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Farm Woodlot Management in the Eighth District

Increased growth rates in Eighth District forests, or even maintenance of present production, depend almost entirely upon what private owners do with their forest land. Nine-tenths of the district forest land is privately owned.

Most of the privately-owned forests (nearly 75 per cent) are in tracts of 500 acres or less, and their owners represent 99 per cent of all owners of forest lands.¹ About three-fourths of these private owners are farmers. For the entire country there are about 3,250,000 farmers who own woodlots which in the aggregate account for slightly more than half of all privately owned forests in the United States. In the Eighth District, farmers own slightly less than half the privately owned forests.

Since the great bulk of forest land is held in small tracts, and since there are a great number of owners, the problem of furthering proper woodland management obviously becomes one of considerable magnitude. And it is not too surprising that progress has been slow. In this district 70 out of every 100 acres of private forest are managed so that limited or no means of reproduction is left on land when timber is cut. Much of this poorly managed timber land is in small tracts. For farm woodlots the proportion is 80 out of every 100 acres, an unfavorable comparison for farm

woodlot management with other private management, which is itself far from good on the average.

Poor and destructive cutting practices are followed on 94 per cent of the farm woodland in Missouri, and on not much less in Indiana, Illinois and Arkansas. Even in Kentucky and Mississippi, where fair to good cutting practices are most prevalent, such practices are existent on less than half the farm woodland.

PURPOSES OF MANAGEMENT

The record indicates that good management on farm woodlots (in fact, on small woodlands as a whole) is the exception rather than the rule. And, as is often the case, lack of good management is an expensive luxury, for the woodlot owner and for the economy as a whole. In this district particularly, where per capita income is substantially lower than the national average, poor management is an item that can be ill afforded.

One major purpose for proper woodlot management was noted above. To increase our forests' yields—in fact, to maintain our present output and insure future timber supplies—it is vital to have good management practices much more widespread. Dovetailing into this is the purpose of obtaining optimum output from our land. To do this, all land should produce the maximum output commensurate with soil capabilities. Soils on steep and rocky slopes are best adapted to timber. Thus good land use in the Eighth District dictates that considerable acreages remain forested in order to prevent soil erosion and flooding of lowlands and to permit the owner to realize the largest return from the land over an extended period.

¹The Forest Service uses a catch-all classification for all holdings of 5,000 acres or less. On a national scale there are 4,250,000 owners (99 per cent of all owners) in this class and they hold three-fourths of all forest land, both public and private, in the United States. Actually, 98 per cent of these holdings are less than 500 acres each, 86 per cent are less than 100 acres each, and 70 per cent less than 50 acres each. The average size woodlot for the whole class is only 62 acres. R. E. McArdle, U. S. Forest Service, Based on Reappraisal Reports, Mimeo., Oct. 20, 1947.

In this district, 43 per cent of the land resources are classified as forest land. Only a small proportion of this land should be cleared for cropland. To compensate for the limited acreage that would produce more in crops, there are thousands of acres of cleared land that would produce more in timber. For example, in 83 Eighth District counties between 15 and 30 per cent of farm land was classed as idle or waste land in the Agricultural Census of 1945. A substantial proportion of this land could produce timber. Farmers are not properly utilizing their land resources when cutting practices on four out of five acres of timber prevent adequate production and restocking, and additional acreage is allowed to remain in waste land.

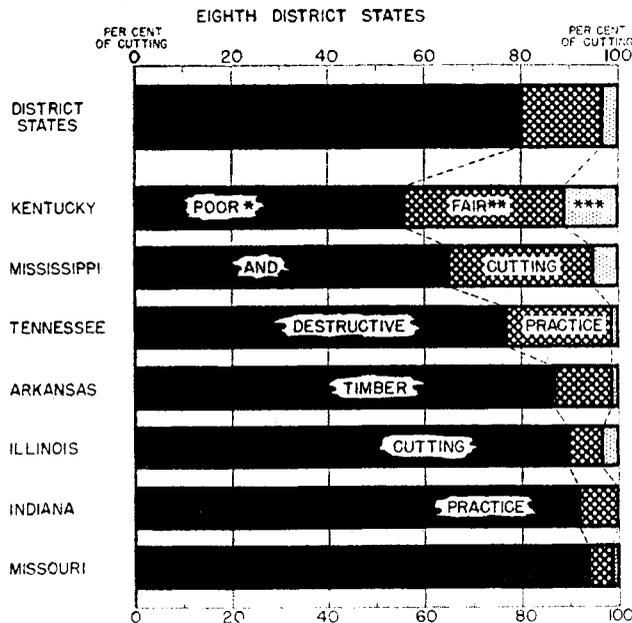
In general, the roughest land should remain in timber. Land in the next grade also should remain in woods, unless pasture is needed in the farm operation. If such land has been cleared and pasture is not needed, reforestation may be advisable.

