

Steven W. Hayes, CF, Charles E. Keegan III and Todd A. Morgan, CF

Introduction

The Bureau of Business and Economic Research at the University of Montana-Missoula is conducting an ongoing logging cost survey to characterize Montana and northern Idaho Timber harvest costs.

Objectives

This study characterizes Montana and northern Idaho timber harvest costs by:

- Updating stump-to-loaded truck cost estimates for several timber harvest systems using expert opinion derived costs
- Quantifying costs for increases or decreases in fuel, labor, insurance, parts and other cost factors affecting harvest to a 2013 cost basis
- Quantifying the effects of tree size and skidding, yarding, distances with a constant harvest volume per acre

Methods

A survey was mailed to over 400 independent logging contractors and timber harvesting companies in Montana and northern Idaho asking for cost estimates for several timber harvest systems. Contractors responding to the survey were offered continuing education credits through the Montana Logging Association or Idaho's Associated Logging Contractors Inc. Three scenarios; whole tree ground based (figure 1), whole tree cable/skyline based (figure 2), cut to length in woods processed (figure 3) were presented.

The Survey participants were presented with a silvicultural/harvest prescription and asked to prepare a cost estimate or bid for each scenario (Table 1)

Table 1. Variables used to determine costs included:

Average skidding distance	600 feet
Average yarding distance	800 feet
Average Forwarding distance	1000 feet
Average DBH removed	13 inches
Trees per acre removed	42 (partial cut)
Cubic foot volume of average tree	24
Volume removed per acre	1,000 ft ³ (30 green tons)
Overall harvest acres treated	40-80 acres

Literature Cited:

Keegan, C.E., and J. Halbrook. Harvest Cost, Employment and Labor Income Estimates for Montana's Forest Products Industry. 2006. Missoula, MT: The University of Montana, Bureau of Business and Economic Research.
Keegan, C.E., M.J. Niccolucci, C.E. Fiedler, J.G. Jones and R.W. Regel. 2002. Harvest Costs Collection Approaches and Associated Equations For Restoration Treatments On National Forests. Forest Prod. J. 52(7/8); 96-99.

Steven W. Hayes, CF
Research Forester

steve.hayes@business.umt.edu
(406) 243-5113
www.bber.umt.edu

Figure 1. Ground Based System

	\$/Green Ton				\$/MBF	
	2006	2009	2011	2013	2011	2013
Feller-buncher	7.58	7.13*	6.72	6.92	41.66	42.90
Skidding 600'	5.43	5.76*	5.07	5.39	31.43	33.42
Skidding 1,200'		7.82	6.25	6.80	38.75	42.16
Skidding 1,800'		9.84	7.41	8.45	45.94	52.39
Processing	7.13	6.85*	6.24	6.57	38.69	40.73
Loading	4.07	3.43*	3.50	3.43	21.70	21.27
Administration	1.47	1.44*	1.33	1.64	8.25	10.17
Total	25.68	24.61*	22.86	23.95	141.73	148.49



Figure 3. Cut-to-length System

	\$/Green Ton				\$/MBF	
	2006	2009	2011	2013	2011	2013
Harvester	14.71	14.21*	12.63	14.42	78.31	89.40
Forwarding 1,000'	10.73	10.3*	8.93	10.63	55.37	65.91
Forwarding 2,000'		15.44	11.34	14.50	70.31	89.90
Forwarding 3,000'		19.10	15.13	17.00	93.81	105.40
Loading	3.96	3.75*	3.71	3.79	23.00	23.50
Administration	1.70	1.61*	1.32	1.68	8.18	10.42
Total	31.10	29.87*	26.59	30.52	164.86	189.22

All costs in 2013 dollars

RESULTS

• 2013 reported stump to loaded truck costs ranged from \$23.95 per green ton for ground based systems employing whole tree skidding to \$30.52 for cut to length and \$36.73 for cable systems based on Table 1 harvest characteristics.

• Results indicate that smaller-diameter trees and longer skidding/yarding distances tend to increase costs and that cable systems are more expensive than ground-based systems.

• 2013 reported logging costs were higher than 2011 but lower than previous survey based costs despite higher fuel and other operating costs.

• Lower harvesting costs are due primarily to attempts by loggers to continue operating in a competitive economic market. With improving delivered log prices some increase in logging cost may occur soon.

• Loggers feel "The 2009/2011 rates are not sustainable and contractors are bidding to maintain a viable core business & crew at minimal profit levels."

• Because of the survey's simplicity and repeatability, results can be compared with previous (Keegan et al. 1995, 2002) and future cost surveys to examine the impacts through time of changing fuel costs, harvest characteristics, or other items of interest.

All costs in 2013 dollars



Figure 2. Cable System

	\$/Green Ton				\$/MBF	
	2006	2009	2011	2013	2011	2013
Hand-Felling	4.87	5.34*	4.73	4.53	29.33	28.09
Yarding 800'	23.54	23.86*	22.56	20.41	139.87	126.54
Yarding 1,600'		29.21	27.84	24.06	172.61	149.17
Yarding 2,000'		34.11	31.80	27.05	197.16	167.71
Processing	7.02	7.56*	6.64	6.89	41.17	42.72
Loading	3.51	3.77*	3.38	3.25	20.96	20.15
Administration	2.04	2.03*	1.65	1.65	10.23	10.23
Total	40.98	42.56*	38.96	36.73	241.56	227.73



SURVEY RESPONSE COMMENTS

• ... our costs are way up; payroll and health insurance for our employees, fuel and repairs are taking all what we make; can't log for any less.

• Overall rates/costs are too low, especially with the cost of fuel and parts going up.

• Changes in fuel costs affect logging costs directly, 10% change in fuel = 2.5% change in logging costs.

• Sometimes there are a number of overlooked conditions that have more effect on expenses vs. production than the obvious ones of TPA/diameter/distance.

• There are very few equipment operators left that can do the job right and that care about what they do. So with the cost of fuel, parts, labor, insurance and work comp you barely break even at the current logging prices. If you add in a new equipment payment you would go broke.

• Political policy and federal regulation has sent this industry into a deliberate yet totally unnecessary tailspin-shame-shame!