

Supplement

Effect of the Roundwood Mill Capacity Limitation Assumption on Available Biomass from Simulated Thinnings

Section 3.1.2 discusses logging residues and forest thinnings. The thinnings use FIA inventory plots to determine plots with stand density index (SDI) greater than 30% of a maximum SDI for that given forest type. If exceeded, a simulated harvest was conducted using an uneven-aged prescription which results in the removal of trees across all diameters. The products from the thinning include roundwood (tree boles) for sawtimber, pulpwood, and other merchantable products as well as biomass, e.g. small, unmerchantable trees, limbs and tops of the merchantable trees, and cull trees and tree components. An underlying assumption is that to be cost effective, thinnings would only remove biomass along with merchantable roundwood. The chosen approach was to use “integrated harvest operations,” i.e. removal of biomass with wood that had value for conventional forest products.

Under the assumption of integrated harvesting for the simulated thinnings, there becomes a roundwood mill capacity limitation. There is a limit as to how much biomass can be harvested depending on mill capacities and markets for the merchantable roundwood. This thinning removal limit is assumed to be met when the simulated removal of sawlogs plus pulpwood reaches the 2006 state-by-state level¹ of total sawlog and pulpwood harvests.

The impact of this assumption can be significant, reducing considerably, if not eliminating, the amount of available biomass from thinnings in some states. This supplement to the Billion Ton Update provides an analysis of the impact of that underlying assumption.

This supplement only addresses thinnings on timberland (Section 3.1). Thinnings on other forestlands is addressed in Section 3.3 and was not subject to the roundwood mill capacity limitation.

The supplement includes the following information and data over a range of roadside costs:

- Table 1. Estimated available biomass from thinnings by state as reported in the Update.
- Table 2. Estimated total biomass from thinnings by state that were not included in the report because of the roundwood mill capacity limit.
- Table 3. Estimated total biomass from thinnings by state that includes the unreported biomass because of the roundwood mill capacity limit.
- Table 4. Percent of total biomass from thinnings by state that is unreported because of the roundwood mill capacity limit.

The costs shown in Tables 2 and 3 only include the harvest costs. Stumpage costs are not included because stumpage costs cannot be determined at levels beyond recent commercial harvests. This means that the quantity estimates shown in Tables 2 and 3 are somewhat high for the costs shown. Alternatively, the roadside cost represented by the \$/dry ton prices are low for the estimated quantities shown.

¹ Harvest data is from 2006 and is taken from Table C5B, Volume of industrial roundwood products by State/County, species group and type of product (no fuelwood), from Timber product output (TPO) reports. U.S. Department of Agriculture Forest Service, Southern Research Station, Knoxville, TN. (Accessed at http://srsfia2.fs.fed.us/php/tpo_2009/tpo_rpa_int1.php on March 23, 2011)

There is considerable variation in the amount of biomass that was unreported for the states, from none to over a million dry tons annually. Over the range of selected costs, the total unreported biomass was none at \$10 per dry ton and went to 9.4 million dry tons at a cost of \$100 per dry ton. At \$60 per dry ton, the total unreported tonnage was 5.3 million dry tons per year. However, as discussed on page 33 of the report, the impact of the assumption is not at the national levels, but specific to individual states. In some states, the assumption eliminated nearly all the potential biomass from thinnings on timberland (see Table 4). These would be states that had limited roundwood mill capacity as determined from using the 2006 roundwood harvest levels for the individual states. The five states with the highest unreported biomass at the \$60 per dry ton cost were (% not reported): NJ (96%), MA (91%), CT (91%), RI (86%), and KS (84%). In the West for example, CO had 81% of its thinnings biomass unreported and AZ had 69%. In all, 13 states had at least 50% of the biomass unreported because of the mill capacity assumption.

The assumption of using integrated logging, i.e., only removing biomass with merchantable raw material, is logical and was validated by the contributing authors after considerable discussion and analysis. The use of the roundwood harvests as the mill capacity limit may be an oversimplification. Harvested wood is often transported to mills in other states and the roundwood harvest levels restriction does not consider interstate commerce. Also, the harvest levels may not reflect actual mill capacity since many companies operate below capacity, especially in years of tight markets.