Considerable reforestation also would be advisable in some areas to prevent soil blowing. The best land ordinarily should be cleared for row crops if largest returns are to be realized.

Another purpose of proper farm woodlot management is to furnish employment in the off-season and thereby increase farm incomes. Considerable numbers of farmers in this district are underemployed seasonally and this fact is reflected by low incomes. As pointed out in the June, 1947, issue of this *Review*, per capita farm income in 70 district counties was less than \$300 in 1944. The bulk of these same 70 counties had 40 to 85 per cent of land in timber. Records indicate that returns for labor spent in harvesting and managing a woodlot properly compare favorably with returns from alternative enterprises in the locality. Good woods management not only puts land to better use, but also utilizes labor which normally is idle a part of the year. Any income derived in this manner adds to farm and community income.

Still another reason for woods management is to supply the farm with more wood products such as posts, lumber and fuel wood, thereby reducing cash farm expenses. About one-fifth of the timber drain in the three southern district states is in the form of fuel wood and fence posts.

CHARACTER OF TIMBER CUTTING PRACTICES ON FARM LANDS



* Cutting that leaves land with limited or no means of reproduction, often causes deterioration of species and poor stocking.
 ** First steps in improving stand, leaving reasonable stock of desirable, marketable species.
 *** GOOD CUTTING—according to accepted management practices, that leaves well-stocked, vigorous stand of desirable species.
 Source: Preliminary Data, Reappraisal of the Forest Situation, U. S. Forest Service.

FACTORS IN WOODS MANAGEMENT

It is easy to talk about the need for and profitability of good woodlot management. It is not so easy to get such practices adopted on a wide scale. There are a number of reasons for this difficulty. Generally speaking, educational agencies promoting good forestry practices and technical foresters simply have been too few in number to reach the many woodlot owners that need to be convinced. Also, those advocating good management all too often have stressed the advantages for posterity rather than correct land use and income possibilities for current owners. Partly this has been because of general economic conditions and partly because we had until recently so much virgin forest that returns from good management were not commensurate with effort over the short run. In addition there are a number of other problems that make timber owners skeptical of the value of good management. Finally, sheer human inertia has acted to retard the campaigns.

Today more and more people, outside the technical forestry groups, are beginning to see the need for good management of our forests, and edu-

educational programs are being presented in an increasingly convincing manner. These need to be continued and expanded along the theme that sound forestry practices are necessary and that such practices will pay.

Time Necessary to Obtain Return—The question of the time necessary to obtain return for good management is one that should be clearly understood. Trees do not grow overnight and it takes many years to grow a merchantable sawlog from a seedling. Many of the large trees in the few remaining stands of virgin timber in the district are 150 years old and older. Individuals hardly can be expected to plant trees if a century and a half is required before a return can be realized.

The return for good management might be presented as a minimum-maximum proposition. Noted already is the fact that thousands of acres of district farmland is waste or idle land producing nothing. Much of this land could and should be reforested. The process of reforestation costs little, if anything; in many states seedlings are supplied free and technical advice comes with them. Labor in connection with planting seedlings is not great and for the most part would come in the off season. Under optimum conditions one man can set 1,000 seedlings (the number usually allocated to one acre) in a day. An inexperienced worker probably can set 500 to 600 seedlings a day. Since seedlings should be planted in early spring as soon as frost is out of the ground, reforestation usually would not interfere with regular spring farm work.

Thus, even though it takes relatively long to grow trees, investment of labor and money in such a project is relatively small. And where reforestation takes place on waste or idle land, it costs nothing in terms of displacing income-producing uses. As the trees mature, value is added to the land, which can be realized if the farm is sold or when the trees mature for whatever use they are to be put. This might be called the minimum return for good management practices.

Between this minimum and the maximum (gained from intensive management and good marketing) there are many possibilities for return. Growth rates vary for different kinds of trees and different kinds of growing conditions. Markets also vary. Current income possibilities thus vary with these factors.

