# Woodlots Will Become the Most Valuable Land on the Farm

—Gene Logsdon

Snuggling up to my woodstove in the depths of winter, I am already prepared to believe that trees are my most precious crop. I believe it even more when the electric goes off during a blizzard. As a matter of fact, one of my woodlots, ten acres in size, has already proved to be the best investment I ever made. We bought it 25 years ago for the then outrageous sum of $20,000 and I was told that I was making a big mistake. As with so many of my mistakes in life, this one turned out to be smart enough. We have sold $10,000 worth of logs from it, made use of $3000 of dimensional lumber cut with a bandsaw mill onsite, and burned about $300 worth of stove wood per year for another $7500. So the woodlot has paid back its cost and is in better shape for future lumber sales than when we bought it.

According to those who strain gnats and swallow camels in the financial world, a ten-acre cornfield during those 25 years might have averaged $30 an acre in annual profit if you didn't count the subsidies. I figure we've saved more than that with the wood. Yes, the gnat strainers would say I have to figure in the total hundred years or so that some of those logs were growing, but by the same token the corn grower should have to figure in the hundreds of years during which fertility was building in his cornfield before it was cleared and plowed up. And the cornfield would not have produced hickory nuts, black walnuts, morel mushrooms, good squirrel and deer hunting, bird-watching, and wildflower delights.

However you gauge the past profitability of your own grove of trees, both materially and spiritually, the future is signaling a distinct possibility that it could be more valuable than grain, no matter how high the corn prices soar. The out-of-pocket cost of corn also soars, whereas watching trees grow not only costs you nothing except your investment in the land, but is a downright pleasant pastime. More significantly, when all the environmental factors are figured in, using wood for home heat in rural areas, or even to generate electric power or distill methanol, is more sustainable than using fossil fuels or nuclear energy. It certainly makes more sense than growing corn for ethanol.

*photo by Author*

The first time scientists seriously suggested renewable green energy from trees, in the early 1970s, the idea was considered impractical. Environmentalists viewed it with alarm, worrying about the likelihood that woodlands would be overharvested. Electric utility companies had plenty of cheaper coal and oil available. Nuclear power looked cheaper too because the negative effects were not yet fully realized and no one talked about the fact that uranium is finite material too.

In 1974, an article in *Chemical Technology* by Dr. George Szego and Dr. Clinton Kemp stated very clearly the undeniable fact of life that renders all longterm reliance on fossil fuels unsustainable even if available. "Coal and oil release carbon dioxide and thermal energy that was withdrawn from circulation eons ago but trees produce oxygen and consume as much carbon dioxide as they will release when burned." In other words burning fossil fuels unbalances the delicate, life-saving equilibrium of the earth's atmosphere while the combustion of wood does not. And of course, as long as the sun shines and the rain falls, trees will grow and renew themselves.

The biggest mental block against using wood to generate some of our electricity or for home heating, at least in rural areas close to where the trees are growing, is that most scientists don't think we have enough sustainable woodland to make even a dent in our supply needs. But is that true as part of a total package of energy supplies? It comes as a surprise to most of us to learn that in countries like the United States, forest land is actually on the increase. True, destructive pests are killing large tracts of our western forests right now, as well as the emerald ash borer killing trees in the East, but this land will grow back to some kind of trees as long as rainfall and sunlight are sufficient. And what about using all those dead trees for something rather than letting them rot back into forest soil already full of organic matter? The greater portion of New England and the South are covered with third forest regrowth. Even Ohio has more forests now than it did in 1950. Much of this land is not fit for cultivated crops, especially in this age of giant machinery and high fertilizer costs. The only areas of the forested earth that show a decided diminishment of trees is in third world countries where wood is the only source of home heating but where little effort has been made to introduce more efficient stoves or sustainable forest management.

A major blind spot in viewing wood as a green energy source or for residential home heating is

the lack of any detailed assessment of the zillions of acres of trees in rural and urban areas that are underutilized, undermanaged, or underestimated for this purpose. Who knows how many tons of wood rot away in farm woodlots alone every year. In all sorts of nooks and crannies of the landscape, productive woodland potential is being ignored—-between subdivisions, in farmland ravines where cultivation is impossible or unproductive, on remnants of pasture abandoned to brush, in parks, around airports, along railroad and highway rights of way, and on golf courses.

