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TECHNICAL RELEASE

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BENCHMARK LOG TRUCK TURN-TIMES IN THE SOUTHERN U.S. AND MAINE

Surveys/Studies: production/costs   *February 2003*

INTRODUCTION: Louisiana Tech University Forest Operations researchers, under contract with the Wood Supply Research Institute (WSRI), have estimated industry benchmark roundwood truck turn-times for primary wood-using mills in the Southern United States and Maine. The transport cost function of the wood supply value chain is an important area to consider in terms of potential system-wide efficiency gains. Industry benchmark turn-time values provide a yardstick to be used for comparing the turn-time efficiencies of individual wood-consuming mills and to evaluate overall roundwood delivery efficiency.

METHODS: The study area consisted of nine states: Alabama, Florida, Georgia, Louisiana, Maine, Mississippi, South Carolina, Texas, and Virginia, representing 5,105 logging firms with annual production equal to 195,717,975 tons, or 7.33 million loads of roundwood.   A total 10,244 turn-time cases were collected over a ten-month period beginning in February 2000 and ending in October 2000. The sample data were collected by 254 participating drivers representing 131 logging contractors with deliveries to 290 mills.
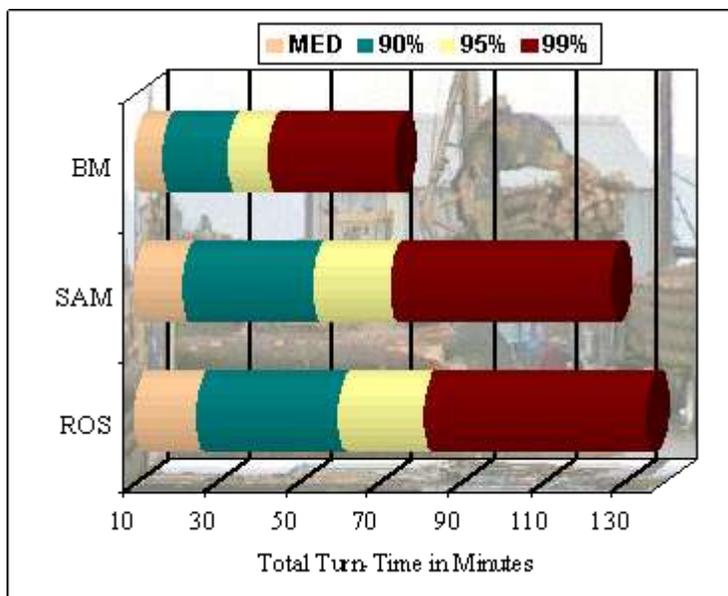
Fig. 1: Benchmark, Sample, and Rest-of-Sample turn-time comparisons.

FINDINGS: Data were segregated into two subsets for analysis. The first group is called the "Benchmark," or BM, group, the top 25 percent of mills, based on average turn-time. The remaining 75 percent is called "Rest-of-Sample," or ROS. Both are subsets of the entire "Sample," or SAM of 10,244 turn-time cases.

The median turn-time at BM mills was estimated at 17 minutes, compared to ROS median of 25 minutes. BM mills took only 33 minutes to unload 90 percent of all loads, compared to 60 minutes for ROS mills. BM mills cycled 95 percent of roundwood trucks in 43 minutes; ROS mills required 81 minutes. The BM 99-percentile was estimated at 74 minutes, compared to 136 minutes at ROS mills.

For the entire sample, median turn-time equaled 22 minutes; 90 percent of loads were delivered within 54 minutes; 95 percent in less than 73 minutes; and 99 percent took up to 127 minutes.

Wood supply system marginal costs were estimated as the sum of direct system cost (DSC) and indirect system cost (IDSC) that could potentially be captured by reducing ROS median turn-time and variance to BM values. Significant potential wood cost reductions were identified by comparing ROS mills to BM mills. For example, an ROS mill that consumed 1.5 million tons of roundwood per year contributed approximately $12.39 per load for 74% of all loads delivered, or $515,092 in marginal DSC plus an additional $202,313 in marginal IDSC at the 95-percentile level, totaling $717,405 in marginal system cost.

From a logger's perspective, a contractor that produced 39,507 tons or 1,480 loads per year would incur some or all of the marginal cost generated by excess truck wait-time at ROS mills, primarily in the form of carrying additional haul capacity. Assuming a logger delivered 100% of annual production to an average ROS mill, this figure would amount to a marginal production cost of $13,567 per year or $283 per week (48 weeks worked) at the 95 percentile, as compared to an identical operation that delivered 100% of production to a BM mill. On a per-ton basis, the ROS logger would incur an additional production cost of $0.34 per ton compared to the BM logger (95 percentile). The most frequently cited causes of unloading delays at woodyards are: "unloading equipment cannot keep up" (53.2% of responses), "lack of storage space" (10.3%), "scale closed" (7.3%), and "crane/loader breakdown" (6.9%).

SUMMARY: The marginal system cost of excess truck wait-time represents an efficiency drain on the wood supply value chain, with an estimated annual cost between $39.2 and $102.9 million for mills in the study region. Benchmark turn-times and the resulting marginal cost estimates may be used as inputs for undertaking cost/benefit analyses of potential capital investments in woodyard operations process improvement and for cut-and-haul contract negotiations. Potential efficiency gains in the ROS category equate to reducing the total number of trucks required to haul annual roundwood production, thus lowering the system costs for delivered roundwood.

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