Obviously with 38 million acres of farm woodlots in the seven district states alone, there are many opportunities for income realization from good timber management in a much shorter period

of time than is necessary to grow a tree from seedling to sawlog. Thousands of acres of these woodlots now contain considerable growth of trees five to ten inches in diameter, some of which can be cut as sawlogs within five to 20 years. However, timber products other than sawlogs may be produced. In the South, poles and piling can be produced in 25 to 40 years from seedlings. Pulpwood can be raised in 20 years, and even less time is necessary to grow fence posts, coal mine props or Christmas trees.

Thus by varying species or by varying products produced, income can be realized much earlier. Thinning cuts in the form of poles, pulpwood and fence posts often liquidate costs of development and pay taxes and other cash costs, the saw timber left to mature being the margin of profit.

Fire Control and Grazing—In several areas of the Eighth District, particularly in parts of the Ozarks and mid-South, a serious deterrence to good timber management is the danger from fires, most of which are deliberately started. For instance, burning of open range in the Ozarks is believed to improve early pasture, and in the South, woods are burned to control boll weevil. Incendiarism in other sections of the district also is a cause of many uncontrolled fires.

Any owner who desires to practice good forestry is handicapped by actions of such individuals. Fire not only destroys sawtimber, but, even worse, it destroys young growing stock, making restocking much slower and increasing the proportion of defective trees. Destroying leaves and organic matter reduces the productivity of forest soils, causing slower growth and increasing hazards of erosion. Burning timber to drive out game is not only unsportsmanlike in the first place, but also destroys game and the means whereby such game will be able to obtain food.

Actually, much of the burning to destroy boll weevil is wasted as studies indicate that boll weevil hibernate within 150 feet of the cotton field. Destroying cotton stalks in early fall does more good than burning. Similarly, good pasture and good timber seldom are found in the same place. Grass in woodland is usually a sign of understocking. A better practice would be to have one acre of good open pasture and to leave woods ungrazed since one acre of good pasture will support as much livestock as 10 to 50 acres of woods pasture.² Yet, half the farm woods acreage was grazed in the

² *Managing the Small Forest*, Farmers Bulletin No. 1989, USDA, May, 1947.

Eighth District in 1944, according to the Census of Agriculture, varying from 72 per cent in Missouri to 26 per cent in Kentucky and Tennessee. In Illinois, Indiana, Arkansas and Mississippi, the proportion grazed in each of the states was 53, 43, 43, and 41 per cent, respectively.

In a good many areas residents must be convinced that burning woodland causes damage in excess of any benefits derived. In some instances, this can be done by education; in others, more stringent laws and better enforcement of existing laws may be necessary for a period of years before people can see the benefits of woods management. In like manner, the problem of over-grazing would be alleviated by greater emphasis on pasture improvement and returns that are realized from properly handled pasture. Individual farmers can protect themselves to some extent by building fire lanes or surrounding their woods with pasture or cultivated fields.

STATE ALLOTMENTS FOR FIRE PROTECTION
FISCAL YEAR 1948¹

	State and private funds budgeted	Total funds budgeted (State, Federal and private)	Allotment per acre of commercial forest land	Proportion of forest receiving protection
Arkansas	\$ 582,728	\$ 737,511	\$0.037	55%
Mississippi	499,561	693,127	0.044	40
Tennessee	153,400	257,112	0.022	45
Illinois	56,603	75,636	0.023	45
Indiana	89,020	155,040	0.046	46
Kentucky	207,212	279,378	0.024	14
Missouri	239,158	349,458	0.019	19
District States.....	\$1,827,682	\$2,547,282	\$0.030	36%

¹ Hearings on Department of Agricultural Appropriation Bill for 1949, Part 1, p. 476.

Eighth District states are making progress in developing fire detection and fire protection. There is, however, considerable variation among them as to funds allotted for fire protection and proportion of the forest area covered. Indiana, with a relatively small forest acreage and only 15 per cent of the state in timber, allotted 4.6 cents per acre of commercial forest land for fire protection. Arkansas, with the third highest allotment per acre budgeted for fire control, was giving some protection to a considerably higher proportion of forest land than other district states. Less than 2 cents per acre of commercial forest land was budgeted for fire control in Missouri, a smaller amount than any of the other district states. However, a smaller proportion of forest acreage was given protection in Kentucky than in other district states.

