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The marketing of forest products in Tennessee

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To the Graduate Council:

I am submitting herewith a thesis written by Thomas Britt entitled "The marketing of forest products in Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

Joe A. Martin, Major Professor

We have read this thesis and recommend its acceptance:

Clinton A. Phillips, Solon Barraclough

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

December 11, 1957

To the Graduate Council:

I am submitting herewith a thesis written by Ray Thomas Britt entitled "The Marketing of Forest Products in Tennessee." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

Joe A. Martin
Major Professor

We have read this thesis
and recommend its acceptance:

Clinton A. Phillips

John Baracough

Accepted for the Council:

Salv. Mantling
Dean of the Graduate School

THE MARKETING OF FOREST PRODUCTS IN TENNESSEE

A THESIS

Submitted to
The Graduate Council
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

by

Ray Thomas Britt

December 1957

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I am also indebted to Dr. Solon Barraclough and Dr. Clinton Phillips for their helpful suggestions and good advice offered.

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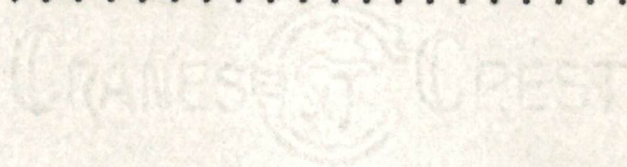
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CHAPTER I

INTRODUCTION

Forests, which occupy forty-seven per cent of all land in Tennessee, are one of the state's most important natural resources. The benefits from these forests form the economic pillar of many communities and are important to the welfare of the entire state.¹ Timber is no longer considered a nuisance as was once the case on the American farm. It is now one of our more valuable resources, and is being given more thought and attention in our economic planning.

At the time of earliest settlement, age-old forests blanketed all regions of the state. Over three hundred and fifty years ago, when De Soto and his adventurous band cut their way through the dense forest growth of what is now West Tennessee to reach the Mississippi River, Tennessee was covered by a forest area estimated at 25,600,000 acres, or ninety-two per cent of the total land area of the state. Many varieties of timber grew in this forest, due to the wide range of elevation and diversity of climate.²

It was not until the beginning of the nineteenth century, when permanent settlement began along the fertile valleys of East Tennessee,

¹U. S. Department of Agriculture, Tennessee's Timber Economy, Forest Resource Report No. 9 (Washington: Government Printing Office, 1955), p. 2.

²Charles E. Allred and others, Development of Timber Industry in Tennessee and United States, Monograph No. 92 (Tennessee: University of Tennessee Agricultural Experiment Station, Knoxville, April, 1939), p. 1.

that the immense timber resources of our state were recognized. During these early days lumbering was recognized as an agricultural industry, and it came to be considered one of the plantations' leading industries. On many of the large plantations the manufacture of lumber became a winter industry and supplemented the production of cotton, tobacco, and other staple crops. As the agricultural industry of the state progressed, it had a profound impact on the forest.³

After more than 150 years of settlement and development, Tennessee is still almost half forested. Some 12.6 million acres of the state's total area of 26.9 million acres are in forest land.⁴ This land is only partially as productive as it could be if improved management practices were applied.

Tennessee has the timber-producing potential, the markets, and the leadership necessary to develop a more productive timber economy, but at present the volume of saw timber is being harvested at a much greater rate than it is growing.⁵ This could be a devastating blow to our timber industry if better management practices are not applied in the future. In all regions of the state, current growth falls far below the full potentiality of the forest lands. Therefore, management practices should be directed toward growing more and better timber faster than it is being grown at the present time.

³Ibid., pp. 1-2.

⁴Ibid., p. 14.

⁵Ibid., pp. 30, 32.

With timber being a \$190 million yearly industry in the state, it would appear that more effort should be put forth in protecting and developing this important resource. Farmers should stop treating it as an unwanted stepchild. Vast quantities of timber that would now be worth a fortune have been destroyed in readying forest land for agricultural production. Many of these areas have been submarginal and in a few years they have reverted to waste land and eventually back to unmanaged forests, which are by far inferior to the original stands of timber. For this reason, large areas in all parts of the state which are at present classified as forest land are basically waste land, producing scrub trees that will never make salable timber.

The Problem

Despite the importance of forest production in Tennessee, little is known about how forest products are marketed. There are numerous forest owners with small holdings averaging only a few acres, but no data are available showing how well existing markets serve their needs. Timber is harvested from small holdings by a multitude of roving operators, who channel the products into the markets and process them on the way. This system results in destructive harvesting practices, poor utilization of products, and low timber prices, all of which run counter to the needs of constructive forest management and efficient marketing practices.

Reasoning that rational forest owners will do what profits them most, this study has been designed to show the inadequacy of the present marketing system and to offer some helpful suggestions for improvement.

It is felt that in many areas conservative forest management could be shown to pay better than existing practices.

It is commonly accepted as fact that, in general, the owners of forest land have neither the experience nor the information necessary to sell their timber products in the most advantageous manner. This situation is thought to arise from, or at least to be partially attributable to, one or more of the following hypothesis:

- 1. The timber sales by individual owners are intermittent, and the seller is at a real disadvantage in dealing with a buyer who continuously buys and sells timber.
- 2. The timber owner often sells his timber to meet financial obligations rather than selling according to some systematic plan.
- 3. The lack of uniformity in timber creates a dilemma in the owner's mind, and he often arrives at a price by some illogical manner.
- 4. Owners often "trust to luck" for success in their deals rather than seeking guidance and aid in marketing their products.

If the inadequacies that exist in the market structure for forest products could be removed, it is believed that the forest industry of the state would become much greater in importance in future years. It must be remembered that the timberland owners will be interested in improving their timber only when it appears profitable for them to do so. Once the landowners realize substantial profits from their forests, they can be expected to follow timber improvement practices that will result in an improved timber economy.

In summary, the purposes of this study can be stated as follows:

- 1. To describe the present marketing system and practices used in the marketing of forest products.
- 2. To determine how effectively forest marketing needs of the producers are now being met.

Scope of Study

It has been the primary intention of this study to point out the shortcomings and weaknesses within the present marketing system for forest products in Tennessee. It is believed that the data presented in this thesis will be of great help to forest owners and forest product buyers by indicating price differences they might expect under the various marketing procedures and practices described.

In this study approximately 215 forest owners and 143 first-buyers were contacted in three counties of Tennessee. The counties selected were Hardin, Cumberland, and McMinn.

An attempt was made to interview all first-buyers of forest products and a representative sample of forest owners who had recently marketed forest products in each county included in the study. The 215 forest owners reported a total of 309 sales. Data were collected on the most recent sale plus any other sales the present owner might have made during the past ten years (table I). This supports the hypothesis that sales by the individual owners are intermittent. Eighty per cent of all sales recorded were transacted during 1955 and 1956. Records were taken of all sales of forest products, which included charcoal, chemical wood, billets, posts, saw timber, and pulpwood in various stages of marketing. Only the sales of saw timber and pulpwood were of sufficient volume to warrant detailed analysis and discussion in this study (table II).

The average total acreage of all land per farm in the three counties was 313, with a range from 7 to 2,600; the average woodland acreage per farm was 214, with a range from 1 to 2,200 acres.

TABLE I

NUMBER OF SALES OF FOREST PRODUCTS BY PRODUCERS ACCORDING TO DATE OF SALE, IN THREE SELECTED COUNTIES OF TENNESSEE, 1946-1956

County	Total Sales	Most Recent Sales Dates Reported			
		1956	1955	1954	Before 1954
Hardin	168	64	56	8	40
Cumberland	73	47	16	3	7
McMinn	68	29	36	3	0
Total	309	140	108	14	47

TABLE II

NUMBER OF SALES OF FOREST PRODUCTS ACCORDING TO TYPES OF
 PRODUCTS SOLD BY THE PRODUCERS IN THREE SELECTED
 COUNTIES OF TENNESSEE, 1946-1956

County	Type Product		
	Saw Timber	Pulpwood	Other ^a
Hardin	156	4	8
Cumberland	37	29	7
McMinn	41	26	1
Total	234	59	16

^aIncludes charcoal, chemical wood, hickory billets, and posts.

Method and Procedure of Study

Sampling Technique

The information upon which this study is based was obtained by personal interview of woodland owners and first-buyers of forest products in Hardin, Cumberland, and McMinn counties of Tennessee. These counties were selected because they represent three different and distinct regions of timber harvesting and marketing in the state.

1. Hardin County is representative of the hardwood region in the western valley of the Tennessee River.
2. Cumberland County is representative of the mountainous, plateau region which is predominately characterized by upland hardwoods.
3. McMinn County is representative of the Great Valley Region of East Tennessee which is characterized by upland hardwoods and both yellow and Virginia pines.

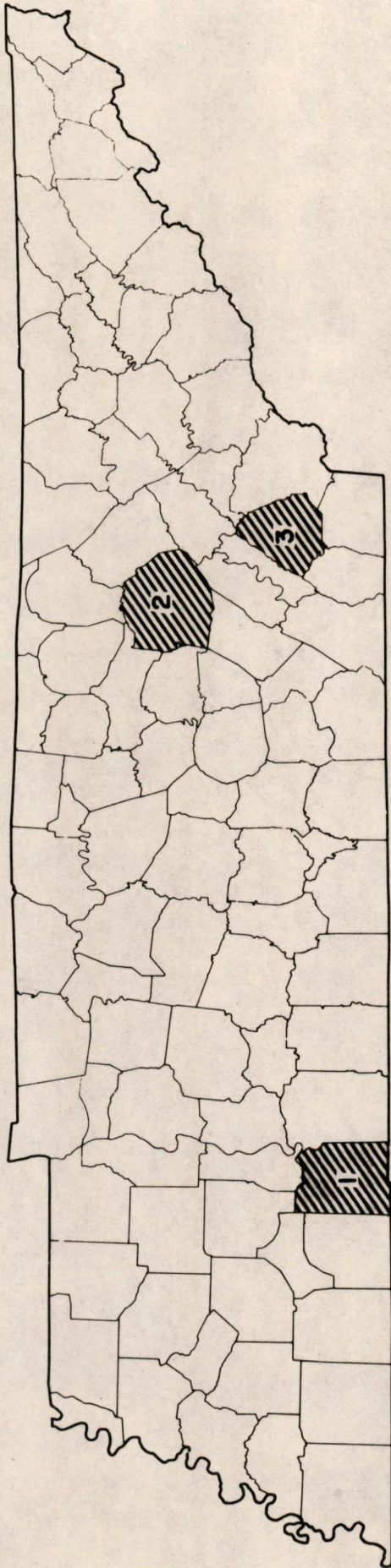
An attempt was made to contact all first-buyers of forest products in each county, and, through these buyers, to locate recent sellers. The study was concerned with the actual marketing techniques and processes that were being carried on. Due to the limitations of both time and money the most convenient and direct method of choosing the sample was employed. It is not claimed that the practices observed in these counties are typical of those followed throughout the state nor that the price differentials reported necessarily prevail in other areas, but it is believed that this information can be of great help in building a more efficient and profitable timber industry in the state. Certain conclusions are limited because sufficient data on quality of forest products, as related to price received, were not obtained in the survey.

