular Sawmill

- Typical small sawmill
- \$105/MBF (average)



Band Sawmill

- Higher production mills
- \$100/MBF (average)



Product Prices

- Moulding, Selects & Commons (ponderosa pine boards)
 - Clears—\$785 to \$1,215/MBF
 - Moulding & Shop grades—\$475 to \$1,190/MBF
 - #2&Btr. Common—\$545 to \$675/MBF
- Framing lumber (2x4s)
 - KD dimension—\$380/MBF
 - KD studs—\$378/MBF



#2&Btr. Common Boards

Mill Residue Markets

- Pulp chips (slabs, edgings & trim ends)
- Wood energy (bark, sawdust, shavings)
- Mulch (bark & sawdust)
- Animal bedding (dry planer shavings)

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Preliminary Sawmill Feasibility

- Interpretation of analysis
 - Best case scenario
 - *Gross Margins*
 - Positive gross margins—deserves further study
 - Negative gross margins—nonviable option
- Spreadsheet demonstration