Timber Stealing—"Grandmawing," as it sometimes is known, or timber stealing, is of sufficient magnitude in some acres of the district to be a major factor in poor management. Absentee owners in these areas usually find that trees seldom are left to grow large enough for sawlogs. In such areas, good management generally requires many

years of no cuts or very small ones and usually only those with outside capital can afford to wait. New laws designed to give timber owners additional protection, such as the Missouri Forest Crop Law, have been passed, but as long as residents of such communities do not have profitable employment, they will continue hauling timber to market which they cut "at grandma's."

Labor Requirements—On most farms in district states, there is enough surplus labor to take care of woodland management. In most instances, the necessary reforestation can be accomplished and in many instances labor is available for harvesting. Time necessary for management varies, but one-fourth day per acre is one figure used. The Southern Forest Experiment Station at New Orleans uses 8 days, or 25 minutes per acre per year, as the labor requirement for operating 200 acres, exclusive of cutting and skidding.

If the owner harvests his own timber, considerably more labor will be necessary. The Southern Forest Experiment Station estimated that on a high quality 200-acre pine stand, 137 man days were necessary per year for cutting and skidding, nearly five months employment for one man. On the "Farm Forestry Forty" at Crossett, Arkansas, two months labor was utilized on the 40-acre tract, if the operator did all work, including delivery to the mill. The amount of labor necessary and the acreage necessary to keep one man busy throughout the year varies, of course, with the volume of timber on the land and the rate of growth.

Forest Credit—Shortage of capital is another problem that often is important in lack of good timber management. The individual landowner not only has investment in land, but in addition has capital invested in timber including original cost of seedlings and labor to plant them, fire protection, taxes, fences, harvesting and interest for a number of years. Forest credit to cover these capital expenditures presents problems not encountered with the usual farm loan such as length of time for a tree to mature, fire hazard, and existing lending policies.

The matter of forest credit will be discussed in greater detail in a future *Review* article. However, in this connection it might be well to point out that costs of developing farm woodlots often can be paid from income of other farming operations and that credit for such improvement can be tied in with the over-all plan of farm, soil and woodland improvement. Frequently, these costs can be reduced by free seedlings, PMA payments

for reforestation and free technical advice. Thus with little cash expenditure requiring relatively little subsidization from other farming operations, better use will be made of land, and eventually cash returns will be obtained from timber.

GETTING A FARM FORESTRY PROGRAM UNDER WAY

The farmer, with assistance from the county agent, the soil conservation technicians or university extension specialists, should plan his farming operation so as to fit a forestry program into his over-all farm program. A technical forester is helpful but not essential in getting such a general program under way on a farm.

In the second stage of woodland management, extending over a period of ten years or more, a few simple forestry practices should be followed. Among these are (a) protective measures including prevention of fire and overgrazing, (b) improvement and harvest cutting each year, and (c) reforestation if needed.³

Here technical assistance is more useful, and probably will be requested, but such assistance will be in minimum amount. Each farmer can take steps to keep fire and livestock out of the timber. He may want some technical advice in planning fire lanes and other protective measures. Owners with no forestry training for the first few years can pick out and remove vines, shrubs, or obviously defective trees, but assistance here is helpful in spotting wolf, weed, diseased or insect infected trees and recognizing which species should be retained or removed. Reforestation, if any is needed, should be undertaken in this stage. Several agencies are available to advise on method and time of planting, species that are adapted, where to obtain seedlings and available financial assistance.

Nearly all the above forestry practices can be begun without technical assistance, and can be continued with a minimum amount of assistance. According to the state extension forester in Mississippi, one half-day spent with a farmer is sufficient to teach him how to select trees for improvement, weeding or thinning cuts. Similarly, the chairman of the Forestry Department at the University of Missouri states that in about eight hours time a person can be trained sufficiently to make reasonably accurate estimates as to volume and growth. Thus in a very short time, a woodland owner can learn to select trees for cutting and can

estimate how much can be cut and still maintain or increase growing stock.

In the third stage, final production and marketing, more technical knowledge becomes necessary. This means not only technical knowledge on how to manage timber production intensively, but also knowledge on how to market the products to realize maximum income. Such assistance would involve consideration of whether to produce sawlogs or some other product, where to sell the product, and whether further processing should be undertaken.

Most state, federal or university agencies can handle requests for information in the second stage of forestry management and to some extent, assistance at the third level. However, these agencies frequently do not have sufficient personnel to give this type assistance to an individual. There are private and state technicians in some areas who can give this detailed technical assistance on a fee basis. Technical assistance available to woodlot owners will be discussed more fully in the *July Review*.

