



Log Sort Yard Economics, Planning, and Feasibility



The Technology Marketing Unit is exploring the potential of log sort yards for providing better utilization of our forest resources and improved value recovery of small-diameter material and underutilized species. Log sort yards may also have application in enhancing the Nation's capability for managing forest land by improving the utilization and marketing of wood and biomass removed from thinning operations and forest fuels reduction work.

Economics

The economic problem of operating a log sort yard centers on dealing with marginal logs, characterized by low-value material such as small-diameter, underutilized, and poor-quality roundwood.

Small-diameter logs yield lower product value and cost more to process than do traditional large-diameter logs. The smaller the average diameter processed, the more expensive the log becomes to handle and process.

Sorting small-diameter logs presents several challenges requiring efficient log handling at minimum cost. Small softwood logs offer moderate and relatively uniform quality and low volume per piece, requiring high production with minimum handling to be economical. The uniformity in small log quality often makes it difficult to recover enough value-added to justify efforts to grade, scale, and sort these logs. Including higher value logs in the log procurement mix is crucial for log sort yard viability.

The solution to the small-diameter problem is to lower costs or increase the value of products from logs to be able to use small-diameter material economically.

Planned Programming

A planned programming approach to log sort yard development is recommended. This approach takes a critical and objective look at a proposed log sort yard. It is useful in determining if a log sort yard is truly the right approach or if there is a better solution. The approach involves a step-by-step logical progression of several developmental stages: (1) log sort yard feasibility and business planning; (2) siting, layout, design, and construction; and (3) operations and business management. The need for such an approach should be obvious given the difficult economic problem of sorting small-diameter logs.

Planning aspects need to be considered during each phase of log sort yard development and eventual operation. Begin by establishing a planning team to develop the yard's objectives and to evaluate log sort yard feasibility. A generalist who can see the "big picture" should lead the team. Include team members representing a full range of practical knowledge and experience in long-range log supply, logging and materials handling equipment, log scaling and grading, sorting methods, mill raw material requirements, log markets and forest products marketing, financial accounting, and business planning. The planning team should also include key log sort yard operating personnel.

The planning team develops several realistic assumptions as to available timber supply, potential products to produce, markets for the potential products from the available resource, technical and processing requirements, and financial feasibility, as well as safety, health, and environmental considerations. With regard to assumptions used in the detailed analysis, it is important to be specific as to why the assumption is made and to justify the logic behind each assumption. Realistic assumptions covering raw material resource, products, markets, costs, prices, and others used in the feasibility analysis are critically important.

Yard Purpose and Objectives

The main objectives of the log sort yard—its purpose and how it might be achieved—must be defined, and the yard’s success depends on its ability to meet these stated objectives.

Several main objectives could be considered in the development and use of log sort yards. Traditionally, these objectives include the following:

- For-profit independent operation or profit center of a larger integrated forest products company
- Cost savings center
- Risk reduction
- Multiple objectives (combination of previous objectives)
- Improved economics of forest management

Feasibility Analysis

A simple preliminary financial feasibility study to look at potentially viable log sort yard opportunities should begin early in the log sort yard planning process. This preliminary analysis helps to bring focus on the big picture, to identify critical data needs and assumptions, and to narrow potential opportunities. It helps to turn passive discussion and opinions into action, and it illuminates opportunities and problems—saving time, effort, and money otherwise spent on chasing poor investment scenarios.

Preliminary financial feasibility should start with best-case scenarios for each option under consideration. Options that do not look promising should be dropped, while others, even the marginal option, are probably worth investigating further. Once options have been narrowed to perhaps three to five, a detailed analysis of raw material supply, products and markets, processing, and financial aspects of the project can be done.

In some cases, the preliminary financial analysis may indicate that the original concept is flawed or otherwise unworkable. However, a more appropriate dimension of undertaking may be identified as a result of interactive discussion in doing the analysis and more broadly considering problems and opportunities.

Recommendations

The economic dilemma of the log cost/value relationship is not good news for those interested in small-diameter log sort yards. Small-diameter logs yield lower product value and cost substantially more to process than do traditional log supplies. In addition, several operational, policy, and judicial related issues would need to be resolved for government- and community-run log sort yards to operate successfully in the United States.

Successful commercial, community, and government log sort yards operate under business management organization and principles. While commercial log sort yards have a proven track record throughout North America, small community-based and government-run log yards have had limited success. Operating a log sort yard requires experience in several disciplines, including log procurement, log marketing, materials handling, industrial safety, and business management. For community and government log sort yards, serious consideration should be given to employing an experienced log sort yard contractor to run the day-to-day operations of the yard.

Three basic options may help to improve small-diameter log sort yard economics: (1) procure a portion of larger diameter and higher quality logs to boost a small-diameter log sort yard’s viability; (2) subsidize the excessive costs of small-diameter materials; or (3) take advantage of recent advances in log sorting technology, such as log merchandiser systems, to improve the economics of sorting small-diameter logs by reducing costs and improving the value of log products sold.

References

- Dramm, John Rusty; Govett, Robert; Bilek, Ted; and Jackson, Gerry L. 2004. Log sort yard economics, planning, and feasibility. Gen. Tech. Rep. FPL–GTR–146. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 31 p. (www.fpl.fs.fed.us/documnts/fplgtr/fpl_gtr146.pdf)
- Dramm, John Rusty; Jackson, Gerry L.; and Wong, Jenny. 2002. Review of log sort yards. Gen. Tech. Rep. FPL–GTR–132. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 39 p. (www.fpl.fs.fed.us/documnts/fplgtr/fplgtr132.pdf)
- Hampton, Charles M. 1981. Dry land log handling and sorting: Planning, constructing, and operation of log yards. San Francisco, CA: Miller Freeman Publications, Inc. 215 p.
- Sinclair, Alex W.J.; and Wellburn, G. Vern. 1984. A handbook for designing, building and operating a log sortyard. Vancouver, B.C., Canada: Forest Engineering Research Institute of Canada. 285 p.

Technical Assistance

The Technology Marketing Unit can provide technical assistance in general log sort yard recommendations.

The USDA Forest Service maintains databases on timber resource inventory, timber removals, and timber products output (wood products production) for the United States. Visit the Forest Inventory and Analysis website (www.fia.fs.fed.us) for more information.