

Economics of Intensive Plantation Forestry (IPF)

Perspectives of a Private

Woodland Owner

Charles J. Chambers

Economic Management Philosophies

- “Different in kind, unlike, and incongruous”
- 40 years of personal experience
- No absolute consensus on management philosophy
- Discussion to contain subjective perspective

Major Points of Presentation

- Small Land Owner's (SLO) Economic Criteria
- Why SLO must Think Differently than Industrial Owners
- Steps to Accomplish Economic Success for IPF

December 2003

Non-Statistical Survey

- Do you practice intensive forestry?
- What nominal rate of return expected or required?
- Is ownership east or west of Cascade Crest?

Results of Survey

- 17 replies from 220 requests
- 16 out of 17 “yes” to intensive management
- 2 out of 17 east of Cascade crest
- Nominal Rate 6.2% (Range 0 – 10%)
- Converted to Real Rate of 3.5%
(inflation 2.6%)

Forest Land Sale Profile

- Lower elevation forestland in Western Washington
- Less than 500 acres
- Purchaser includes both industrial and small non-industrial
- Intention to manage as forestlands

Results of Sales

- 6.5% Real Rate (constant since 1994)
- December '03 survey showed 3.5%
- Small non-industrial owners are underestimating potential financial returns

IMP vs. Passive Management

- Estimated 10% practice IMP
- Remained constant over last 40 years
- 1960's: Few believed in economics of 80 yr rotation cycle
- Perceptions changed with younger rotation and higher prices
- 1990's: Depressed prices and higher regulation

Industrial vs. Small Owner

- Both use similar tools for IMP
- Land productivity is similar
- Differences
 1. Size of operating units
 2. Management costs

The “3 R’s” of Profitable Management

1. Regeneration of Forest
2. Relative Density of 50
3. Risk Imposed by Stocking Level

Regeneration of Forest

“Pick your Profitability Option”

Profitability Option is defined as
“The Right Number of Trees per
acre needed to be well
established and growing freely by
12 to 15 years”

Relative Density of 50

Relative Density is a
measurement for stocking density
used in the Pacific Northwest

The Interpretation of Relative Density

10-30	Trees free to Grow; crowns full to ground
31-49	Maximum Stand Growth; 40%-60% crowns
50-60	Commercial Thin Window; 25%-40% crowns
61-70	DBH Shut Down; Heavy Loss of Crowns
71+	Very Dense; Poor Crowns...Too Late, No Factory

Risk Imposed by Stocking Levels

Low Risk: 200-300 trees per acre

Moderate Risk: 301-375 trees per acre

High Risk: Greater than 375 trees per
acre

Impact of Stocking Levels

Example:

DF Site Index 125

Commercial Thinning at

RD50 to RD35

TPA AT 12-15 Years	CT AGE	DBH Inches	Ton/AC Removed
LR-200	31	11.6	45
MR-300	26	9.4	37
HR-400	23	7.5	27

	% C/S	% Pulp	Stumpage \$/Ton	Total MBDFT 45 Years
Low Risk	76	24	\$23	35.1
Med Risk	56	44	\$16	39.7
High Risk	23	77	\$4	38.9

C/S=\$62/ton Pulp=\$26/ton Logging Cost=\$30/ton

Stocking Level Selection Factors

1. Relationship of Personal Involvement
2. Size of Management Unit
3. Access and Topography
4. Future Log Product Size

Relationship of Personal Involvement

- Low Risk: Owner heavily involved in all phases of operation; lives on or near tree farm
- Moderate Risk: Owner directly involved and may use consultant; under 250 miles
- High Risk: No involvement or professional consultant. Over 250 miles from tree farm

Size of Management Unit

- Low Risk: Greater than 40 acres
- Moderate Risk: 20 to 40 acres
- High Risk: Less than 20 acres

Access and Topography

- **Low Risk:** Near blacktop, level or rolling topography, soils tolerant of harvesting
- **Moderate Risk:** All season rock road, moderate topography, winter harvesting
- **High Risk:** Lack of road system, steep topography, high risk soils

Future Log Product Size

- Low Risk: Majority Chip/Saw with small saw logs, *some* pulp (5 to 12 inches)
- Moderate Risk: Majority Chip/Saw with pulp (2 to 10 inches)
- High Risk: Majority Pulp with Chip/Saw (2 to 7 inches)

Risk Analysis Case Studies

SLSF	1) 400 T/A	2) 270 T/A
RPI	Out of State – H	Live On - L
SMU	15 Acres – H	60 Acres - L
A & T	Poor – H	Good - L
FLPS-RD50	Pulp – H	C/S, SL - L
Risk	Very High	Low
Suggested P.O.	250 T/A	340 T/A

Conclusion

- Non-industrial landowners underestimate financial returns in plantation forestry
- To achieve higher returns, planning must be accomplished wisely and early
- Higher stocking levels mean higher risk for maximum profitability