SELLING TIMBER

Marketing is equally as important as production in profitable timber management. All too frequently potential return from a hundred years' production of timber is reduced through unwise sales. Such marketing not only gives the owner a low return for past decades of growth, but the destructive cutting also retards growth for coming decades. Yet clear cutting with a lump sum price has been the characteristic method of marketing rather than the exception. The timber owner, however, is not wholly to blame for this situation as timber buyers and saw mill operators usually have preferred buying all timber on a particular piece of ground. Their experience in gaging amount of timber usually gives them a bargaining advantage.

The first thing that a prospective timber seller should do is to determine how much timber he has to sell. Example after example could be cited of financial losses to timber owners because they lacked information on quantity and value of timber on their land. In one instance, a small forest owner in Tennessee was offered \$1,800 for all timber on a tract of land, but with assistance of a forester marked \$5,000 worth of timber for cutting and still had strong, vigorous trees left for future growth. In another case, a southern Indiana farmer accepted \$5 for a walnut tree standing in his yard. The buyer in turn took it to Louisville where he sold the butt log alone as a veneer log for \$100.⁴

³ J. F. Preston, *The Farm Woodland*, Soil Conservation Service, USDA, July, 1947.

⁴ *Managing the Small Forest*, Farmers Bulletin No. 1989, USDA, and *Woodland Management*, J. A. Hall, Bulletin No. 213, Ohio State U.

To prevent this type of situation, the owner may consult the local farm district or extension forester if he cannot make reasonably good estimates himself. If services of none of these technicians are available and if the amount of timber warrants, a commercial forester should be employed to cruise and mark trees. An effort should be made to get as many timber buyers as possible to bid on the timber.

Using Off-Season Labor—A farmer, having a few idle days through the winter, should consider cutting the timber himself and possibly skidding and delivering the timber to the saw mill. Usually, good wages and often a nice profit can be made from this operation. Of course, if extra equipment is required, careful calculations of these extra costs are necessary.

One study concerning pine timber indicates that on the average a tree 15 inches in diameter with standing timber at \$5 per thousand board feet would be worth \$0.80 on the stump, but cut and delivered to the mill would be worth \$2.40. Similarly, with pulpwood worth \$1 per cord in standing timber, a 10 inch tree would be worth \$0.13, but cut and delivered would be worth \$0.72.⁵

In a hardwood operation, timber worth \$5 on the stump is estimated as worth \$20 delivered as logs to the mill. A profit of 31 per cent is figured, on the average, for cutting and delivering. Thus, if a farmer would perform these operations himself, he could earn \$8.80 for his labor in cutting, skidding, and hauling (providing he could do the work as efficiently as the operators), and also take a \$6.20 profit.⁶

The owner might consider setting up his own mill and sawing rough lumber if volume permits. A good example of this type of operation can be found in Conway County, Arkansas. On 130 acres of excellent second growth hardwood timber, the operators selectively cut timber during the winter months. When weather permits, logs are skidded to the saw mill at the edge of the woods. Good labor return and profits are made from sale of rough lumber and on slack days slabs are cut into fuel wood and sold in nearby towns for enough to pay good wages for this operation.

Several points should be investigated before an attempt is made to sell converted products. First, the demand for and value of various products should

be learned. Second, definite arrangements should be made with timber users to purchase the products. Third, products should be produced having highest value commensurate with good forestry. Fourth, if the sale is on a stumpage basis, a contract signed by both parties should state clearly what timber is to be cut, and what methods are to be used, length of time for the operation, fire protection measures for remaining growing stock, and price to be paid for various products cut. Fifth, if converted products are sold, such as poles, ties, pulp, sawlogs and the like, bids should be received for each product. Products for sale might be advertised to attract more bidders, and the owner should shop around and talk to any neighbors who have sold timber recently and compare values for various products. Sixth, and one of the most important points to be investigated before any cutting is done, specifications as to length and size should be obtained from timber users. For example, if a mill needs 16 foot logs, it may not pay any more for a 15 foot, 6 inch log than for a 10 foot log. Too often careless cutting and bucking reduce materially the market value of the product.

Finding a Buyer—Owners in some areas in the Eighth District are handicapped by having only one or perhaps no immediately available sawmill at which timber can be sold. This is particularly unfortunate when available operators buy only on a lump sum basis.

