Costs and Trends of Southern Forestry Practices

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Outline

• Introduction
  – Purpose and goals

• Methods & Results
  – Questionnaire
  – Costs of major practices
  – General costs trends

• Discussion
  – Reflections of costs of forestry practices
  – Response rates moving forward
Purpose and Goals

• Understanding costs of various forestry practices
  – Present costs
  – Long-term study of changes

• Has become a standard in the industry
Methods and Results

• Follow standards from previous surveys

• Results based on responses to questionnaire
  – Costs of major forestry practices

• Weighted average of costs reported
  – No statistics
2016 Questionnaire

- 650 questionnaires mailed or emailed
  - 12 undeliverable
  - 638 distributed

- 395 more recipients than 2014

- Of those distributed
  - 76 returned completed
  - 10 returned blank

- Total response rate of 13.5%

- 3% greater response rate than 2014
Regions and States

[Map of regions highlighted on the United States map with regions labeled A, B, and C]
2016 Forestry practices

- Prescribed burning
- Chemical application
- Timber cruising
- Mechanical site prep.
- Planting
  - Hand
  - Machine
- Fertilization
- Timber marking
- Precommercial thinning
- Fire protection
- Custodial management
Prescribed burning

• 54% respondents reported

• Total of 60,305 acres

• Majority acres used for
  – Site prep. (39%)
  – Understory control (51%)
Prescribed burning

- Overall avg. - $26.63 per acre
- Southern Coastal - $18.12 per acre
- Northern Coastal - $25.60 per acre
- Piedmont - $29.40 per acre
Chemical application

- 78% respondents reported
- Total of 455,738 acres
- >53% acres used for
  - Site prep.
- 71% of acres reported used
  - Aerial application
Chemical application

- Overall avg.
  - $69.53 per acre
- Averaged $6.50 per acre more in Piedmont
- Site prep. Average
  - $79 per acre
Timber Cruising

- 41% respondents reported

- Total of 953,825 acres

- 67% acres used
  - Variable radius plots
Timber cruising

- Overall avg. $10.64 per acre
- Southern Coastal $8.85 per acre
- Northern Coastal $9.94 per acre
- Piedmont $9.62 per acre
Site prep - mechanical

- 50% respondents reported
- Total of 75,152 acres
- 45% reported single pass
Site prep - mechanical

• Overall avg.
  – $140.99 per acre

• Southern Coastal
  – 37% cheaper than Northern Coastal
  – 36% cheaper than Piedmont

• Average cost by number of passes
  – $105.73 single
  – $217.87 double
  – $252.09 triple
Planting

- 90% respondents reported (all pine)

- Total of 236,783 acres

- 85% of acres reported planted in bareroot loblolly pine (*Pinus taeda*)

- Overall average hand planting cost 38% less than machine planting per acre
Hand planting

- 76% of respondents that reported planting
- Total of 154,995 acres
- Averaged 582 seedlings per acre
- Overall avg.
  - $0.10 per seedling to plant
Machine planting

- 24% of respondents that reported planting
- Total of 87,788 acres
- Averaged 603 seedlings per acre
- Overall avg.
  - $0.14 per seedling to plant
Fertilization

- 21% respondents reported
- Total of 185,750 acres
- 90% acres used
  - Aerial application
  - 75% used DAP + Urea
Fertilization

- Overall avg.
  - $70.41 per acre

- Aerial application
  - $71.68 per acre
  - $97.03 per acre
    - DAP+UREA

- Ground application
  - $63.16 per acre
Discussion

• Reflections of cost of forestry practices

• Response rates moving forward
  – Changes to the survey
  – Ownership change
Reflections over the years

• Prior to 1976
  – Labor costs primary reason for increases

• Late 1970s and early 1980s
  – Energy crisis led to national recession and double inflation
  – Rising energy and equipment costs
    • Large increases in forestry practices
      – Chemical application
      – Mechanical site prep
Reflections over the years

• Late 1980s and early 1990s
  – Energy costs and inflation stabilized
  – Cost of forestry practices stabilized
  – Companies transitioned to contract labor

• 1990s and early 2000s
  – Cost of forestry practices generally increased

• Last ~10 years
  – Variability in costs
  – Few consistent trends
Ownership change

- Financial pressure caused corporate restructuring and divesting

- Much of industry land has been sold to non-industrial private corporations
  - Real Estate Investment Trusts (REIT)
  - Timberland Investment Management Organization (TIMO)
What does this mean for forestry practices?

• Significant long-term changes remains to be seen

• Fewer potential respondents to the survey
  – 163 surveys sent to industrial folks in 2008
  – 92 surveys sent in 2014
  – 19 surveys sent in 2016
Ownership change

• Private family forest landowners

• Own ~58% of timberland in U.S. South

• Generation shift ongoing
  – Future impacts unknown
Future concerns for survey

• Fewer potential participants due to:
  – Restructuring of corporate forest product companies
  – Ownership change
  – Overall decrease in private forestry firms
    • Either no longer exist
    • Or no longer wish to participate
Changes to survey

• Make it more user friendly
  – Online version
  – Selection windows and options
  – Easier to understand and complete

• Reach more private forest landowners
  – Send survey through organizations, magazines, specialty groups
  – i.e., Forest Landowner Magazine
Thank you!

• Landowners and professionals that participated

• Forest Landowner Magazine
QUESTIONS?

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1) List the types, number of acres, and costs of **planting operations** you had in 2016.

<table>
<thead>
<tr>
<th>Method of Planting</th>
<th>Land Type</th>
<th>Acres</th>
<th># of Tracts</th>
<th>Species name</th>
<th>Type</th>
<th># Planted Per Acre</th>
<th>Cost $/1000</th>
<th>Planting Cost/Acre (Do not include seedling cost)</th>
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<tbody>
<tr>
<td>Hand Planted</td>
<td>Cutover</td>
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<tr>
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