The information obtained was systematically recorded by the interviewer on previously prepared questionnaires for both forest owner and first-buyer (appendix A). The study was designed to provide county-wide data on marketing procedures for forest products, but due to the nature of the timber industry some sections of the counties were sampled more heavily than others. This did not distort the study because it was actual marketing practices that were of importance. The number of respondents in each county varied due to a number of factors, but primarily to the fact that the intensity of the timber industry varied in each of the counties studied.

Respondents were interviewed regardless of the size of their operations or the value of their timber sales. By this method it was possible to get a complete picture of their marketing practices. Data were collected on operations for the calendar year 1956. In instances where no data were available for that year, the most recent transaction was recorded. Since detailed records were rarely kept by the respondents most of the data obtained were estimates made from memory.

Description of Sample Areas

The three shaded counties shown in figure 1 were selected for the study because they represent three different and distinct areas of woodland cover, geographical features, and farm-industrial economies in the state. A concise description of each county is presented here to give a understanding of the study areas and the many economic problems unique to each.



Counties

- 1. Hardin
- 2. Cumberland
- 3. McMinn

Figure 1. The location of three selected counties covered in the study of forest marketing practices in Tennessee, 1956.

Hardin County

Hardin County lies on the boundary between the highland rim on the east and the coastal plain on the west. These two regions are separated by the broad and deeply intrenched valley of the Tennessee River, which crosses the county north and south somewhat west of its geographical center.⁶

Physiographically the soils of Hardin County are divided into the four following groups: (1) Highland-rim and limestone-valley or residual soils which have weathered directly from the parent rock material; (2) Coastal-plain soils residual from redeposited unconsolidated material; (3) Terrace or old alluvial soils; and (4) Recent alluvial or present flood plain soils. The rainfall of this region averages over fifty inches a year.⁷

Savannah, the county seat, is the largest town with a population 1,698.⁸ It is located near the geographic center of the county on U. S. Highway 64 which gives good access to neighboring markets. Savannah is a shipping point on the Tennessee River. Many crossties and other forest products are frequently shipped from there by barge to distant markets. No railroads enter the county, but frequent use is made of railway facilities in Selmer, Tennessee, and Corinth, Mississippi, which are less than thirty miles away.

⁶W. J. Latimer and others, Soil Survey of Hardin County, Tennessee, Series 1926 (Washington: Government Printing Office, 1930), p. 1.

⁷Ibid., p. 8.

⁸Rand McNally and Company, Rand McNally Commercial Atlas and Marketing Guide, Eighty-Eighth Edition (New York: Rand McNally and Company, 1957), p. 412.

Agriculture furnishes 45.5 per cent of the employment for the working population of the county. Chief cash-yielding enterprises are field crops and livestock. The value of field crops harvested is well over a million dollars yearly. The median family income was \$1,056 in 1950 which was about half of the state average of \$1,983. Hardin County is not densely populated, with only twenty-nine people per square mile. Manufacturing has been increasing in importance. In 1950 it furnished employment for 16.7 per cent of the employed population.⁹ There are approximately thirty manufacturing establishments employing over one thousand people. The value derived from manufacturing amounts to over three million dollars yearly.¹⁰ The forest-products industry is a very important segment of the manufacturing group.

Cumberland County

Cumberland County, the fourth largest county in the state, lies almost wholly on the Cumberland Plateau with elevation averaging between 1,600 and 2,000 feet above sea level. The plateau's soils are generally shallow, sandy and well drained. The rainfall of this region averages over fifty inches a year.¹¹

Crossville, the county seat, is the largest town in the area, with a population of 2,291. It is the only town in the county exceeding the

⁹U. S. Bureau of the Census, County and City Data Book, 1952, A Statistical Abstract Supplement (Washington: Government Printing Office, 1953), pp. 354-369.

¹⁰Rand McNally and Company, op. cit., pp. 407-413.

¹¹Tennessee Valley Authority, Forest Resources and Industries, Cumberland and Morgan Counties, Tennessee, Report No. 210-53 (Norris: Division of Forestry Relations, March 1953), p. 3.

1,000 mark according to the 1950 census. Crab Orchard, Dorton, and Mayland are important local shipping points on the Tennessee Central Railroad. A good east-west truck route, U. S. Highway 70, gives Crossville access to Knoxville and Nashville markets.¹²

Over one-third of the employed population in the county is engaged in farming, chiefly on a subsistence basis. Principal cash-yielding products are livestock and potatoes. Significant quantities of hay, grain, fruits, and vegetables are grown for on-the-farm consumption. One of the best single measures of economic well-being is income per capita. By this measure Cumberland County was among the ten lowest in Tennessee in 1947. The major source of wage-salary income is from manufacturing which accounts for 19.9 per cent of the total. The forest-products industry is the principal component of the manufacturing group.¹³

McMinn County

McMinn County, located in the Great Valley of East Tennessee, has some deep soils and many prosperous farms. In general the soils are very productive and well adapted to general farming. The rainfall of this region averages between forty-five and fifty inches yearly. It has a warm and temperate climate with no distinct dry seasons. The nearby mountains apparently have a moderating effect on weather in the valley.

Athens, the county seat and largest town, has a population of 8,618. Etowah, with a population of 3,261 is the second largest town and

¹²Ibid., p. 5.

¹³Ibid., pp. 5-6.

occupies an important place in the marketing system of the county. Riceville, Calhoun, Niota, and Englewood are important local shipping points because they are all located on railroads and U. S. Highways. Both the Southern and Louisville and Nashville Railways run through the county. Two U. S. Highways serve the county and give it access to distant markets. U. S. Highway 11 runs through the county near its geographic center and gives direct connection with Knoxville and Chattanooga markets. U. S. Highway 411 serves the eastern portion of the county connecting it with Atlanta, Georgia and Knoxville, Tennessee.¹⁴

The county is thickly populated with seventy-four people per square mile. Manufacturing furnishes 39.3 per cent of the employment, while agriculture accounts for only 25.2 per cent.¹⁵ McMinn County has seventy-five manufacturing establishments employing 3,223 people, and the value derived from manufacturing was \$14,004,000 in 1954. Dairying is the predominate farm enterprise in the county and accounted for \$1,714,000 of the farm income during 1954.¹⁶

¹⁴Rand McNally and Company, op. cit., pp. 407-413

¹⁵U. S. Bureau of the Census, op. cit., pp. 354-369.

¹⁶Rand McNally and Company, op. cit., pp. 407-413.

CHAPTER II

MARKETING OF SAW TIMBER

In this chapter an examination is made of some of the characteristics of the forest holdings and the ways of marketing products from these holdings. The intent of this examination is to provide a setting for understanding and evaluating the actions of forest owners with respect to their marketing activities.

The percentage of commercial forest land varied in each of the counties studied (table III). The greater part of this land is held by private owners, of which farmers are the most numerous. In general, the farmers contacted regarded their forest enterprises as being very insignificant although they occupied a large percentage of the total land area on most of the farms (table IV). For this reason the productivity is low, and the income per acre is only a fraction of what it could be under good management conditions. Farmers do little in the way of improving their stands by planting trees, culling inferior trees, and protecting their trees against insects and diseases. In general these people lack the understanding and training and, consequently, the incentive to manage their forest land for maximum yield.

The farms surveyed were larger than the average-sized farm as reported by the 1954 Census of Agriculture, but the per cent of total land in forest on the farms studied was approximately the same as that reported by the census for the county as a whole. Inclusion of the larger-sized farms can be explained by the method in which the sample was taken. Data were collected from only those farms making sales, and certainly the large

TABLE III

TOTAL LAND AREA AND COMMERCIAL FOREST LAND AREA IN THREE SELECTED
COUNTIES OF TENNESSEE, 1948-1950^a

County	Total Land Area	Commercial Forest Land Area	
	Acres	Acres	Per Cent of Total
Hardin	380,800	221,900	58.3
Cumberland	434,500	360,900	83.1
McMinn	278,400	106,700	38.3

^aU. S. Department of Agriculture, Tennessee's Timber Economy,
Forest Resource Report No. 9 (Washington: Government Printing Office,
1955), p. 44.

TABLE IV

AVERAGE SIZE OF FARM SELLING FOREST PRODUCTS AND PER CENT OF LAND IN FOREST IN THREE SELECTED COUNTIES OF TENNESSEE COMPARED WITH AVERAGE SIZE OF FARM AND PER CENT OF LAND IN FOREST ON ALL FARMS IN THOSE COUNTIES, 1954 AND 1956

County	Average Forest Land Per Farm in Study, 1956 ^a		Average Forest Land Per Farm in County, 1954 ^b	
	Average Size of Farms in Study, 1956 ^a Acres	Per Cent of Total Acres	Average Size of Farms in County, 1954 ^b Acres	Per Cent of Total Acres
Hardin	384.5	270.9	117.9	93.9
Cumberland	324.0	245.6	96.6	69.5
McMinn	162.4	73.3	106.3	47.1
				79.6
				71.9
				44.3

^aThis excludes one large owner in Hardin County who reported 19,550 acres of forest land.

^bU. S. Bureau of Census, 1954 Census of Agriculture, Vol. I, Part 20 (Washington: Government Printing Office, 1956).

farms were more likely to have sold forest products because they had a greater volume of timber than did the small farms with only a few acres in trees.

Usual Marketing Practices

Although the methods and procedures used by the landowners when selling forest products were many and varied, only a few instances of well-planned and systematic marketing were observed in this study. Many factors surrounding each sale were relevant to the method of sale and the price received. A few of these factors will be examined to see what their sole and joint effects might have been.

