

Revolution on the Farm Woodlot—Low Grading

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The Old Woodlot

For years it stood
Forlorn and forgotten,
A mighty treasure
Lost and rotten

JWK. Jr.

Times are changing, and with these changes new opportunities emerge to enhance forest management. One such opportunity comes from the emerging markets for whole-tree chips as fuelwood. For example, in a recent report on the "Status of Wood Energy in Minnesota"¹ the following statistics appeared:

Number of wood energy users

| State | Schools | Other public | Wood industry | Other private |
|-------|---------|--------------|---------------|---------------|
| Penn. | 0 | 0 | 50 | 5-10 |
| Maine | 5 | 10-30 | 50 | 0 |
| Mich. | 5-10 | 1 | 35-40 | 1 |
| Geor. | 5 | 8 | 70 | 12 |
| Wis. | 5-8 | 1-2 | 100+ | -- |
| Minn. | 44 | 20 | 34 | 23 |

Another market for whole-tree chips is growing out of the increasing practice of supplying wood to the boilers at pulp and paper mills. Presently much of this fuel is hogged wood, and this results in the loss of good wood fiber in the boiler. Today, however, all the wood should be chipped rather than hogged and the wood chips cleaned and screened. The clean wood chips should go to the pulp digester and the reject material to the boiler. This procedure is possible because we can now properly clean and size chips as a result of

¹Minnesota Department of Natural Resources, Division of Forestry. Status of wood energy use in Minnesota. St. Paul, Minn. Minnesota Department of Natural Resources, Division of Forestry; 1983.

the development of new screening and cleaning equipment. Proper sized and cleaned chips will result in more uniform pulp, improved paper machine operation, and a more uniform product.

The problem is how are we going to fill this growing need for whole-tree chips? I suggest low grading (removal of low-quality material) on farm woodlots.

Some additional underlying factors supporting this idea are:

- Fifty-eight percent of the U.S. commercial forest land base is in nonindustrial private ownership.
- Twenty percent of the land is composed of parcels less than 100 acres.²
- Annually, over 186 million dry tons of potentially available wood exists on these lands.³

The problem is broadened then to how to fill this need for chips from a dispersed, renewable treasure.

My idea draws on existing technologies, and it would improve management of farm woodlots while also supplying rising demand for chips. Some aspects of this concept are already being used in Scandinavia. I first presented this idea of low-grading at the Wisconsin Society of American Foresters meeting in 1983. After further consideration, it still seems worth kicking around.

In essence the idea works as follows:

(1) The farmer/landowner chips all undesirable species and all multiple stemmed, improperly

spaced, or poorly formed trees up to 6-8 inches in diameter using a tractor-mounted or independently mounted chipper.

(2) The whole-tree chips are trucked to a local farm co-op or wood co-op, patterned after the farm co-op, for consolidation, storage, and shipment, or trucked directly to the customer. If direct to the customer, the co-op acts as the broker.

(3) The co-op has at least two options: a) Screening and cleaning the whole-tree chips to upgrade them for pulp or b) selling the mixed material as fuel.

(4) Companies can buy chips from the co-op, which can ship them in bulk quantities by either rail or truck,

This idea also speaks to the major research needs indicated in "A Strategic Plan for Wisconsin Forests," which aims to help forest landowners in their harvesting, processing, and marketing of wood products.⁴ Meeting these research needs require that we:

- Develop new uses for wood fiber from low-value timber.
- Determine ways to achieve greater utilization of wood fiber, both in harvesting and manufacturing operations.
- Investigate how logging equipment and procedures can be altered to reduce damage to residual resources (timber, soil, other vegetation, and water).
- Investigate methods by which harvested forest products can be delivered to primary purchasers more efficiently.
- Improve the marketability of forest products harvested by the small woodland owner.

What I like about the low

²Office of Technology Assessment. Wood use (U.S. competitiveness and technology). Washington, DC: Office of Technology Assessment; 1983.

³Zerbe, J.I. Energy properties of wood. In: Proceedings, Fuelwood management and utilization seminar; 1982 November 9-11, East Lansing, MI East Lansing, MI: Michigan State University; 1982.

⁴Lindberg, R. D.; Hovind, H. J. A strategic plan for Wisconsin forests. Madison, WI: Wisconsin Department of Natural Resources; 1983.

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grading idea is that It can help meet the potential demand for whole-tree chips as well as fulfill these research needs.

Here's how:

(1) Low grading recognizes that ownership of the majority of commercial forest land is private, and the stands are typically unmanaged and made up of large quantities of low-value lumber.

(2) The use of the tractor-mounted or independently powered chipper minimizes capital investment, a major deterrent to large whole-tree chipping systems. If investment in small equipment is still a concern, the co-op can buy the equipment and rent it to the co-op members. Another option, suggested by Brusila, is for the co-op to hire a crew and do the chipping for the landowner.⁵

(3) The use of small-size chipping equipment is desirable because it encourages the removal of the small low-quality material rather than the well-formed larger trees. This frees the desirable trees for maximum growth. The poor-quality large trees can be cut

⁵Brusila, B. Forest management and marketing cooperatives: Are they a viable alternative? In: Proceedings, Fuelwood management and utilization seminar; 1982 November 9-11; East Lansing, MI. East Lansing, MI: Michigan State University; 1982.

for firewood or reduced in size and chipped.

(4) The use of small equipment will result in less damage to the residual resource.

(5) The accumulation of chips from a number of small landowners at the co-op helps solve the uneconomic aspects of a single small landowner trying to market or transport a small quantity of chips. It will also help stabilize the supply of wood chips for buyers.

(6) Consolidation of small quantities of chips allows for bulk shipment by rail or truck. This is a key element of the low grading idea. Because most co-ops are located at railheads, this method of transporting bulk commodities is possible, providing, of course, that there is space to handle the chips. Another major aspect is that existing facilities are utilized, and major capital investments for new facilities are reduced.

(7) The use of existing co-ops reduces overhead costs. Because they are farmer owned, the operation and management are accepted by the farmer. The addition of chips strengthens the co-op by broadening its product line.

(8) The co-op can upgrade the whole-tree chips to pulp chips or particle board chips, or it can sell the whole-tree chips as fuel, depending on the market conditions.

(9) The idea provides a new system for collecting, concentrating, and transporting the scattered material.

(10) The idea significantly facilitates the acquisition of woods chips by a pulp and paper company, fuel supplier, or fuel buyer by allowing them to deal with a single organization rather than a multitude of landowners; yet the rights of the landowner are given maximum protection because the companies are dealing with the landowner's own co-op.

(11) The stands resulting from low grading can then be managed based on the best silvicultural treatment, maximizing good multiple-use forestry and returning a profit to the landowner.

What is needed is a pilot program to test the idea, but certainly not a massive national program. The key individual is probably the county or state forester or a consultant who could work with a local co-op and some industrial users of wood chips.

Can we do it? I think we can, but it will take a lot of planning, coordination, hard work, and some trial and error.

Will we give it a try? I certainly hope so. ●