

WOOD PRODUCTS: CAN THE URBAN FOREST CONTRIBUTE?
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ABSTRACT

The increased demand for wood products has expanded the search for new timber supplies to urban areas. However, limiting factors such as imbedded metal and unsorted debris have seriously inhibited successful production of wood products and resulted in extremely high operating costs. Continuing to pursue a wood product alternative will only result in more failures and never amount to more than a limited solution to utilization of urban tree debris. Wood fuel for the production of energy has the potential of providing a more permanent solution.

Trends in consumption of forest products indicate a continued and rapid growth in demand. However, according to the latest estimates (Phelps 1977), timber supplies are not likely to keep pace with demand and will result in increased competition for the available timber. Phelps (1975, 1977) also stated that timber supplies are not likely to rise significantly unless forest management, utilization, and research programs are substantially expanded. Thus we can explain the recent interest in producing lumber and chips from urban tree debris. The question then is, what, if anything, can the urban forest contribute to the supply of wood products? I feel that past utilization attempts can answer this question.

A LOOK AT URBAN UTILIZATION

Before the devastation caused by Dutch elm disease, disposal of urban tree debris was a routine operation for most municipalities. Roundwood, trimming, and stumps were easily disposed of in landfills or by open burning. Dutch elm disease, however, caused a tremendous increase in the amount of tree debris, and to compound the problem, the Environmental Protection Agency began to enforce its regulations on landfills and open burning. This left most municipalities with serious disposal problems.

In trying to achieve a practical and environmentally sound solution to this problem, municipalities turned to the most obvious solution -- the production of wood products. The resource was inexpensive and close to markets that required chips or rough lumber. Municipalities saw an opportunity to capitalize on this potential by establishing their own processing facilities or contracting with local operators, many already experienced producers. At the same time, many new processing facilities were established with the expectation of profiting from this inexpensive and readily available resource. However, by hastily implementing a program to produce only wood products, both urban managers and private operators overlooked other alternatives and were confronted by the "limiting factors" of urban wood utilization. As a result, all attempts

to produce wood products from urban tree debris have met with limited success and have since provided only a partial solution to the utilization of urban tree debris. One prosperous sawmill operation, which spent more than 3 years attempting to process urban logs, summed it up for all the failed attempts, when they concluded that the "free" resource is just too expensive (Farnsworth 1977).

THE LIMITING FACTORS

What has continued to limit the utilization of urban tree debris, in addition to the tremendous increase in volume, is the combined effect of (1) shade tree characteristics, (2) people, and (3) municipal harvesting practice.

Unlike forest management programs, municipal shade tree programs grow trees for people (Santamour 1976). The programs are not concerned with logs per tree, stems per acre, or rotation age. They encourage a tree for every home and often include maintenance practices to prolong tree life. The trees that are now being removed are a result of these programs. Therefore, the removal programs, which by necessity must remove the entire tree, are removing (1) a mixture of logs, branches, and brush, (2) debris with imbedded cabling, bracing, and cement, (3) butt logs with nails, screws, bolts, etc., (4) short logs, (5) rotted logs, and (6) logs with excessive sweeps, crooks, crotches, limb stubs, etc. Unfortunately, this is a situation that municipalities have little or no control over.

IMPACT OF LIMITING FACTORS

This combination of limiting factors has resulted in a complex cause-effect relationship for both municipalities and private operators. The effect on utilization attempts has proved to have a very predictable outcome (Fig. 1) and in most cases has meant the difference between success and failure.

These operating costs have continued to be prohibitively high because both public and private operations have incurred additional costs not normally encountered in nonurban wood processing operations. For example:

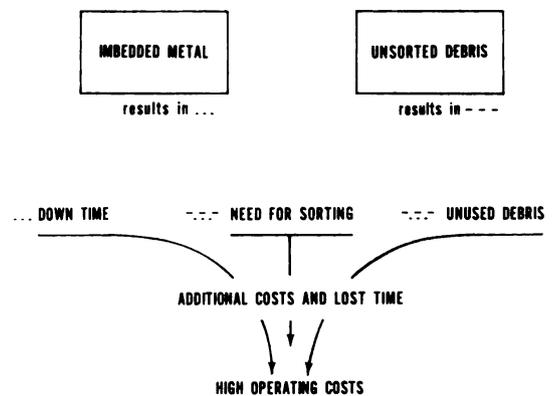


Figure 1.--Effect of the main limiting factors, imbedded metal, and unsorted debris, on the utilization of urban tree debris.

- additional equipment and personnel are required to sort for useable logs;
- a separate operation must be sustained to dispose of debris with metal, that is of inappropriate size or shape, or that is unsound;
- excessive downtime for equipment repair results in lost time.

These additional costs, then, are the direct result of the limiting factors inherent to urban wood utilization operations--the net result is an excessively high operating cost. Little hope exists of ever rectifying this situation. Therefore, the urban forest can be expected to contribute very little to the nation's production of wood products. The question still remains, then, what is the future of urban tree debris?

THE FUTURE OF URBAN UTILIZATION

The future of urban tree utilization depends on an alternative solution to overcome the effects of the limiting factors of the debris. One alternative currently receiving considerable national attention is the use of wood fuel for energy production. Fernandes (1977) describes burning wood and wood wastes as technically feasible, and as a process that can use existing technology and commercially available equipment. The basic technique to utilize wood fuel overcomes the high costs and limiting factors of using urban tree debris by:

- not using sophisticated chippers or saws to process debris but rather wood hogs, as needed;
- accepting and processing mixed debris directly from the street;
- accommodating varying amounts of tree debris by substituting fossil fuels;
- capitalizing on the fuel savings provided by wood fuel.

This will afford municipalities or private investors the opportunity to initiate an economically sound and environmentally attractive utilization alternative that will eliminate further waste of a natural resource and resolve the current utilization problem.

CONCLUSION

We can expect the urban forest to contribute very little to the future supply of wood products. The production of wood products from urban tree debris is economically prohibitive and will, therefore, never become more than an extremely limited solution to urban tree debris problems. Only an alternative that can overcome the limiting factors of using urban tree debris will ever provide us with a

permanent solution. Wood fuel for the production of energy is that alternative.

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