Initiator of Sales

The 234 sales of saw timber were analyzed on the basis of initiator of sale, buyer-initiated sales being ones in which the buyer made the initial approach and seller-initiated sales being ones in which the seller made the initial approach. Of the 234 sales recorded, forty-three (18 per cent) were buyer-initiated (table V). However, it is believed the owner-initiated sales were brought about indirectly by the buyers. The buyers often suggested, in some indirect manner, that the owners would profit by selling their timber, and once the owners were convinced the sale soon followed. The buyers consider themselves in a more favorable bargaining position when they have the owners trying to sell to them. All buyer-initiated sales involved stumpage which brought an average of \$7.00 less per thousand board feet for all species than did the owner-initiated sales (table VI). This readily suggests the buyer-initiated

TABLE V

NUMBER OF SALES OF SAW TIMBER BY NUMBER OF BIDS, AND BASIS OF SALES BY INITIATOR OF SALES, THREE SELECTED COUNTIES OF TENNESSEE, 1946-1956

County	Sale Initiated by	Number of Sales	Number of Bids			No Data	Basis of Sale	
			One	Two	Three or More		Lump Sum	Per Thousand Board Feet
Hardin	Buyer	36	28	3	5	-	7	29
	Owner	111	68	23	19	1	12	99
	Other	9	4	-	3	2	1	8
Cumberland	Buyer	3	3	-	-	-	1	2
	Owner	33	16	7	10	-	6	27
	Other	1	1	-	-	-	-	1
McMinn	Buyer	4	3	1	-	-	-	4
	Owner	37	15	4	18	-	20	17
	Other	0	0	-	-	-	-	-
Total		234	138	38	55	3	47	187
Three-County Total	Buyer	43	34	4	5	-	8	35
	Owner	181	99	34	47	1	38	143
	Other	10	5	-	3	2	1	9

TABLE VI

PRICE PER THOUSAND BOARD FEET BY INITIATOR OF SALE
AND BY TYPE OF PRODUCT IN THREE SELECTED
COUNTIES OF TENNESSEE, 1946-1956^a

Initiator of Sale	Value of Saw Timber Per Thousand Board Feet		
	Single Species	Mixed Species	Average for all Species
Buyer	\$15.89	\$16.64	\$16.45
Owner	23.99	23.04	23.45

^aThe three selected counties are Hardin, Cumberland, and McMinn.

sales were less profitable to the landowner. However, this does not mean that the price was lower simply because the buyer made the first contact. It does mean that this is one of the many poor selling practices the producers are following in the marketing of their forest products.

Number of Bids

Data from the survey show that of the buyer-initiated sales, 79 per cent of the landowners sold after receiving only one bid (table VII). Thus it appears that usually the buyer's approach and offer was immediately followed by the owner's acceptance and that the owner sought no advice or assistance nor did he seek competitive bids from other buyers. Owners who reported selling saw timber at the stump after receiving three or more bids received \$8.04 more per thousand board feet than did owners selling after only one bid. The owners selling at the mill yard after receiving three or more bids received \$3.68 more per thousand board feet than did the owners selling on the basis of one bid only.

The data suggest that the owner-initiated sales followed more competitive bidding and thus resulted in a higher return to the landowner. They do not indicate, however, that the owner-initiated sales were wholly logical, because one-fifth of the owner-initiated sales were on a lump-sum¹ basis without a cruise.² Regardless of who initiated the sale, the buyers

¹"Lump-sum" or "boundary" sales are terms used for the sale of all timber of a specified species and size within an agreed boundary for which a lump sum of money is paid rather than a stated price per unit of timber.

²A cruise is a survey of forest land to locate timber and estimate its quality by species, products, size, quality, or other characteristics.

TABLE VII

NUMBER OF SALES OF SAW TIMBER BY NUMBER OF BIDS AND BASIS OF SALES BY INITIATOR OF SALES, THREE SELECTED COUNTIES OF TENNESSEE, 1946-1956

County	Sale Initiated by	Number of Sales	Per Cent of Sales	Number of Bids Per Cent				Basis of Sale Per Cent	
				One	Two or Three	No Data	Lump Sum	Per Thousand Board Feet	
Hardin	Buyer	36	23	78	8	14	-	19	81
	Owner	111	71	61	21	17	1	11	89
	Other	9	6	45	-	33	22	11	89
Cumberland	Buyer	3	8	100	-	-	-	33	67
	Owner	33	89	49	21	30	-	18	82
	Other	1	3	100	-	-	-	-	100
McMinn	Buyer	4	10	75	25	-	-	-	100
	Owner	37	90	41	10	49	-	54	46
	Other	-	-	-	-	-	-	-	-
Total		234	100	59	16	24	1	20	80
Three-County Total	Buyer	43	19	79	9	12	-	19	81
	Owner	181	77	55	18	26	1	21	79
	Other	10	4	50	-	30	20	10	90

found themselves in a favorable buying position because of the owners' inexperience and general lack of information on timber marketing and the procedures involved. Another factor contributing to an owner's inability to command a favorable bargaining position was his reluctance to ask for professional aid. Less than 10 per cent of the landowners interviewed had ever received any professional aid in connection with the marketing of their forest products.

Marketing Practices in Hardin County

The number of sales which were buyer-initiated varied in each of the counties, with Hardin County reporting thirty-six sales of this type (table VII). This indicates the buyers of Hardin County take more of the initiative in locating their raw materials than do buyers in the other two counties. In Hardin County the buyer-initiated sales resulted in a higher price per thousand board feet than did the owner-initiated sales. This was contrary to the general price pattern in the other two counties. This price difference could be accounted for by the sales in Hardin County and the shrewdness of the buyers there. Some type of share agreement between buyer and seller was the basis for 35 per cent of all sales recorded in the county. The owner and buyer would agree on the percentage each would receive from the sale of the manufactured products, which in most cases were lumber and cross ties. The sawmiller would move his small portable mill to the tract of timber and take charge of all harvesting, milling, and selling activities. When the finished products were manufactured, they were sold at nearby markets. This resulted in a higher

price per thousand board feet to the producer because the miller knew what products to manufacture and where to sell them to receive the highest income.

Marketing Practices in Cumberland County

The price received per thousand board feet at the stump ranged from \$9.72 to \$25.87 in Cumberland County. The low price received in Cumberland County can be partially attributed to repeated burning, and the prevalence of inherently low-quality species. In Cumberland County it is reported that one out of every five hardwood trees eleven d.b.h.³ or larger is a cull, and that one out of every six hardwood trees five to eleven d.b.h. is likewise.⁴ It naturally would be expected that the price would be low due to the vast number of cull trees present, but other factors contributed to the reported low price. The prospective buyer would naturally take these conditions into consideration and set his price in accordance with the time and effort he would expect to encounter in harvesting. Although he would not consider these cull trees as part of the volume of timber he is buying, the price would be set lower because of the difficulty he expects to encounter in harvesting.

Twenty sales (54 per cent) were transacted on the basis of one bid only, and seven sales (19 per cent) were for a lump-sum payment. Since

³D.b.h. is tree diameter in inches, outside bark, at four and one-half feet above ground.

⁴Tennessee Valley Authority, Forest Resources and Industries, Cumberland and Morgan Counties, Tennessee, Report No. 210-53 (Norris: Division of Forestry Relations, March 1953), p. 18.

none of the lump-sum sales were preceded by a cruise or any other type of volume estimation, it is likely they sold at prices considerably below their true value. The need for money was the reason given for making the sale in over 50 per cent of the cases studied. It would appear that the low prices received in Cumberland County could be attributed to a combination of poor marketing practices and low quality materials.

Marketing Practices in McMinn County

There were forty-one sales of saw timber reported in McMinn County. Of this number, thirty seven (90 per cent) were owner-initiated. Twenty (54 per cent) of this group were for a lump-sum payment. The average lump-sum payment was \$2405 with a range from \$275 to \$10,000.

When selling logs at the stump, the owner-initiated sales brought \$2.35 more per thousand board feet than did the buyer-initiated sales. Part of this increase in price can be attributed to the number of bids received before selling. Eighteen (49 per cent) of the owners initiating the sale received three or more bids before selling.

Two sales with a combined total of 475,000 board feet were made after the tracts had been cruised by a professional forester. One tract was sold for a lump-sum payment and the other was sold by the thousand board feet. The owner selling by the thousand board feet received an average of \$30.00 per thousand at the stump, which was \$6.32 more than the average price paid in the county. The owner who sold for a lump-sum did so after receiving four competitive bids. It is apparent that these

owners realized the need for professional aid in marketing and preceded the sale by a cruise. The information thus provided gave them an advantage in selling.

Volume Harvested and Price Received

While there are exceptions, there does appear to be some relationship between volume harvested per acre and price received. The exception observed was that the average price received for saw timber at the stump was less when between 1,000 and 5,000 board feet were harvested per acre than when less than 1,000 or more than 5,000 board feet were harvested per acre (table VIII). There is evidence that some of the sales involving less than 1,000 board feet per acre were of a few select trees of above average quality which would be expected to bring a higher price. In the case of the greater volume per acre, it is suspected the owners realized the need for extra precautions and good business principles in marketing and thus realized greater income from their timber sales.

The landowners selling saw logs at the mill yard received a higher price for a single species than for mixed species. This could be expected because the single species marketed were mainly high-quality pine, oak, cedar, and poplar. There was no apparent difference in sale price, regardless of the amount harvested per acre, when the logs were sold at the mill yard. Hardin County had the greatest percentage of owners selling logs at the mill yard on the basis of one bid only. This can be partially attributed to the buying practices of one firm located in

TABLE VIII

PRICE OF SAW TIMBER PER THOUSAND BOARD FEET BY AMOUNT HARVESTED PER ACRE AND TYPE OF PRODUCT,
IN THREE SELECTED COUNTIES OF TENNESSEE, 1946-1956^a

Board Feet Per Acre	Number of Sale	Logs at the Stump			Logs at the Mill Yard		
		Mixed Species	Single Species	Average all Species	Mixed Species	Single Species	Average all Species
1-1000	35	\$28.32	\$14.13	\$26.80	\$28.92	\$53.54	\$31.14
1000-2500	34	19.83	17.58	18.96	24.74	35.66	28.60
2501-5000	19	18.52	25.56	20.95	32.20	-	32.20
Over 5000	14	27.02	26.99	27.00	-	47.50	47.50

^aThe three county averages are for Hardin, Cumberland, and McMinn.

the county.⁵

Volume of Sale

The average volume of saw timber per sale and the price received varied considerably over the study areas. The sales in Cumberland County involved the largest volume of saw timber, whereas the sales in Hardin County involved the smallest (table IX). This would not be expected from the farm size and the amount of forest land per farm, but it must be remembered that Hardin County had a multitude of owners selling small amounts of logs at the mill yard. The volume cut per acre in Hardin County was low in comparison to the other counties. This cannot be accounted for by the difference in volume per acre because Hardin County stands averaged 570 cubic feet per acre,⁶ and Cumberland County stands averaged only 548 cubic feet per acre.⁷ Once again, it is believed that the large number of owners having their timber harvested on a share basis is partially responsible for this difference in volume harvested per acre. It is of mutual benefit to both buyer and seller to harvest only the trees which have reached financial maturity when they are both sharing in the final returns.⁸ This is not the case with buyers purchasing timber on a

⁵One large firm in Savannah, Tennessee, bought logs of mixed species and used them in the manufacture of beverage cases. It frequently bought small quantities of logs delivered to the mill by owners clearing a few trees from the boundary of a field.

