"OLD FIELD" LONGLEAF

ECONOMIC PROJECTIONS
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- **Discounting** - The practice of determining the value of income or expenses backward through time. Sometimes referred to as "the cost of money". Employs the power of compounding interest. Best scenarios discount income over short periods and costs over long periods.

- **Annual Equivalent Value (AEV)** - Net Present Value or Present Net Worth divided by term of investment in years.

GROWTH AND YIELD

- **Net Present Value (NPV) or Present Net Worth (PNW)** - Value of an investment after all costs and incomes are discounted to the year of investment (year 0) and costs subtracted from income. Any NPV greater than 0 indicates a profitable investment.

- **Internal Rate of Return (IRR)** - The interest rate at which all discounted revenues of a project equal the discounted costs of the investment (or where NPV = 0). A good tool for comparing investments.
### North Carolina Projections

- **Site Index 45 (25)**
- Fire every 5 yrs beginning at age 18
- Thin every 5 yrs beginning at age 30
- Final Harvest at Age 45

- **Site Index 55 (25)**
- Fire every five years beginning at age 14
- Thin every 5 years beginning at age 20
- Final harvest at Age 50

### ASSUMPTIONS

- Reforestation Costs - $97/A Net (After CS)
- Release - $40/A
- Prescribed Burn - $10/A
- Pine Straw Fertilization - $50/A
- Herbicide for Pine Straw - $85/A

### NC Pine Straw Projections

- **Site Index 45**
  - Herbicide at Age 15
  - Rake at Age 16, 17, 18
  - Rest 1 year, Burn at 20
  - Repeat and fertilize at Age 29 and 37

- **Site Index 55**
  - Herbicide at Age 10
  - Rake at Age 15, 16, 17
  - Rest 1 year and resume
  - Fertilize at 26 and 40

### NC Yield Projections

- **Site Index 45**
  - Thinnings
  - Age 30 - 14 cords
  - Age 35 - 7 cords
  - Age 40 - 4 MBF, 2 cds
  - Final Harvest - Age 45
  - 3 MBF, 9.9 cords

- **Site Index 55**
  - Thinnings
  - Age 20 - 5 cds
  - Age 30 - 7 cds
  - Age 35 - 5 MBF, 8 cds
  - Age 40 - 7 MBF, 7 cds
  - Age 45 - 1.1 MBF, 6 cords
  - Final Harvest - Age 60
  - 3MBF Poles, 6.1 MBF ST, 12 cords

### WORKING ASSUMPTIONS

- Discount Rate = 4%
- Prices:
  - Pulpwood $17/cord
  - Sawtimber $28/MBF Scribner
  - Poles $450/MBF Scribner
  - Pine Straw $0.75/Bale

### ECONOMIC PROJECTIONS

<table>
<thead>
<tr>
<th></th>
<th>NPV</th>
<th>NAE</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI 45 - Wood Only</td>
<td>$532</td>
<td>$26</td>
<td>7.9%</td>
</tr>
<tr>
<td>SI 55 - Wood Only</td>
<td>$1117</td>
<td>$52</td>
<td>9.40%</td>
</tr>
<tr>
<td>SI 45 - w/Straw</td>
<td>$766</td>
<td>$37</td>
<td>9.35%</td>
</tr>
<tr>
<td>SI 55 - w/Straw</td>
<td>$1375</td>
<td>$64</td>
<td>10.1%</td>
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</table>
CRP @ $40/yr for 15 yrs, no pine straw
- @ 15 yrs (No Harvest) NPV=S303.50
  IRR=28.7%
- @ 20 yrs (1st Thin) NPV=S337.50
- @ 30 yrs (2nd Thin) NPV=S367.10
- @ 35 yrs (3rd Thin) NPV=S435.40
- @ 40 yrs (4th Harvest) NPV=S499.90
- @ 45 yrs (5th Harvest) NPV=S580.80
- @ 50 yrs still have fully stocked mature stand with timber value estimated at $2,700/acre

Working Assumptions - All Sites
" 4% Discount Rate
" 500 trees per acre at age 1
" Planting cost (net) at $117.50
" Containerized Seedlings
" Management Costs at $2/A/Yr
" Fire Costs at $5/A every 3 years