Grain farmers look at land they can't cultivate as a liability that grows up into multiflora rose. They mow it year after year, in search of neatness and at great expense. A friend of mine lost his life trying to slick up every last little square foot of "brush" along his creek. His tractor turned over on him. If he had left that "brush" alone, it would be trees now on their way to making lumber.

A four-acre tract of land next to a subdivision that was part of my father-in-law's farm was kept studiously mowed by the new owner for fifty years. When mowing stopped, in just three years, maple, oak, black walnut, and wild cherry saplings stuck up above the grass and weeds all over. Had that land been left un-mowed all these years, it would now be a pleasant grove of trees.

To be convinced of just how much potential we have for wood energy production, try to count how many little tracts of unkempt tree brush you see growing up everywhere back off the road as you drive along. Think of how much fuel wood could be growing down the median and along the sides of thousands of miles of highway across the nation. Woodlots still dot the farmland because all the land capable of producing profitable corn and soybeans and cotton has already been cleared. What remains is still considerable, and if you look close, it is often full of dead and dying trees rotting away.

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Much of our forested land is invisible to our cultural eye. Recently I happened to drive through Shaker Heights, a suburb in Cleveland, Ohio, and was amazed at the trees growing there. This well-heeled residential area is really old-growth forest enshrouding those old-money mansions. Many of those trees are well over a hundred years old and will need to be replaced in the next 20 years or so. Most of that wood will no doubt end up in a landfill. This is true of zillions of acres of urban residential areas. We're talking here of at least one-third cord of wood per acre, even with the houses and yards taking up much of the room. If the trees planted there were of the better species for fuel or lumber and if they were planted on a planned 80-year rotation, they could be harvested profitably and replaced before they reached an age when storm damage becomes probable. Even feeble little ornamental trees like dogwood would fit into the program. Dogwood is very dense wood, chock full of BTUs.

Just how much wood energy can an acre produce potentially on an annual basis? Many experiments have been carried out since the 1970s, but the best example I've found comes from an obscure magazine, *The Economist Library,* way back in the June 1880 issue, written by a farmer, Waldo Brown. He was visionary enough to be urging farmers to start tree plantations that long ago, when farmers were trying to get rid of trees. Farmer Brown describes how he was growing wood at the awesome rate of 2.5 cords per acre per year when harvested every ten years. He was growing what he called soft maple. (I assume it was red maple.) He cites stands of black locust yielding more than that because the wood has much higher heat output even though it doesn't grow as fast as red maple. (It is also easier to split.) The black locusts were planted 680 trees to the acre and sold mostly for fence posts at the first cutting after ten years of growth. Each stump then "threw" three to seven sprouts each, which were harvested in another ten years. Then one sprout per stump, 680 in total, was allowed to grow to log size big enough to be split into ten posts each, or 6800 posts. Needless to say, you can get several dollars for a black locust fence post today and you don't need a calculator to realize the kind of money involved. But more interesting is to try to calculate what that quantity of wood would be worth today and in the future as fuel wood.

But Farmer Brown's genius didn't stop there. Black locust, in addition to being very rot resistant (used to be used in boat hulls) is a legume. It adds nitrogen to the soil. The plantation he describes had a floor of luxuriant bluegrass under the trees because of the nitrogen and because the fine-leaved locust doesn't cast much shade—-just enough to preserve some moisture in dry weather. While the land was producing all those billions of BTUs, it was also feeding livestock after the trees got too tall to graze. (Black locust is supposed to be slightly toxic to livestock, but I've seen cows grazing under them without ill effect.)

Similar experiments have been carried out in recent years, using hybrid poplar trees because they grow very fast and respond to coppicing quite well. In 1974 Penn State tried planting poplars in rows like corn (they grow easily from cuttings), one foot apart and two feet between rows. The yield was at the rate of about two and a half cords per year if coppiced every five years. Had they used black locust or osage orange, which are much higher in BTU value, the numbers in terms of energy produced would have been much better.