⁶Tennessee Valley Authority, Forest Inventory Statistics for Hardin County, Tennessee, Forest Bulletin No. 45 (Norris: Division of Forestry Relations, September 1956), p. 1.

⁷Tennessee Valley Authority, Forest Inventory Statistics for Cumberland County, Tennessee, Forestry Bulletin No. 20 (Norris: Division of Forestry Relations, May 1952), p. 1.

⁸Financial maturity is the stage beyond which the expected value increase no longer equals or exceeds the net return possible.

TABLE IX

AVERAGE VOLUME PER SALE, THOUSAND BOARD FEET PER ACRE, RECEIPTS
PER ACRE FOR SAW TIMBER IN THREE SELECTED COUNTIES OF
TENNESSEE, 1946-1956^a

County	Volume Cut Per Sale Board Feet	Volume Cut Per Acre		Receipts Per Acre	
		Stump	Mill Yard	Stump	Mill Yard
		Board Feet		Dollars	
Hardin	51,718	786	811	\$22.05	\$30.33
Cumberland	81,938	1080	2317	29.35	72.14
McMinn	69,150	4872	1000	151.11	27.31
Three-County Average	61,684	1153	896	32.27	32.26

^aAll of the averages given are "weighted" averages.

lump-sum basis; they will generally remove as much of the market material as possible without giving any thought to future production and returns. Such destructive marketing practices in past years definitely affect the quantity and quality of saw timber being marketed at the present time.

Sustained Yield Plans

Of the 215 forest land owners contacted, only thirteen (6 per cent) had plans for sustained yield.⁹ The average size farm of the owner with sustained yield plans was 934 acres with 723 acres (77 per cent) being considered forest land. This is in contrast to the owner without sustained yield plans whose farm size averaged 272 acres with 173 acres (64 per cent) in forest.

Regardless of where the products were sold, the owners planning for sustained yields were receiving more per acre and more per unit for their saw timber than were owners with no plans for sustained yield (table X). This difference amounted to \$3.56 per thousand board feet for the owners selling their saw timber as stumpage. The difference was not nearly so noticeable for owners selling logs at the mill yard. Under this system of marketing the owners with sustained yield plans received \$29.90 per thousand board feet compared to \$29.39 per thousand board feet received by the owners without sustained yield plans. This suggests that those owners who are following the sustained yield plan are selling a higher grade product and doing a better job in marketing.

⁹Sustained yield means management of a forest for continuous production with the aim of achieving an approximate balance between annual net growth and harvest at a reasonably high level of production.

TABLE X

AVERAGE FARM SIZE, FOREST LAND PER FARM, INCOME PER ACRE, AND
INCOME PER THOUSAND BOARD FEET FOR THREE SELECTED
COUNTIES OF TENNESSEE, 1946-1956^a

Average	Place of Sale	Plan Yield ^b	Do Not Plan Sustained Yield ^b
			<u>Acres</u>
Total Acres of Land	-	933.7	271.5
Acres of Forest Land	-	722.5	173.2
			<u>Dollars</u>
Income Per Acre from Logs	Mill Yard Stump	\$49.97 \$40.68	\$30.27 \$31.18
Income Per Thousand Board Feet from Logs	Stump Mill Yard	\$25.50 \$29.90	\$21.94 \$29.39

^aThe three county averages are for Hardin, Cumberland, and McMinn.

^bThese averages exclude one large owner with 20,000 acres of which 19,550 acres are in forest.

It must be remembered that it is easier to manage large tracts for sustained yield, and for this reason it would be expected that the large owners would be more likely to have sustained yield plans. This is in accord with the data collected in this study. It must also be remembered that if sustained yield is to be worthwhile, it must be at a reasonably high level. Mere balance of timber cut and growth at some low level is of no economic benefit.

CHAPTER III

FIRST-BUYERS OF FOREST PRODUCTS IN STUDY AREAS

This chapter will be concerned with sawmill owners as first-buyers of forest products. Frequently they have earned the reputation of practicing methods of harvesting and milling that are neither conservative nor efficient. It is hoped that this study will reveal both the strong and the weak points of the sawmill business and be of value in planning future business operations and in making the best use of the timber resources. It is not intended to scrutinize the ethical standards of the millers in any way, although it is believed that improvement of certain practices by the millers would certainly be advantageous to the entire timber industry in the long run.

Size of Purchases

As noted in the scope of the study, 143 first-buyers of forest products were contacted in the three counties. Of this number 100 were designated as sawmill operators on the basis of their operational characteristics.

The number of mills and the amount harvested per mill on a yearly basis varied with the individual counties. Hardin County reported a total of forty-four mills. Six of this number harvested over a million board feet each per year (table XI). McMinn County had twenty-four sawmills none of which cut over a million board feet per year. It is believed this difference in number of mills and volume harvested per mill is too

TABLE XI

LOCATION OF COMMERCIAL SAWMILLS AND VOLUME HARVESTED IN THREE
SELECTED COUNTIES OF TENNESSEE, 1955-1956

County	Number of Sawmills	Volume Harvested in Thousand Board Feet (Number)					Over 1,000	No Data
		1-100	101-250	251-350	351-500	501-1,000		
Hardin	44	11	8	8	6	1	6	4
Cumberland	32	11	8	5	2	6	0	0
McMinn	24	6	5	3	4	6	0	0
Three-County Total	100	28	21	16	12	13	6	4

great to be attributed entirely to the variation in the forest resources available in the different counties. It seems highly probable that some of this difference can be attributed to the methods used in marketing now and in past years. The large number of millers (50 per cent) cutting on a share basis in Hardin County encouraged the owners to market their timber, because little effort and risk was involved in transacting the sale. Also, the share method of harvesting and selling involved less working capital and risk for millers; hence it encouraged entry into milling by farmers and others as a sideline business. It was a simple matter of deciding on the share each would receive as compared to arriving at a lump-sum price for a boundary sale. The ease of negotiating the sale plus the fact that the millers who cut on shares tended to cut only the larger trees resulted in more sales in Hardin County.

Sawmill Operations

The majority of millers contacted (88 per cent) were operating small portable mills on a full or part-time basis. Seventy-four per cent of the millers reported being at their present locations less than twelve months. They moved the mills from tract to tract rather than haul the logs a great distance. In general, the millers did not haul logs over one mile; it was a very common practice for a mill to be moved two or three times while cutting a boundary of timber.

Regardless of the size of the operation, there appeared to be inefficient practices employed by the majority of the mills. Often it was necessary to stop sawing to load lumber or ties on a truck for delivery

to the concentration yard, or the rest of the crew remained idle while the sawyer filed the headsaw. By arranging the work-schedules of the employees in a different manner, the mill might have had more sawing time.

The mills contacted had an average daily plant output of 5,784 board feet, with a range from 4,525 in Cumberland County to 6,920 in Hardin County (table XIII). This difference in daily production can be attributed to the size of mill, number of workers, and type of saw timber being harvested.

The average volume harvested per mill was greatest in Hardin County. This was partially accounted for by the number of days the mills were in operation during the year. Hardin County had fourteen mills (32 per cent) operating over 180 days during 1955, whereas Cumberland County had but three mills (9 per cent) and McMinn County had three (12 per cent). The period of operation was generally over the entire year, but was more concentrated during the summer and winter seasons. Sixty-eight per cent of the millers reported operating some other enterprise along with the sawmill business. Many millers were farmers who operated their mills during slack seasons. The sawyers were usually experienced men, but other members of the crew were generally seasonal workers with little or no experience and training. Frequently a mill was operated as a family unit with the father being the sawyer and the sons performing the other jobs. In such cases it was a common practice to employ an extra man when sufficient family labor was not available. Such family enterprises usually supplemented the farm income during slack seasons and were thought of as being secondary to farming.

TABLE XII

NUMBER OF WORKERS, OUTPUT PER WORKER, AVERAGE DAILY PLANT CAPACITY, AVERAGE YEARLY VOLUME HARVESTED PER MILL IN THREE SELECTED COUNTIES OF TENNESSEE, 1955-1956

County	Average Number of Workers	Daily Output Per Worker	Daily Plant Capacity Board Feet	Average Yearly Volume Harvested
Hardin	6.7	419.2	6920	490,190
Cumberland	4.5	498.6	4524	281,625
McMinn	4.9	624.4	5333	391,750
Three-County Average	5.5	516.6	5784	395,358

Mill Output Per Man-Day

The output per man based on an eight-hour working day varied with the different mills located in the three-county study area. The output per man-day with the portable mill was 529 board feet compared to an output of 308 board feet per man-day with the permanent type of mill. This difference in output per worker can be partially explained by the fact that the permanent type of mills generally produced a better quality product which required extra effort on the part of the workers. Generally the permanent type of mills were equipped with edgers and planers, but these extra services were not reflected in the output per worker. For this reason, although the portable mills were actually producing more board feet per worker, the product was inferior and worth less money than the product produced by the permanent type of mills.

The mills employing from six to ten men in the crew were producing an average of 637 board feet per man-day. This was a higher production than was the case with mills employing either less than six men or more than ten. The mill crew of less than six men averaged 575 board feet and the crew of more than ten men averaged only 227 board feet per man-day. Again it is thought the production was extremely low by the large mill crews because of the added services being performed by the larger mills. Therefore, the output per man-day is not a true reflection of the efficiency of the mill and its workers.

The mills which continued milling activities throughout the year were producing 525 board feet per man-day compared to the seasonally operated mill which produced only 447 board feet. Continuous operation of the mill may have accounted for the greater output per worker, but

numerous factors would have to be taken into consideration before this could be made into a positive statement.

Quality Requirements

The millers contacted reported that they gave very little thought to quality when purchasing the raw material. Sixteen millers indicated that they had specified a certain quality requirement when purchasing the raw material. Those millers were interested in making high-grade products for which they could obtain a premium price.

The millers specifying quality requirements when purchasing the saw timber had an annual cut of over one hundred thousand board feet more than did the millers not specifying quality requirements (table XIII). Also the millers indicating they made certain quality requirements in the purchase of their raw material had been in the milling business for a longer period than had the millers not doing so. It is believed this seniority enabled the millers to establish markets for higher quality products and thus put them in a position to pay a higher price for the desired quality of saw timber. They were willing to pay more for clear, high-grade logs that would yield high-grade lumber, or possibly veneer.

