Idaho weight scaling project: Update

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Cores were dried and weighed to obtain moisture content. Felled 30 Douglas-fir (Pseudotsuga menziesii) in 3 size classes: 5-10, 10-15, and 15-20 inches DBH. Two treatments were applied:

1) Cut-to-length
2) Whole tree

Sample cores were collected on alternate days through a 28 day period. The effect of treatments on moisture content can be observed in the graph below.

Effect of Treatments on Moisture Content

Effect of harvest method on moisture content:

- Treatment 1: $y = 0.7655e^{-0.048x}$, $R^2 = 0.8433$
- Treatment 2: $y = 0.7447e^{-0.061x}$, $R^2 = 0.8605$

Overall Weight Healing Study

Moisture loss in felled Douglas-fir with respect to harvest method.
Overview

Developing Weight:Volume (W:V) Relationships for Idaho

- 7900 scaled loads
- Investigated climate, site, species factors
- Make conversions more accurate and clear
Quarter was used as a surrogate for precipitation and temperature.

Harvest Area was not found to be a significant predictor.
Defect was not significantly different across species, area, season.
<table>
<thead>
<tr>
<th>Species Sort</th>
<th>Mean Load Volume (mbf)</th>
<th>RMSE</th>
<th>+/- (p&lt;.05) (%)</th>
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<tbody>
<tr>
<td>WRC</td>
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<td>DFL</td>
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<td>LPPP</td>
<td>5.30</td>
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</table>
Variation between observed and predicted values of net truckload volume.
% change in W:V relationship of each species sort compared to their yearly average W:V
% change in W:V relationship of each species sort compared to the current IDL state average of 5.48 tons/mbf
• 30% of state sales sold on ton basis, including everything south of the Salmon River

• Continually adding sample loads to the database to improve relationship

• W:V relationships derived by species and management area

• Working to expand weight scaled products to include cedar poles

• Cedar products still limited by availability of on-site scales
• Educating buyers and mills remains a prominent goal

• Conducting tests on salvage logs from burned areas

• Foresters are encouraged to sell timber sales by weight

• Statewide effort to shift cruise and scaling volumes to cubic

• Re-evaluating timber sale contract wording, providing volumes in cubic and mbf to accommodate buyers
Operator Practices

- Purchasers more aware of time in deck
- Consistent effort to deliver <1 month

- Utilizing +/- 3 yr. harvest contracts to maximize wood weight

- Shifting operations seasonally to benefit log weight and deck time
• Assessing effects of weight on salvage logs
  • Beetle killed
  • Fire salvage

• Dealing with genetic variation

• Working to expand weight scaled products (cedar poles, cedar products)

• Shifting towards a cubic system

• Reducing sample scaling ratios as W:V relationships become better