REEA: PROJECTIONS
Old Field Longleaf with CRP
Payments Factored into Economic Analysis

Management Assumptions
- Low Intensity: SI 63, No HWC, thin year 25 to RBA 65
- Medium Intensity: SI 68, HWC years 1 & 2 at $35/A/yr, thin years 21 & 28 to RBA 65
- High Intensity: SI 71, HWC + Fert. 6 years before each harvest @ $70/A; thin at age 21 and 28 to RBA 65
- CRP, 15 years @ $30/acre/year

PINE STRAW ASSUMPTIONS
- Harvest at yrs 16-21, 24-28, 31-35
- Clean up cost of $45/A between harvests
- Pine straw income = $75/A during harvest years
Working Assumptions
- Rotation = 24 years
- Discount Rate = 4%
- 650 trees per acre at age 5
- Site Index = 68
- Stumpage: PW - $50/cd; CNS-S75/cd;
  ST: S213/MBF, Large ST - S240/MBF

Thin Mgmt Lvl CRP AEV IRR
No Medium No $76/yr 14.2%
No High No $103/yr 17.5%
@14 yr medium No $86/yr 16.1%

Why Thin?
- Early return on investment
- improved stand health and vigor makes less susceptible to disease and insect attack
- wildlife habitat improvement
- access into stand
- potential increased to shorten period required to reach higher valued products and shorten rotation.

Old Field Loblolly
Two 25 Year Rotations
- CRP @ $35/A for 10 years
- Pulpwood @ $25/Cord
- CNS @ $75/cord
- ST @ $400/MBF
- Burning Cost of $10 every 5 years
- Planting/Release Cost of $111
- One thin per Rotation
### Working Assumptions - All Sites

- Pulpwood - $40/cord
- C-N-S - $75/cord
- Sawtimber - $250 MBF
- Large Sawtimber - $300 MBF

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### ECONOMIC PROJECTIONS

#### 28 year Rotation; No Thinning

<table>
<thead>
<tr>
<th>MGMT</th>
<th>CRP</th>
<th>NPW</th>
<th>AEV</th>
<th>IRR</th>
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<tbody>
<tr>
<td>Low</td>
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<td>$1566</td>
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<tr>
<td>Med</td>
<td>No</td>
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<tr>
<td>Med</td>
<td>Yes</td>
<td>$2029</td>
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#### 28 year Rotation with Thinning

<table>
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<th>NPW</th>
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<th>IRR</th>
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<tr>
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<td>Med</td>
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#### 28 year Rotation with Thinning & Pine Straw

<table>
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<th>NPW</th>
<th>AEV</th>
<th>IRR</th>
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### Effect of CRP Payments

Assume medium level of management and that payments are for 15 years

<table>
<thead>
<tr>
<th>CRP PAYMENT</th>
<th>NPW</th>
<th>AEV</th>
<th>IRR</th>
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<td>$15</td>
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<td>$35</td>
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<td>$45</td>
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<td>$50</td>
<td>$3473</td>
<td>$186</td>
<td>89.60</td>
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Old Field Loblolly - With CRP
Two 25 Year Rotations

* At end of first rotation
  * NPV = $1380, AEV = $55.22
  * IRR = 35.7%

* At end of second rotation
  * NPV = $1785, AEV = $35.70
  * IRR = 35.7%

“Old Field” Loblolly Considerations

Some Advantages of planting loblolly include shorter investment period to get in-pocket return, easier and cheaper to plant, grows well on most soils.

Some Disadvantages include poorer quality products and less valuable when sold on weight basis; susceptibility to disease, insects, and fire; tendency to close canopies early degrades wildlife habitat; less likely to produce pinestraw; and less favorable CRP contracts available.

LONGLEAF ADVANTAGES

- REDUCED RISK OF LOSS TO DISEASE, INSECTS, FIRE
- HIGHER PROPORTION OF POLES
- HEAVIER WOOD
- FAVORABLE COST SHARE TREATMENT

Timber Sale Data - Mississippi
From John Guthrie & Son, Wiggins, MS

![Graph showing timber sale data](image-url)