It is significant that only three of the sixteen millers who reported specific quality requirements in their buying policy reported buying on a grade basis. This data suggest that either there is no adequate grading system known to buyers and sellers or that buyers are able to secure adequate amounts of the various grades desired without price differentials based on grade.

TABLE XIII

QUALITY REQUIREMENTS, NUMBER OF YEARS IN MILLING BUSINESS, DAILY PLANT CAPACITY, VOLUME CUT, AND GRADING SYSTEM OF MILLERS IN THREE SELECTED COUNTIES OF TENNESSEE, 1955-1956^a

Quality Requirements	Number of Mills	Average Years in Business	Average Daily Plant Capacity	Average Volume Cut in 1955	Buy on Grade Basis	
					Yes	No
Specified Quality	16	16.0	5367	501,800	3	13
Sawed Market Material	78	13.5	7917	385,766	12	66
No Data	6	12.3	5167	236,200	1	5

^aThe three selected counties are Hardin, Cumberland, and McMinn.

Data from this study suggest that competition for raw materials among buyers is already acute and promises to become more so. Therefore, it would be expected that more emphasis would be placed on grade in the future and that the premium price paid for the better grade materials would be the incentive that would prompt the producer to grow trees that would command a higher price when marketed.

Grading System

Only sixteen per cent of the millers purchased logs on a grade basis, and even those few did not have a standard grading system. The grade of the log was determined in most cases while examining the log in the process of scaling. The size and soundness of the log usually determined its grade. In the majority of cases, the millers would quote a certain price per thousand board feet for a certain length of log. The millers indicated their willingness to pay premium prices for high-quality logs, but it was a common practice to pay a uniform price for the entire load. When asked about this practice, the millers explained that a seller had rather be quoted a certain price for all logs than a specific price for certain logs of a given quality. This one-price policy permitted the millers to buy logs on an average price-and-grade basis and to up-grade some of the products after they had been manufactured. This policy does not offer an incentive to producers of high-quality products. It appeared the millers often set price in relation to what they believed the owners would accept rather than to the quality of the logs.

Sales Contracts with Producers

Sales contracts did not appear to be popular among the millers. Fifty-five per cent reported entering into sales involving a contract during 1955, but the majority stated their preference was not to use one. The lump-sum sales almost always involved a contract. The miller and seller would usually have the contract prepared by a local law firm and each would pay his share of the expense. Seventeen millers reported using self-prepared contracts for all sales. In a few cases the miller prepared the contract and the seller signed without knowing its contents. This type was usually not satisfactory because it did not provide the protection needed by both seller and buyer.

The greatest number of sales involved only a verbal agreement. In many cases the agreements were carried through satisfactorily, but in a few cases conflict arose. The most frequent disagreement was over the condition of the trees remaining in the forest. Often too the millers and owners did not agree as to the route by which the logs should be hauled out of the woods.

Future Supply

There appeared to be great doubt in the minds of the millers contacted regarding the future supply of saw timber for milling purposes. Seventy-nine indicated they did not believe there would be a supply sufficient to meet their needs over the next ten years (table XIV). Contrary to what might be expected, the millers harvesting the greatest yearly volume were the ones who expected the supply to last. One possible

TABLE XIV

AVAILABILITY OF FUTURE TIMBER SUPPLY AS RELATED TO MILLING ACTIVITIES IN THREE
SELECTED COUNTIES OF TENNESSEE, 1955-1956^a

Will There be a Future Supply Available	Number of Millers	Average Number of Years in Business	Average Daily		Average Volume Harvested Per Year
			Plant Capacity	Board Feet	
Yes	19	11.3	5500	566,368	
No	79	14.4	5816	313,500	
No Data	2	15.0	7250	1,912,500	

^aThe three counties are Hardin, Cumberland, and McMinn.

explanation would be that they were the ones paying the highest prices and were experiencing less difficulty in obtaining their raw materials. Of the seventy-nine millers indicating they did not believe the supply would be ample, only twenty-six were offering any type of service or advice to the landowners that might enable them to improve and increase their future timber supply.

Service and Advice

Thirty-six millers indicated they had offered some type of service or advice to the landowners. This help was usually nothing more than advising the owner not to let livestock graze the timber land, or advising him of the harmful effects of fire. A few millers indicated they advised owners not to harvest thrifty-growing young stands, but to wait until the stands reached maturity and became more valuable. The millers who had been in the business the fewest number of years were the ones who were offering advice for timber improvement. Their average daily plant capacities and average yearly volumes were above those of millers not offering any service or advice to the landowners (table XV).

Selling Practices

The selling practices of the millers were as varied as the millers themselves. Some were working under a contract with a large concentration yard while others were operating independently. Often the millers sought financial aid from the yards to which they intended to sell. In such cases the concentration yard buyer would cruise the boundary of timber and,

TABLE XV

SERVICE OR ADVICE GIVEN LANDOWNERS BY MILLERS AS RELATED TO MILLING ACTIVITIES
IN THREE SELECTED COUNTIES OF TENNESSEE, 1955-1956^a

Service or Advice Given	Number of Millers	Average Number Years in Business	Average Daily	Average Yearly
			Plant Capacity	Volume
			Board Feet	
Yes	36	12.0	6305	433,742
No	64	14.8	5492	374,693

^aThe three counties are Hardin, Cumberland, and McMinn.

if he thought it a sound investment, he would advance the needed money to the miller to purchase the boundary. The miller was then obligated to sell the lumber to that concentration yard for a stipulated price.

Sixteen millers in Cumberland and McMinn counties were being financed by the purchaser and in all cases they were obligated to sell a portion or all of the products to him. It is believed this resulted in a lower price to the sellers because they were not in a favorable bargaining position. However, the millers were free to negotiate deals with whichever concentration yard offered the most advantageous working agreement. Therefore some degree of competition did exist among the concentration yards for working relations with the millers, which resulted in higher prices to the owners than would have been possible if the millers had been dependent upon a single concentration yard for financial assistance. Thirty-two per cent of the millers were dependent upon local concentration yards within their respective counties for the sale of their manufactured products.

Much of the lumber was sold as "mill run" in green condition. This marketing practice was preferred by owners of the smaller sawmills because it represented a quicker turnover of capital.

CHAPTER IV

MARKETING OF PULPWOOD

The magnitude of the pulpwood industry varied greatly in the three counties studied. In Cumberland and McMinn counties the harvesting and marketing of pulpwood was a frequent operation of many of the landowners, but was only an occasional practice by a few owners in Hardin County.

There seemed to be a great deal of uncertainty in the minds of landowners interviewed as to the details of pulpwood marketing. Perhaps this was due in part to the fact that the species and accepted types of pulpwood vary with the locality. Also contributing to the confusion were the measurement practices being employed. Both the unit measure of 160 cubic feet and the standard cord of 128 cubic feet were used in measuring pulpwood at local concentration yards. Often the landowners were not aware of the measuring system being used, and became confused about price differences which existed at different concentration yards.

In the counties studied, Bowaters Southern Paper Corporation and Rome Craft Company were buying the pine pulpwood through local agents and dealers. The Mead Corporation and Southern Extract Company were buying species other than pine. The pulpwood mill operators adjust the flow of pulpwood to their mills through a quota system with the agents and dealers who contract to supply them with pulpwood. Mill inventories are thereby turned over fairly rapidly, and consumption, inventory, and harvest of pulpwood are held in fair balance.

Marketing Pulpwood in Hardin County

The Producers

In Hardin County only four people reported sales of pulpwood. However, each of these people had made more than one sale. Two had sold pine only, while one sold both pine and peeled oak; the fourth had sold unpeeled mixed softwoods. The small number of sales of pulpwood can partially be accounted for by the fact that the hauling distance to the nearest concentration yard was approximately thirty miles. Two of the sales, involving 77 per cent of the total volume reported in Hardin County, came from the harvest of tops left by the cutters of saw timber. The pulpwood cutters were paying the owner two dollars per cord for the tops left in the woods. The owner had an agreement with the pulpwood purchaser at the local concentration yard whereby the two dollars per cord was withheld when making payment to the cutters. The other two sales reported were made by the landowners. One owner was thinning a stand of young pine, and by selling pulpwood it was possible to make the thinning a more economical operation. The other sale involved a small amount of unpeeled softwood which was removed from the boundary of a cultivated field.

The farms from which pulpwood was sold had about one-fourth as much timberland acreage as did the farms from which saw timber was sold. There was an average of 2.5 cords of pulpwood harvested per acre, and this gave an income of \$34.63. The average price received for pulpwood at the concentration yard was \$13.73 per cord with a range from \$13.00 to \$17.00. Mixed unpeeled softwoods sold for \$13.00 per unit (160 cubic feet) and peeled oak sold for \$17.00 per unit. Pine pulpwood ranged from \$13.00 to

\$14.25 per cord (128 cubic feet), depending on the location of the concentration yard.

There was a noticeable difference in the income per acre of the landowner who had definite forest plans¹ and the other three landowners who did not have. The landowner with definite forest plans was thinning his pines and received \$65.00 per acre compared to \$32.82 per acre received by the landowners without definite forest plans.

The Buyers

Five buyers of pulpwood were interviewed in the Hardin County area. Four were local buyers working on a commission basis for a pulp mill, and one was a company operated yard. None were located in Hardin County, but all had recently purchased pulpwood produced in Hardin County. They were buying an average of 2,900 cords per year, but only a small portion of this was coming from Hardin County. Two commission buyers were buying solely for The Mead Corporation, while one was purchasing materials for both The Mead Corporation and Bowaters Southern Paper Corporation. They bought according to company specifications and received a commission ranging from \$1.00 per cord to \$1.50 per unit. They were working under a quota agreement, and the buyers did local advertising in newspapers and by means of handbills to the extent necessary to obtain the amount of pulpwood needed. They reported buying some pulpwood which had been hauled a distance of sixty miles.

¹Landowners were considered to have definite forest plans when applying any of the following practices: Planting, thinning, pruning, weeding, improvement cutting, or girdling and poisoning.

Marketing of Pulpwood in Cumberland County

The Producers

More sales of pulpwood were recorded in Cumberland County than any other in the study areas. Twenty-three of the twenty-nine sales reported were made in 1956; the other six were made in 1955. Nine of the sales were landowners selling the pulpwood at the stump for a certain price per unit. The average payment to the landowner was \$2.85 per unit with the price ranging from \$2.00 to \$4.00 (table XVI). The stumpage price depended upon the buyer's cutting, hauling and loading costs and his bargaining ability. Two-thirds of the landowners had contact with more than one buyer before selling the pulpwood, but the number of bids received had no significant effect upon the sale price. The owners receiving two or more bids averaged \$2.90 per unit compared to \$2.75 per unit received by owners having only one bid. The standard error of the difference between these two averages, estimated from the ranges shown in table XVI, is approximately sixty cents. Therefore the difference of fifteen cents would be insignificant. The small number in the sample must be considered too when interpolating from these data. It must also be noted that the average volume of each sale preceded by two or more bids is almost twice as great as sales which had only one bid. Therefore, it is believed that not one but many factors play a part in setting the sale price.