The need for an expanding market is evident and desirable in many areas. Timber buyers first of all must be convinced that in the long run they will be better off buying selectively so that volume in the future can be maintained. In the Southeast, foresters from the TVA as well as other organizations are spending considerable time with sawmill operators explaining the value of cutting on this basis.

A different method for expanding the market for a timber owner has been undertaken in Indiana by the Department of Forestry at Purdue University. About four times a year a timber marketing bulletin is published, patterned after a similar one published in New York. Timber owners contemplating selling can send in details on the amount and kind of stumpage for sale. These listings are assembled and sent out to veneer mills, sawmills, mines, basket companies and other wood users. Such users are able to travel farther than they ordinarily would to bid on a particular tract of timber fulfilling their requirements. Thus an individual farmer may be brought in contact with several buyers who

⁵ R. H. Westveld, University of Missouri.

⁶ Preston, *The Farm Woodland*.

ordinarily might not have been contacted. In all states, advice on where to contact various buyers usually can be obtained from district foresters, farm foresters or those working in national forests.

Another type of marketing service has been undertaken in a southeastern Illinois county where Producers Supply, a branch of the local county Farm Bureau, recently has become one of six timber buyers for a feltwood plant. This organization agrees to sell pulp or sawtimber for any farmer provided good cutting practices are followed. A fee is deducted for bookkeeping and selling charges, but the farmer does the cutting and hauling and, in addition, receives as much as \$0.50 a cord more for stumpage than other buyers are paying. If volume permits, a permanent type cooperative is to be established to perform this service. This type of organization should be of use particularly in areas where tracts are small. The cooperative, under proper management, by assembling various types of products, should be able to attract more buyers than when only small amounts of a product are available.

RETURNS FROM FARM WOODLOTS

In many instances, forestry income can be had simply by using otherwise idle labor on land that previously contributed nothing to farm income. Income derived in this manner above actual cash costs incurred is profit, but many woodland owners desire specific information on returns that can be obtained from a stand of timber.

Any estimate of income from timber is subject to wide variations, such as variations in rate of growth and volume of timber per acre. Aside from variations in physical production per acre, there are even wider fluctuations in values. However, even in depressions good timber has a good purchasing power. High prices such as prevail now lead to heavy cuts. Despite the fact that current cutting may be too heavy, it is difficult to object to cutting a 12 inch tree (if adequate young stock is left for future growth) in 1948 which may be worth more than a 16 inch tree in 15 or 20 years. Actually, somewhat heavier cuts are justified in periods of high prices, for thinning and improving operations can be more profitable when less desirable species and grades have a market value.

Wide variation in prices also can be found at any particular time from one locality to another and in the same locality as a result of variations in accessibility. In one area, certain wood users may be willing to pay a premium price for a particular type product, but in another area the same product may have to be sold for a lower price because no

specialized processor operates there. Thus the average figures used here conceal many differences.

Records from the Norris-Doxey farm forestry projects give an indication of returns that are being obtained from forests. These forests for the most part were under good management and they probably were better than average woodlands. In 1947, the net returns (stumpage value) on 13,531 farms representing a million and a half acres of timber were \$4.05 per acre, or \$472 per farm. This cut represented more than one year's growth on most of the farms, but in most instances cuts were made according to accepted practices and young stock was left to mature.

RETURNS FROM FARM WOODLOTS NORRIS-DOXEY FARM FORESTRY RECORDS¹

Year	Farms reporting	Acres of farm woodland under management	Products cut/acre		Net value	
			Bd. Ft.	Cords	Per farm	Per acre
1943	148	15,506	200	0.51	\$260	\$2.47
1944	509	49,155	197	0.54	320	3.31
1945	441	44,126	451	1.12	485	4.85
1947	13,531	1,576,888	319	.....²	472	4.05

¹ 1943-45 data from Preston, *The Farm Woodland*.

² 1947 data adapted from Report Fiscal Year 1947, Norris-Doxey Farm Woodland.

³ Included in board feet.

Another study of 89 midwestern farm woods in the hardwood areas for the ten years, 1935-44, indicates that annual net profits of \$3.42 per acre were made after paying labor, taxes and interest on the investment.⁷ Such returns, however, could have been made only on good stands under very good management.

