

Steven W. Hayes, CF and Todd A. Morgan, CF

Introduction

The Bureau of Business and Economic Research at the University of Montana-Missoula is conducting a logging cost survey to characterize Montana and North 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 2009 cost basis
- Quantifying the effects of tree size and skidding, yarding, flying distances with a constant harvest volume per acre

Methods

A survey was mailed to over 350 independent logging contractors and timber harvesting companies in Montana and northern Idaho asking for cost estimates for several timber harvest systems. Four scenarios; whole tree ground based (figure 1), whole tree cable/skyline based (figure 2), cut to length in woods processed (figure 3), and helicopter based harvesting (figure 4) 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 flying distance	1,000 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.

Figure 1. Ground Based System

	\$/Green Ton		\$/MBF
	2006	2009	
Feller-buncher	\$ 6.70	\$6.65	\$ 41
Skidding 600'	\$ 4.80	\$5.37	\$ 33
Skidding 1,200'		\$7.29	\$45
Skidding 1,800'		\$9.18	\$57
Processing	\$ 6.30	\$6.39	\$ 40
Loading	\$ 3.60	\$3.20	\$ 20
Administration	\$ 1.30	\$1.34	\$ 8
Total	\$ 22.70	\$22.87	\$ 142



Figure 2. Cable System

	\$/Green Ton		\$/MBF
	2006	2009	
Hand-Felling	\$ 4.30	\$4.81	\$ 30
Yarding 800'	\$ 20.80	\$21.48	\$133
Yarding 1,600'		\$25.81	\$160
Yarding 2,000'		\$30.14	\$187
Processing	\$ 6.20	\$6.81	\$ 42
Loading	\$ 3.10	\$3.40	\$ 21
Administration	\$ 1.80	\$1.82	\$ 11
Total	\$ 36.20	\$37.60	\$ 233

Figure 3. Cut-to-length System

	\$/Green Ton		\$/MBF
	2006	2009	
Harvester	\$ 13.00	\$13.80	\$ 86
Forwarding 1,000'	\$ 9.48	\$10.09	\$ 63
Forwarding 2,000'		\$14.30	\$89
Forwarding 3,000'		\$17.36	\$108
Loading	\$ 3.50	\$3.30	\$ 21
Administration	\$ 1.50	\$1.50	\$ 9
Total	\$ 27.48	\$26.06	\$ 162



Figure 4. Helicopter



	\$/Green Ton		\$/MBF
	2006	2009	
Hand-Felling	\$ 10.00	\$12.00	\$ 74
Flying 1,000'	\$ 50.00	\$48.00	\$ 298
Flying 2,000'		\$53.00	\$ 329
Flying 3,000'		\$58.00	\$ 360
Loading	\$ 3.50	\$5.50	\$ 34
Administration	\$ 5.00	\$3.00	\$ 19
Total	\$ 68.50	\$68.50	\$ 425

RESULTS

- Survey respondents accounted for more than 75 percent of the timber volume harvested in Montana and Idaho during 2008 and 2009.
- Results indicate that smaller-diameter trees and longer skidding/yarding distances tend to increase costs, and helicopter and cable systems are more expensive than ground-based systems.
- Relatively few contractors reported using CTL or helicopters.
- 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.

SURVEY RESPONSE COMMENTS

- Changes in fuel costs affect logging costs directly, 10% change in fuel = 2.5% change in logging costs.
- Reduced harvesting & the economic situation have resulted in bid rates well below prior year averages. In my opinion the 2009 rates are not sustainable and contractors are bidding to maintain a viable core business & crew at minimal profit levels.
- Two years ago we were running five mechanized sides but because of market conditions and the economy we have cut our work force to 3 mechanized sides.
- Sometimes there are a number of overlooked conditions that have more effect on expenses vs. production than the obvious ones of TPA/diameter/distance.