Twenty sales (69 per cent) were made by the landowner at the local concentration yard. The average price at the yard was \$18.89 per unit with a range from \$15.30 to \$20.00. The price received was determined by the species. Peeled oak sold for \$20.00 per unit and unpeeled softwoods

TABLE XVI

TWENTY-NINE SALES OF PULPWOOD BY NUMBER OF BIDS RECEIVED AT STUMP OR CONCENTRATION YARD, CUMBERLAND COUNTY, 1955-1956^a

Number of Bids	Number of Sales	Average Per Sale		Range of Prices Received Per Unit
		Quantity Cut in Units	Price Received ^a Per Unit	
		At Stump		
1	3	38.6	\$2.75	\$2.00 - \$3.50
2 or More	6	60.8	2.90	2.00 - 4.00
Average	9	53.4	2.85	2.00 - 4.00
		At Concentration Yard		
1	17	10.2	\$19.10	\$17.50 - \$20.00
2 or More	3	9.0	17.74	15.30 - 20.00
Average	20	10.0	\$18.89	\$15.30 - \$20.00

^aIn the calculations of average price the volume of each of the sales was not taken into consideration.

sold for \$15.30. The number of bids received by the owners before selling at the concentration yard had no significant effect on prices received. The standard error of the difference was approximately \$1.60. Therefore, the difference of \$1.36 in average price was not significant. There was an average income of \$38.17 per acre for pulpwood harvested by the owner and sold at the concentration yard.

The owners were the initiators of all sales involving pulpwood. This is thought to be attributed to the procurement policies of pulpwood buyers, plus the fact that the owners contacted were in dire need of money. As long as the pulpwood buyers were able to procure adequate supply of pulpwood without going out to hunt sellers, they preferred to let the sellers contact them, because less cost was involved. In about fifty per cent of the sales, the owner's need for money was the motive which prompted him to sell. This is in support of the hypothesis that timber owners often sell to meet financial obligations rather than selling according to some systematic plan.

Conspicuous is the fact that the average volume harvested per acre by the landowner selling at the concentration yard was 2.1 units compared to 1.7 units harvested per acre when the landowner sold the pulpwood at the stump. This difference is assumed to arise from the fact that the landowners are more selective in their cutting and remove more of the culls or undesirable trees. When purchasing pulpwood at the stump, the cutter is paying a stipulated amount per unit measured at the concentration yard, and it is to his advantage to cut the most desirable trees and leave those which require added effort in harvesting.

Not one of the sellers of pulpwood had any plans for a sustained yield from the forest, although a few owners did express the idea that more and better saw timber could be produced by thinning the young trees. In general the owners were cutting those areas that were most readily reached by truck. In the majority of sales it is believed that little thought was given to timber improvement, but that expected dollar return was the determining factor in what areas were cut and how they were cut. The owners with definite forest plans who sold their pulpwood at the stump were receiving less per acre than the owners without definite forest plans. This would be expected because the owners without plans were clean-cutting their forests and giving no thought to future production, whereas the owners with definite forest plans were cutting by some conservative plan with hopes of improving the timber stand and receiving greater incomes in the long run.

The Buyers

The pulpwood buyers contacted in Cumberland County were primarily of two types. One type was the local person who would buy pulpwood at the stump from the landowner, and the other type was the local concentration yard which had direct ties with some particular pulp mill. The pulpwood buyers dealing directly with the landowners were independent or semi-independent men who did the actual buying, cutting, and hauling of pulpwood. They were usually part-time farmers or farm laborers who were supplementing their incomes during slack seasons by cutting and selling pulpwood. In the majority of cases the landowner would contact the buyer and together they worked out an agreement whereby the cutter would pay a certain price

per unit for the pulpwood. This payment was made after the wood had been delivered to the concentration yard and the cutter had received his pay. In some instances the landowner demanded payment in advance of cutting, and in such cases it was a frequent thing for the concentration yard buyer to furnish the cutter with money to pay the landowner. In these cases the concentration yard buyer remained in the background and the cutter negotiated the deal with the landowner. Regardless of the payment method or the type of financing used, the cutters were not required to have very much capital. It was a common practice for two people to form a pulpwood buying and cutting team. One would furnish a power saw and the other would furnish a truck, and by working together the harvesting of pulpwood became a more economical operation.

The concentration yard buyers were either pulp mill employees working on a straight salary, or they were men buying for a pulp company on a commission basis. In all cases they reported having direct ties with the pulp company and could buy only the quantity and quality specified by the particular company. There were a number of concentration yards located throughout the county along the Tennessee Central Railroad. All the yards were paying a uniform price for certain species, and in the majority of cases the hauling distance was the factor which determined where the pulpwood was marketed.

Marketing of Pulpwood in McMinn County

The Producers

The practices used in the marketing of pulpwood in McMinn County closely resembled those being used in Cumberland County. A noticeable

exception was in the species of wood marketed. Pine was the predominant species marketed in McMinn County. This was due in part to the fact that pine comprises a large per cent of the total forest area, and that a pine-using pulp mill is located in the county.

In McMinn County twenty-three landowners were interviewed who had sold pulpwood either during 1955 or 1956. Of this group, three reported making two sales during this period, thus giving a total of twenty-six sales. Sixteen of the sales (61 per cent) were made by landowners selling pulpwood at the stump for a certain price per cord or pulpwood unit. The average price per cord was \$5.18, and the average price per unit was \$4.70 (table XVII). The difference in price is attributed to the fact that generally pine pulpwood was sold by the cord and mixed softwoods were sold by the unit. Although the volume of wood was greater in the pulpwood unit, it brought less money because it was composed of less desirable species.

When the buyer initiated the sale involving pulpwood at the stump, the price paid the landowner was greater than when the owner initiated the sale. There is a possibility the difference in price between buyer-initiated sales and owner-initiated sales on a per cord basis may be misleading due to the small number of sales being considered. Only 25 per cent of the sales at the stump were buyer-initiated. The number of bids received before selling seems to have had little or no effect upon the sale price regardless of who initiated the sale. None of the sales involved a written sales contract. This indicates either that the sellers had complete trust in the buyers or else they did not think about having a contract for protective purposes.

TABLE XVII

AVERAGE QUANTITY OF PULPWOOD CUT, PRICES RECEIVED, AND RANGE OF PRICES RECEIVED, TWENTY-SIX SALES BY NUMBER OF BIDS RECEIVED AT STUMP OR CONCENTRATION YARD, MEMINN COUNTY, 1955-1956

Number of Bids	Number of Sales		Average Per Sale		Range of Prices Received	
	Cord	Unit	Quantity Cut Cord	Price Received ^a Cord	Unit	Unit
1	7	5	70.3	\$5.21	\$4.90	\$2.50-\$10.00
2 or More	3	1	47.6	5.11	4.25	4.33- 6.00
Average	10	6	63.5	\$5.18	\$4.70	\$2.50-\$10.00
<u>At Concentration Yard</u>						
1	8	2	13.5	\$14.67	\$14.84	\$12.00-\$17.19
2 or More	-	-	-	-	-	-
Average	8	2	13.5	\$14.67	\$14.84	\$12.00-\$17.19

^aIn the calculation of average price the volume of each sale was not taken into consideration.

Ten sales (39 per cent) were made by the landowners at the concentration yard. Seven of these sales were of pine pulpwood which brought an average of \$17.14 per unit with a price range from \$17.00 to \$17.19 per unit. The other three sales were mixed woods which brought an average price of \$12.50 per unit.

Owners selling pulpwood at the stump received \$37.78 per acre compared to \$31.99 per acre received by the owners selling at the concentration yard. This would appear misleading if the conditions surrounding the different types of sales were not investigated. Owners selling at the concentration yard were clearing from fence rows and field boundaries or were doing improvement cutting, whereas the owners selling at the stump were letting the cutters remove all market material from a certain area. This fact is further substantiated by the number of cords harvested per acre under the different methods of sale. The pulpwood sold at the stump produced an average of 7.8 cords per acre compared to 2.3 cords harvested per acre by the owners selling at the concentration yard.

The owners without definite forest plans were receiving more per acre when selling at the stump than were the owners with definite forest plans. As was the case in Cumberland County, this would be expected because the owners without plans were having everything cut which would make market material. The same is true of owners who have plans for sustained yield from the forest. The owners with sustained yield plans were receiving an average of \$11.60 less per acre than the owners who did not plan for sustained yield. The owners with sustained yield plans were giving up income in the present period with hopes of receiving a much greater return in the future.

The Buyers

In McMinn County, as in Cumberland County, the buyers were primarily of two types, the buyer purchasing the pulpwood at the stump and the concentration yard buyer. Of the twelve pulpwood buyers interviewed, ten were buying pulpwood at the stump for a price ranging from \$2.00 to \$6.00 per cord. The price paid was dependent upon the species, location, and bargaining ability of both buyer and seller. There was no constant relationship between the amount purchased and the price paid. A few buyers did indicate willingness to pay a higher price for a good stand. Also it was indicated that they were reluctant to agree to thin a stand of young timber; they had a preference for clear-cutting the stand. It was much easier for the buyer to remove all market material from an area rather than cut according to a thinning plan. In general the cutters were contracting for the pulpwood and paying the landowners an agreed price after the wood was sold. In some instances the landowners' checks were left with the concentration yard buyer after the gross payment had been divided in some agreed manner. All buyers indicated they worked under verbal agreements with the landowners.

The concentration yard buyers were commission buyers working on a quota basis. Their jobs were to measure the pulpwood as it was delivered to the yard, make payment to the cutter, and supervise the loading and shipping of the wood as the pulp company desired. The concentration yard buyers appeared to be substantial and influential men in their particular areas. In certain cases, when landowners demanded payment in advance of cutting, the purchaser at the concentration yard financed the buyer who purchased the wood at the stump. In such cases the buyer and cutters were

good friends and no written obligations were required in lending the money.

There was no positive evidence of unfair practices either on the part of the cutters or concentration yard buyers, although certain landowners expressed the idea that they were not paid their rightful share when cutters were buying for a certain price per unit based on measurements at the place of sale. There was evidence, however, that better and more business-like marketing procedures need to be employed. The owners often failed to check the cutting operations and seldom had a true knowledge of the volume being cut. In general they trusted too much to luck and gave no thought to expected returns under alternative sales methods.