Examples mentioned only give returns after reasonably good stands are established and the question remains what can be expected over a long period of time, starting with cleared land. An answer to such a question becomes rather speculative, but estimates can be made for average rates and time necessary for growth. Values can be estimated also, but probably are subject to greater variations. For example, land planted in short-leaf pine produces a pulp crop in 25 years; in 40 years, poles could be cut; and in 70 years, the remaining saw logs could be cut. By starting with 1,000 trees per acre, thinning cuts of fence posts, pulp and poles can be made to help liquidate development costs and yet leave a full stand of timber to develop into sawlogs. Average values as shown in the table (next page) have been applied to average production rates. As a result, stumpage value of short-leaf pine would average \$4.27 per year for the 70 years. It must be noted, however, that in the example cited, three-fourths of the value was ob-

⁷ Indiana Economic Council, *A Suggested Forest Policy*, Bulletin No. 9, June, 1947.

ESTIMATED YIELDS OF SOFTWOOD AND HARDWOOD¹

Species, chief uses and average values ²	Number of years required to produce ³			Average value produced per acre ⁴			Average value produced per year
	1st cut	2nd cut	3rd cut	1st cut	2nd cut	3rd cut	
1. Loblolly pine							
pulpwood (\$1.50/cd.)	20	30	70	\$ 7	\$30	\$ 7 }	\$5.63
poles and piling (\$2.50 ea.).....	40	....	....	50	....	.... }
logs (\$15.00/M.bd.ft.)	70	....	....	300	....	.... }
2. Shortleaf pine							
pulpwood (\$1.50/cd.)	25	35	70	4	27	6 }	\$4.27
poles (\$2.50 ea.).....	40	....	....	37	....	.... }
logs (\$15.00/M.bd.ft.)	70	....	....	225	....	.... }
3. Jack pine							
Christmas trees (\$0.25 ea.).....	5	6	7	25	12	12 }	\$2.64
pulpwood (\$1.50/cd.)	25	35	50	7	30	45 }	
4. Yellow poplar							
pulpwood or mine props (\$1.50/cd.).....	20	30	70	10	37	11 }	\$5.11
logs (\$12.00/M.bd.ft.)	70	....	....	300	....	.... }
5. Northern red oak							
pulpwood, mine props, acid wood and ties (\$1.50/cd.).....	40	80	....	27	5	.... }	\$1.40
logs (\$8.00/M. bd. ft.).....	80	....	....	80	....	.... }
6. Cottonwood							
pulpwood (\$1.50/cd.)	15	20	25	8	30	30 }	\$4.20
logs (\$4.00/M.bd.ft.)	40	....	....	100	....	.... }

¹ Average yield for sites recommended for various species.

² Fuelwood, stakes, and posts not included. Values differ widely among areas, e.g., in some areas hardwood pulp is valueless except for fuel. Values are below an expected long-time average stumpage value.

³ Cuts can be made more frequently under intensive management.

⁴ Fuelwood, stakes, and posts not included. Spacing 6x6 ft. and 80 per cent survival assumed. Higher values can be obtained from veneer logs, cooperage stock or other specialized products.

Source: Adapted from *Tree Planting*, by L. S. Minkler and A. G. Chapman, Farmers' Bulletin No. 1994, USDA.

tained in the 70th year, when saw logs were cut. Under intensive management cuts could be made more frequently than indicated and some of the sawlogs could be cut before the 70th year. Loblolly pine grows at a slightly faster rate and would gross \$5.63 per year. Additional income could be earned by the operator doing all or part of the harvesting and hauling.

The amounts given are gross amounts from which costs must be deducted. In the case of shortleaf pine, costs would be approximately as follows: 1,000 seedlings \$2.50, planting (hired labor) \$6.00, fire protection and taxes at 10 cents per year per acre for 70 years \$7.00. The total cost would be \$15.50, or \$0.22 per acre per year, leaving a net return of \$4.05 for shortleaf pine per year before carrying charges are deducted.

Hardwoods as a rule grow slower than pine. However, yellow poplar not only is fast growing but also has a high value. The returns per year for the 70 years are higher for yellow poplar than for shortleaf pine, but earlier cuts of poplar usually are worth less than pine. Cottonwood, a bottom-land hardwood, grows rapidly, maturing in 40 years, and even though the value per unit is relatively low, the return per year compares favorably with other species. Oaks grow at the slowest rate, making returns per year low, but the value given is probably conservative in relation to pine.

