

Economics, Markets, and Diameter-Limit Cutting

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A successful financial outcome from forest management depends upon finding an approach that is relevant to the situation and pays an adequate return to the landowner. That means assessing the stand and forest conditions on a property, the requirements and constraints of the ownership, the markets for products from the land, and the social framework that tempers the management options. Managers must also consider the operational costs of a program, the opportunities for generating revenues, and how these balance in the short and long run with respect to the management objectives. Stand treatments must sustain a desirable set of conditions on the ground, and insure a continuing flow of values consistent with the management objectives.

Operational conditions often make classic silvicultural difficult or impractical. Instead, foresters must commonly adapt to several realities that constrain practical management. This includes the potential of a site, the species mix and the relative value of each one, the ages and sizes of trees in a stand, the vigor and quality of the growing stock, and the location and accessibility. In addition, the size of an ownership and its component stands affect the extent of yearly silvicultural operations that forestry can sustain, and the potential to annually generate revenues and other values that repay costs of the operations and provide a profit to the landowner.

Landowners commonly set a limit on the risks they accept for investments in ownership, management, and holding growing stock on the land. So potential dangers like losses to blowdown, ice storms, outbreaks of harmful insects, and fire all influence when owners want to harvest trees from their lands, and how much residual value they willingly leave in a stand. Further, they may have expectations for realizing regular returns on their investments, both in the amount of revenues required annually and the consistency of yields through time.

Markets may ultimately control the options available, and particularly affect treatments that require cutting of

small and low-grade trees. In some areas, managers can merchandise non-timber benefits as recreation leases or use fees, or they might offer conservation easements that help cover costs of taxes and other overhead expenditures. Those non-timber revenues might temper the balance between costs and returns from timber operations.

Since markets do not remain static through time, managers must regularly track price fluctuations, including the difference between species. An appropriate long-term strategy keeps the options open by not over-cutting all the most valuable ones in any short period of time. To maximize the revenue potential, managers must also balance operating costs per unit of volume harvested against the price gain from growing trees to large sizes. The revenue curve shows that trees generally increase in value with size, but with net value eventually dropping due to rising operating costs. The peak of that curve suggests a size for financial maturity based on cash flow.

To contain operating costs, landowners must work with contractors to find a harvesting system fitted to the site conditions, the total harvestable volume, and the size and species of trees planned for removal. Working with contractors to communicate clear outcomes for each operation can save on marking and layout costs. Regular performance reviews and frequent communication with the harvesting contractor insure compliance at the harvesting site. Transportation costs may importantly affect stumpage value and revenues. Having a good network of logging roads or good access to well-maintained public roads also helps to reduce the operating costs. Managers must also take account of timber quality and harvested volume, using the higher value timber as an incentive for operating under the more challenging conditions. Further, offering fairly consistent harvestable volumes through all seasons provides continuity for the harvesting contractor and insures year-round operations on our lands.

The diameter often proves the most determinant factor of sawlog quality. Large-diameter logs yield greater amounts of high quality lumber and allow more options in milling and later processing. Appropriate bucking and sorting are also critical in optimizing value recovery from those pieces. Huber Resources controls this by transporting tree-length logs to a concentration yard where we buck the trees into shorter logs and separate them by product class. We also lay out the sawlogs in rows and periodically invite buyers to submit bids on individual ones. That has improved revenues. Other landowners might realize similar gains by working with harvesting contractors who sort logs by product to increase their own revenues. That should improve the stumpage prices they offer.

Besides keeping track of cash flow, managers can use a variety of return-on-investment analyses to compare the long-term potential of different management options. They should account for changes in available volume and the component quality, the demands of markets and effects on the price of different species and roundwood products, changes in harvesting technology and the

resultant costs, and the rate-of-return requirements of a landowner. How these factors come together importantly tempers the outcome, with the results depending both on the cutting strategy and the ownership framework.

Each owner has a unique set of financial requirements and reasons for owning a forest. That challenges foresters to clearly understand the objectives and find creative ways to adjust to the situation as it changes through time. Having trees of the larger diameters and good bole quality enhances the revenue potential. Yet cutting strategies that repeatedly remove only the large trees and leave the small ones have not historically provided consistent amounts of volume over the long run, and that reduces the chances of insuring a steady stream of revenues into the future. Even so, silviculture research has not effectively addressed the conflict between demands for short- vs. long-term profitability, nor offered solutions for practical management. That challenges foresters to find appropriate strategies for providing sustainable returns on the investment of ownership and management.

Citation

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