Market Structure for Pulpwood

In comparing the markets for pulpwood and saw timber as they function at the local level, one can see clearly the effects of two entirely different market structures. The markets serving pulpwood producers in these counties are the terminus of a vertically integrated system extending from the large pulp companies down to the local concentration yards. This market structure, as would be expected, is characterized by administered prices, with little evidence of price variations over space or time. To the extent that price competition exists in this structure, it is in a regional or national setting. While this market structure may leave much to be desired, it must be admitted that the manner in which this integrated system functions has the advantage of stability and orderliness as far as pricing is concerned. The procurement

schedule, quality specifications, and buying policies emanating from the pulp companies and projected in the local markets all make for a stability of market which appears to be completely absent in the saw timber market. The contact buyer for the pulpwood company buys on a quota basis, and frequently the market becomes glutted and certain areas are left without an outlet for their pulpwood. Therefore, it can be said that the pulpwood market has stability of price but is lacking in stability over time.



CHAPTER V

MEANS OF IMPROVING THE TIMBER INDUSTRY

It is the intent of this chapter to analyze those aspects of a market structure that would be advantageous to the timber industry. Realizing that forest owners and forest product buyers are quite similar to other groups in our economy, it can be assumed they will act rationally toward any market practice which appears profitable. A central feature of any market is price; it provides direct evaluations of many goods and services and forms the basis for derived evaluations of most others. Therefore, widespread application of good forestry practices on private lands depends in large measure upon the profitability of growing and harvesting timber.

The following are some basic practices for timber owners and buyers to follow in marketing of forest products:¹

1. Know what is being sold.
2. Have competitive bidding.
3. Have the terms of the trade rigidly set.
4. Let owner exercise the right of control over the cutting and hauling.
5. Practice integrated utilization in harvesting.
6. Practice selective cutting.
7. Have standard grading system for timber and timber products.

¹J. Walter Myers, "Harvesting and Marketing," Forest Farmer Manual, Fourth Edition (Atlanta: Forest Farmer Association Cooperative, 1956), pp. 65-69.

These simple practices should help both buyers and sellers by putting the sales of timber on a clear and fair basis. These are by no means all the practices that could be formulated to aid in efficient timber marketing, but if these few are followed a more efficient and profitable timber industry is sure to follow.

Explanation of Practices

Each of the seven practices will be discussed so the advantages of application may be illustrated in reference to the findings of this study.

Know What is Being Sold

Knowing what is being sold has reference to both quantity and quality. The approximate amount to be sold, its quality, and the distribution of sizes and species are important to both buyer and seller in determining an acceptable appraisal figure. One of the best methods of obtaining this needed information is from a cruise by a professional forester. Once this information is made available, both buyer and seller are in a position to make a satisfactory deal which would be in keeping with good business principles. It must be remembered that the timberland owner cannot afford to grow trees at a loss, nor can the purchaser of the timber crop stay in business unless he can operate profitably. Only after both the buyer and seller are fully aware of the quality and quantity of the product for sale, can a business transaction take place that will be carried out in such a manner as to be beneficial to the timber industry both now and in the future.

Only two sales in the study area were made after a cruise by a professional forester. Both resulted in prices above those of the county averages. This is not conclusive evidence that the cruise resulted in a greater return to the landowner, but clearly, the cruise provided information needed about what was being sold.

Competitive Bidding

It is always best to have two or more buyers bidding for a tract of timber because the prices they offer are more likely to be reasonable and just than if there is only one buyer. Regardless of the sale plan or the kind of product to be sold, it is advisable to secure bids if there is more than one possible outlet for the saleable product. Competitive bidding tends to direct products into their highest use. Bids may be secured by personal contacts, letters, or advertising directed to those in the market for the product or products. Whichever way they are solicited, there are certain points which should be presented to the prospective buyer.²

1. Size area--whether the cutting project is concentrated in a small area or widely distributed over an extensive acreage is important to buyers.
2. Method of sale--It should be stated whether the sale will be by lump sum, scaled volume, piece, marked tree, or other unit of measurement.
3. Cruise data--The approximate amount to be sold and the distribution of sizes and species are important to the buyer. The scale used in the estimate should be indicated.
4. Logging period--The time period to be allotted the buyer should be given. Contracts which cover long periods are not advisable unless they are based on an annual cut or an allowance is made

²Ibid., p. 88.

for growth. Seasonal conditions should be considered in setting the logging period.

5. Clean up--Any burning, or other brush disposal which will be required of the buyer should be indicated.
6. Non-conformance--Any penalty that is to be placed against the buyer for non-conformance to specified portions of the contract should be stated.

If these items are presented to a number of buyers, the owner is likely to receive bids approaching the value of his forest products. At least he has the satisfaction that a number of buyers were contacted and he did not sell to one buyer without seeking other bids that might have resulted in a more profitable sale.

Have Terms of Trade Rigidly Set

All sales of timber should involve written sales contracts. Such contracts should cover in detail all the items included in the bid proposals in addition to prices. The contract should be prepared to be a protection to both buyer and seller. It may be brief or in great detail but no salient features should be omitted for the sake of brevity. It is advisable to seek legal advice in regard to formulating or signing a sales contract, because the soundness of the contract may hinge on a few key words or statements. A small legal fee paid for a properly written contract can mean great savings and satisfaction to both buyer and seller of a given tract of timber. One of many model contracts is shown in appendix B.

When both parties of the trade are aware of the specified conditions in the contract, it is possible for the transaction to be carried through without ill-feelings by either party. When the conditions of the trade

are recorded in a legalized contract, both parties are aware of their responsibilities and are less likely to cheat. If the above mentioned items are included in the contract, the "guess work" deal has been eliminated and replaced by a business transaction based on knowledge.

Only forty-eight sales (16 per cent) in this study were accompanied by any type of written contract. Surely this indicates the producers need for education as to the value of a well-written contract.

Control over Cutting and Hauling

The best way for the forest manager to prepare for any timber harvesting is to pick out and mark with paint all trees that are to be cut. If the owner or manager is not trained to do the job, he should get help from a consulting forester or from the agency in the state which furnishes this help.

In marking for cutting, two paint marks properly placed on the trees are usually necessary. One should be four to eight feet high on the trunk. The purpose of this mark is to help prospective buyers and cutters to find the trees. The other mark should be placed within a few inches of the ground, below stump height. Its purpose is to serve as a check on whether or not the tree was intended to be cut. The condition the forest is to be left in should be stated in the contract, and it is the manager's job to see that the specified conditions prevail. The owner should reserve the right to route the haulers in such way as to protect young trees and other crops that happen to be growing on the land. These conservation practices will help the mill operator in the long run by providing ample supplies of raw material in future years,

and for this reason he should be willing to cooperate.

With seventy-nine per cent of the millers contacted in the study area indicating they did not expect the supply of saw timber to be ample over the next ten years, it would appear they should be greatly interested in any practice that might insure the supply of raw material. Millers should be especially interested in protecting the young trees if they expect to remain in the milling business in future years. By cutting young trees before they reach financial maturity both owner and miller stand to lose in the long run.

Integrated Utilization in Harvesting

The greatest income is obtained when each tree is made up into the product or products that will bring the most profits. It is often possible that a tree will be of much greater value when harvested into multi-products instead of just one product in which a certain buyer is interested. For example, one tree might yield one or two high-grade saw logs from the butt, two or three cross ties from the smaller, rougher part of the trunk, and perhaps a length of pulpwood and some firewood from the top. Since commercial operators seldom want to handle more than one product at a time, they are likely to shy away from timber sales conducted in this manner. However, it is often possible to sell to two or more buyers or to one buyer who sells to several markets. Frequently the owner finds it advantageous to harvest his own timber or supervise the cutting in order to realize the full value of his forest products. In the majority of sales, only saw logs are considered of value and the rest of the tree remains in the forest to decay. This method of harvest

has many aspects of inefficiency and yields low incomes.

Selective Cutting

Selective cutting is a method of harvesting which keeps the forest land as productive as possible and insures repeated harvests at frequent intervals. If the general conditions of the stand are known by the landowner or forester, then it is possible to decide what products are ready for sale. In following selective cutting methods, it is intended to leave a good volume of trees which will grow and increase in value. By this method it is possible to keep the forest land in a highly productive state. Forest land will yield the most income over the years if the stand is managed for high quality products as the ultimate goal. In order to keep trees growing thriftily until time to cut them, the stand must be carefully and conservatively cut over at regular intervals to provide proper growing space for the best trees. In so far as there is a market for them, the following kinds of trees should be cut:³

1. Old, slow-growing trees of any species.
2. Diseased, insect-infected and mechanically-damaged trees.
3. In overly thick stands, some trees need to be removed to give proper spacing to remaining trees.
4. Short, rough and limby trees, especially if seedlings or saplings of better species are already growing close by.

It must be remembered that long-run profits should be the determining factor in the harvesting method used, and the timber owner must be aware of this at all times if the timber industry is to proceed in the most desirable manner.

³Ibid., p. 67.

It is estimated that an acre of land set in pine seedlings and managed for sustained yields over a period of forty-nine years will at present prices result in a net profit of \$775.83 to the owner. This is an annual net profit of \$15.83 per acre.⁴

Grading System

So extremely varied are timber products in species, size, quality, use, and other characteristics that a standard grading system is very difficult to follow. For this reason few timber products are marketed strictly by a pre-designed grading system. The purpose of a tree or log-grading system is to facilitate giving an accurate description of the raw material and an accurate knowledge of its value by sorting it into groups that are reasonably homogeneous with respect to value. Since value and the factors affecting it depend upon the use to which the raw material is put, a given grading system is seldom optimum for more than one particular use-class of material. Grading standing timber, logs and other timber raw materials in advance of manufacture is also a very difficult job. Many of the characteristics observable in the finished product are not noticeable in the raw material; therefore a grading system must be founded upon observable criteria of value in the end product. Grading systems are frequently intended for application by a variety of users in a variety of situations and over a substantial period of time. For this reason grading systems are often inadequate and unusable for the average timber owner. Unless the owner of a superior grade

⁴"Economics of Growing Pine Trees in Tennessee, Prepared by the Soil Conservation Service" (Soil Conservation Service, Nashville, Tennessee, September 1956), (Mimeographed).

of timber receives more income than does the owner of low-grade timber, he will have little incentive to spend time and money on good forest management. Until an adequate grading system is used which will give added returns to the producers of the superior products, there can be little hope for up-grading of timber products in years ahead.⁵

Action Needed

The present marketing system can improve only after both buyer and seller become aware of the harmful effects of such marketing practices as selling unmarked timber by the boundary for a lump-sum payment without knowledge of what is being sold. Improvement of the marketing practices at the local level hinges upon the development of an educational program which will demonstrate the mutual benefits to be gained by improved practices.