But I have a hunch Farmer Brown's way is better, combining wood production with pasture or hay or managing a typical hardwood grove on a selective basis. But in any case, just for fun, let's try to estimate how much an acre of family farm woodland could produce in heat energy as fossil fuel costs rise. A cord of white oak equals in BTUs something over 200 gallons of heating oil. Heating oil is selling right now for

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my old car jack, going from post to post. I raised it 3 feet, then cut 3 feet from a log a foot thick and spliced it to the post, and so on until I had raised and reset every post. By then, the children had removed the whole lower story. We cut logs for sills, and the rest was conventional: joists, floors, walls, windows. We made the manure pit into a large hen pen and 2 pig pens, and the cow stable was enlarged with a calf pen added. The east side of the barn, which had been nothing but a haymow and a dark corner for a horse, was made into a 3-horse stable with a harness room, a grain room, and a sawdust pit. But all that was just labor; what was difficult was devising a way to salvage the structure, and the smartest device was making the new log bases for the posts.

In both cases, I was faced with a problem that could not be evaded: I *had* to use that barn, I couldn't build a new one (although I essentially remade the one in Cape Breton). The lack of alternatives undoubtedly strengthened my determination. So you see, my success was not due to any special cleverness; circumstances forced me to act, and then I did show some ingenuity. Remember this, however, only the determined feel forced to act.

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$3.40 a gallon, so a nice lady at the oil company just told me. That's $680 a cord, an eye-opener to those of us who sell wood for $150 a cord. My experience is that you can get a cord of wood per acre per year from a mature woodlot like mine (shown in the photo) without diminishing the woods, plus a couple of nice 8-foot saw logs for lumber too. If we assume that the price of fossil fuels and electricity are going to continue to climb, the well-managed woodlot will soon be capable of producing $1000 worth of wood per year and rising, based on fossil fuel prices. There will be harvesting costs of course, but all the growing costs are provided free by sun and rain. Isn't that a sprightly good income when the woodland is also benefiting the air quality and overall environment more than cultivated crops?

The problem with thinking about wood as a profitable crop is that it takes too long for the restless human spirit. A crop of corn matures in five months while a crop of trees takes maybe 80 years. Even with coppicing poplars it takes five to ten years. But at least if we can start with a woodlot that is already in place, or get one started right now, we can start being rewarded—it is very satisfying just to plant trees and watch them grow.

Another big objection to thinking of wood as a farm crop is high labor costs. Harvesting seems slow and costly. But that is changing. Today we have equipment that can clamp around a fully grown tree, cut it off, and carry it upright, out of the woods! Whole trees can, fairly quickly, be chopped up into fuel. A new career is now blossoming in tree trimming, as thousands of acres of suburban woodland mature into large trees. Skilled trimmers swinging from tree to tree on ropes, or working atop hydraulic bucket lifts, can cut up big trees drooping over houses that no other equipment can handle. For a nation now crying out for the creation of new jobs, tree trimming and harvesting could be a real opportunity.

Mort Fry was, with his father, Miles Fry, the foremost pioneer in developing hybrid poplar trees. When they first approached me years ago at Farm Journal in Philadelphia, they had in mind growing the poplars for landscaping purposes and for rejuvenating strip mine land. Today, Mort still does that, but his main business is greenhouse flowers which the family, now in its fifth generation on the same farm, produces instead of milking cows. When the energy crisis first came along, Mort and his engineers built and installed a gas generator on his pickup truck bed that burned his poplar wood and turned it into methanol to run the truck on. To prove a point, he took a trip all the way up through New England and back to the farm near Ephrata, Pa., using only dead wood he gathered from woodlots along the road for fuel! Of course, fossil oil is still cheaper than wood alcohol, but for how long? And as I said earlier, it sure beats using ethanol made from corn.

(The information in this article also appears in another form and in greater detail in the author's new book, *A Sanctuary of Trees,* which will be published soon by Chelsea Green Publishing.)

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