Christmas trees from jack pine are listed in the table as a subsidiary operation as there are opportunities for limited market for Christmas trees in

practically every community. This operation has the additional advantage of a quick turnover and offers an opportunity for utilizing considerable labor for one or two months in harvesting and selling trees. If all trees are sold as Christmas trees, a higher return per year may be obtained. For example, on one farm in Ohio, net income per acre with all labor hired was \$142 for a 16 year period, or \$8.88 per acre per year, giving a yield of 7.8 per cent on investment.⁸

While the periods of time involved in the above examples are extensive, it should be noted that they cover the stage from seedling to saw log. And as was pointed out earlier, if land brings in no current income without trees, the fact that it takes a long time to grow trees should not make reforestation unattractive on that land.

Labor Returns—Labor in woods often comes at times when there is little alternative opportunity for employment. Even so, labor returns for working in woods compare favorably with other enterprises. Summaries of Norris-Doxey farm forest projects indicated that for 89 farms in the oak-hickory region, from 1940-45 labor returns ranged from \$0.26 to \$1.35 an hour.⁹ In the South, farmers can earn from \$0.70 to \$1.00 an hour for off-season labor by harvesting and hauling timber products. In the same areas, labor returns for work on cotton were \$0.27 an hour.¹⁰

⁸ *Tree Planting*, Farmers Bulletin No. 1994, USDA.

⁹ Preston, *The Farm Woodland*.

¹⁰ A. W. Nelson, Chief Forester, Flintkote Company, *Mississippi Banker*, March 1948.

SUMMARY AND CONCLUSIONS

1. Farm woodlots represent the bulk of privately-owned forest land. Virtually all of these are in small holdings. Ninety-nine per cent of the woodlot owners have less than 500 acres of woods and 70 per cent have less than 50 acres of each.

2. Four of every five acres of farm woodland in the Eighth District are under poor management. The proportion varies from 94 per cent in Missouri to 56 per cent in Kentucky.

3. Good timber management should be followed to put land unsuited to pasture and crops to best use, increase farm income, utilize underemployed farm labor, and produce products for home use.

4. Getting a good timber management program under way requires little technical assistance in the early stages. A few hours' instruction are sufficient to inform an owner how to mark trees to save or cut for initial improvement cuts.

5. Putting timber land under good management increases the value of the land and adds to income. Except on tracts where timber already is matured, however, it takes time to produce additions to income. That time varies with the degree of maturity of the trees, the species and growing conditions. Thousands of acres of farm woodland already have trees five to ten inches in diameter representing 25 to 50 years of growth. Growing time from seedling to market also varies with type of market. Pulp wood can be cut after 20 years, poles in 25 to 40 years, and saw logs in 50 years or more.

6. The returns from farm woodlots vary with age, species and volume of timber. Records from 13,531 farms in Norris-Doxey projects in 1947 indicated an annual net return of \$4 per acre. Shortleaf pine land from seedling to sawlog stage would net

\$4 per acre per year under average conditions over a period of 70 years. Under intensive management more frequent cuts could be made and higher net income realized.

7. Factors operating to curb good management include indiscriminate burning of timber and timber stealing. Legislation and more enforcement would help alleviate the latter condition. On the positive side, good management should be induced by the fact that labor for it is available on most farms. Only 25 minutes to two hours work per acre per year is necessary to handle properly the average farm woodlot. Harvesting and delivering timber products from a well-stocked holding will require more time (about three-fourths day per acre) but might triple return from that land.

8. Labor returns for work in midwestern hardwood areas ranged from \$0.26 to \$1.35 per hour from 1940 to 1945, according to Norris-Doxey records. In well-stocked pine stands, returns ranged from \$0.70 to \$1.00 per hour; in the same year, work in cotton returned \$0.27 per hour.

9. A century of timber growth is often wasted in unwise marketing. Owners should know amount and value of timber before selling stumpage. The market for timber can be widened by advertising, contacting foresters, making use of timber marketing bulletins or by using a forest cooperative.

10. Considerable capital is necessary in woodland development, the lack of which often is a limiting factor in good management. However, income from other farm operations can defray most expenses of farm woodlot development.

Donald L. Henry

Survey of Current Conditions

Inflationary forces apparently continue to dominate the outlook in the national economy. In some segments of the economy there are indications that expansionary pressures are diminishing but, with new forces coming into being to supplement pressures still evident, the inflation potential remains great.

In the past few months our economy has con-

tinued to operate near capacity levels. Employment has remained close to 60 million and the number of unemployed workers has leveled off at about the practical minimum. Consumer income and expenditures continue on a high level and business outlays for new plant and equipment are large.

Domestic requirements plus overseas demand have resulted in a flow of goods from our factories