⁵William A. Duerr and Henry G. Vaux, Research in the Economics of Forestry (Baltimore: The Waverly Press, 1953), p. 373.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Despite the importance of forest production in Tennessee, little is known about how forest products are marketed. It is widely accepted that the forest lands of the state are yielding but a fraction of the potential income which could be had by the exercise of elementary practices of management, fire protection, and wise harvesting. In general this thesis has been concerned with why the gap exists between the assumed goal of maximum private and public returns and the present condition.

Data used in this analysis were collected by a non-random system from sellers and first-buyers of forest products in Hardin, Cumberland and McMinn counties of Tennessee. Two-hundred and thirty-four usable records of saw timber sales and fifty-nine of pulpwood sales were obtained from 215 forest land owners in the study areas. Of the 143 buyers contacted, one-hundred were sawmill operators and twenty-two were pulpwood buyers. The other twenty-one were not included in the analysis because they were not buying directly from the landowners. Twenty-one per cent of the saw timber sales were reported by owners who had made more than one sale during the past ten years. This verifies the hypothesis that timber sales by individual owners are intermittent.

The study was concerned with the actual marketing techniques and processes that were being carried on, and with making recommendations for improved practices that would be advantageous to the entire timber industry over the long run. It is not claimed that the practices

observed in the study areas are typical of those followed throughout the state nor that the price differentials reported necessarily prevail in other areas.

In the case of saw timber sales, forty-three (18 per cent) were buyer-initiated, which resulted in \$7.00 less per thousand board feet for all species than did the owner-initiated sales. However, it is believed that many of the owner-initiated sales were brought about indirectly by the buyers and it is not believed that the owner-initiated sales were less profitable simply because the buyer made the initial approach. Only forty-one per cent of the owners had the business acumen to seek more than one bid before selling their saw timber. Those owners receiving three or more bids before selling their saw timber as stumpage received \$8.04 more per thousand board feet than did owners who sold to the first bidder. This does not prove that the price was lower solely because the owner sold to the first bidder, but it does indicate that this is one of the many poor selling practices the producers are following in the marketing of their forest products.

Forty-seven sales of saw timber (20 per cent) were on a lump-sum basis; the remainder were on a per-thousand-board-feet basis. Less than ten per cent of the owners had ever received any professional aid in connection with the marketing of their forest products. This substantiates the hypothesis that owners "trust to luck" for success in their deals rather than seeking guidance and aid in the marketing of their forest products.

Of the 100 sawmillers contacted, 88 per cent were operating small portable mills on a full or part-time basis. The average daily mill output

was 5,784 board feet with a range from 4,525 to 6,920 board feet. Milling was a part-time business for 68 per cent of the millers contacted. Regardless of the mill size or the period of operation, there appeared to be inefficient practices employed by the majority of the mills. Often logs were not delivered to the mill yard in sufficient quantity to permit continuous sawing, thus causing lost time and resulting in a higher cost per unit of production.

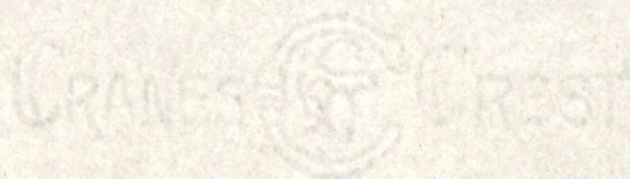
Sixteen millers specified some quality requirement before purchasing saw timber, and they had an annual average cut of over one hundred thousand board feet more than did the millers not doing so. Seventy-nine per cent of the millers contacted did not believe there would be a sufficient supply of saw timber to meet their needs over the next ten years, but only 36 per cent indicated they had ever offered the landowner any type of service or advice for timber improvement.

Fifty-nine sales of pulpwood were recorded in the study areas. Twenty-seven were landowners selling their pulpwood as stumpage for an average price of \$5.12 per cord (128 cubic feet) and \$3.87 per unit (160 cubic feet). It was a general practice to sell pine pulpwood by the cord and species other than pine by the unit measure. Thirty-two sales were made by landowners at the concentration yard. There the average price per cord was \$13.68 and per unit \$18.71. The variation between these averages was very narrow, hence the number of bids received by the owners before selling their pulpwood had no significant effect on price received when selling either at the stump or the concentration yard. This obviously reflects the pricing policies of the pulp companies and the structure of the market through which they procure their raw materials.

Pulpwood concentration yards were actively buying in Cumberland and McMinn counties, but in Hardin County there was not even one pulpwood concentration yard. With excellent water transportation available, it appears feasible that a pulpwood market could be established there with mutual benefits to both producer and buyer.

Realizing that the few inadequacies pointed out in this thesis are by no means all that exist in the present marketing structure for forest products, it is believed that corrective measures applied to these would certainly put the sale of forest products on a more clear, fair, and profitable basis. If forest management is to be improved over the long run, efficient and profitable marketing is an absolute necessity. Improvement of the marketing practices at the local level hinges upon the development of an educational program which will demonstrate the mutual benefits to be gained by improved practices.

BIBLIOGRAPHY



BIBLIOGRAPHY

- Allred, Charles E., and others. Development of Timber Industry in Tennessee and United States. Monograph No. 92. Tennessee: University of Tennessee Agricultural Experiment Station, Knoxville, April 1939.
- Duerr, William A., and Henry J. Vaux. Research in the Economics of Forestry. Baltimore: The Waverly Press, 1953.
- "Economics of Growing Pine Trees in Tennessee," Prepared by the Soil Conservation Service. Soil Conservation Service, Nashville, Tennessee, September 1956. (Mimeographed).
- Latimer, W. J., and others. Soil Survey of Hardin County, Tennessee. Series 1926. Washington: Government Printing Office, 1930.
- Myers, Walter J. "Harvesting and Marketing," Forest Farmer Manual. Fourth Edition. Atlanta: Forest Farmer Association Cooperative, 1956. pp. 65-69.
- Rand McNally and Company, Rand McNally Commercial Atlas and Marketing Guide. Eighty-Eighth Edition. New York: Rand McNally and Company, 1957.
- Tennessee Valley Authority. Forest Inventory Statistics for Cumberland County, Tennessee. Forest Bulletin No. 20. Norris: Division of Forestry Relations, May 1952.
- Tennessee Valley Authority. Forest Inventory Statistics for Hardin County, Tennessee. Forest Bulletin No. 45. Norris: Division of Forestry Relations, September 1956.
- Tennessee Valley Authority. Forest Resources and Industries Cumberland and Morgan Counties, Tennessee. Report No. 210-53. Norris: Division of Forestry Relations, March 1953.
- U. S. Bureau of Census. County and City Data Book, 1952. A Statistical Abstract Supplement. Washington: Government Printing Office, 1953.
- U. S. Bureau of Census. United States Census of Agriculture, Vol. I, Part 20. Washington: Government Printing Office, 1954.
- U. S. Department of Agriculture. Tennessee's Timber Economy. Forest Resource Report No. 9. Washington: Government Printing Office, 1955.



APPENDIX A

c. Measurement Practices - Log Scale Used? _____.

Owner Class	Purchase Point	Ocular Estimate (%)	Cruise Tree Scale	Log Scale	Piece Tally	Mill Tally	Other
Under 50 ac.	: stump :	:	:	:	:	:	:
	: other :	:	:	:	:	:	:
50-100 ac.	: stump :	:	:	:	:	:	:
	: other :	:	:	:	:	:	:
101-500 ac.	: stump :	:	:	:	:	:	:
	: other :	:	:	:	:	:	:
Over 500 ac.	: stump :	:	:	:	:	:	:
	: other :	:	:	:	:	:	:

3. Source of raw material by ownership and type of purchase agreement.

Forest land owned by the firm (ac.) _____. Duration of ownership _____

Do you plan to increase your forest land holdings _____ How much _____

Size of tracts purchased from in 1955 (ac.)	Percentage of volume	Verbal Agreement	Buyer's Contract	Written: Seller's Contract	Written: Seller's Contract
		: Stump : Other :	: Stump : Other :	: Stump : Other :	: Stump : Other :
Under 50	:	:	:	:	:
50-100	:	:	:	:	:
101-500	:	:	:	:	:
Over 500	:	:	:	:	:
Firm own land	:	:	:	:	:
	100%				

4. Method of contacting producer and advertising.

- a. Personal contact. firm () seller () % ()
- b. Local advertising. newspaper () handbills ()
- c. Market bulletins, state or regional (), d. radio ()
- e. extension forester (), f. consulting forester (),
- g. Other individuals or agencies ()

Comments _____

5. Procurement policy and future raw material production.

Do you offer any services to forest land owners in woodland management or marketing of forest products? Public relations program directed toward improving raw material production, etc. _____

6. a. Do you think the production of forest products in your supply areas is of sufficient volume and quality to supply your future needs? _____

b. Suggestions for improvement _____

7. Buying Policy.

a. Do you buy and quote prices to producers on grade basis? _____

b. What grading system is used? _____

c. Range of prices paid for raw material products bought in 1955:

Product	Species	Grade	Point of Procurement			
			Stump	Roadside	Mill Yard	Other
			Price/Unit	Price/Unit	Price/Unit	Price/Unit
:	:	:	:	:	:	:
:	:	:	:	:	:	:
:	:	:	:	:	:	:
:	:	:	:	:	:	:
:	:	:	:	:	:	:

d. How do you determine prices quoted and paid to producers? _____

8. Approximate volume of custom work in 1955. _____

9. Products Sold in 1955-56

Product	Species	Where Sold	Est. Volume (in year 1955)	Units
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:

10. Name of farmers selling to you last year.



CRANES CREST

University of Tennessee

Research Project - Marketing of Forest Products - - - - - 1955-56

Data from PRODUCERS

Schedule No. _____

1. County _____ Community _____ Date _____, 195__

Owner _____ Occupation _____ Age _____

Address _____ Type: _____
 Farm resident ()
 Farm non-resident ()
 Nonfarm, commercial ()
 Nonfarm, non-comm., resident ()
 Operator(s) _____ Tenure _____ Nonfarm, non-comm., non-resident ()

Total ownership area (acres) _____
 (including land located elsewhere but operated jointly with
 headquarters land)

2. Date farm was acquired _____ Method _____

Ownership objectives _____

Forest and Other Land Uses:

Forest Land					
Acres	Type	Condition	Diam.	Age	Date of last harvest
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
Total :					
:					

Other land			Livestock No.		
Uses	Normal Acres		Dairy	Beef	Hogs
New crops :	:				
Other crops :	:				
Pasture :	Open :		Primary source of income _____		
:	Woodland :		Forest products sold 1955 _____		
:	Idle land :		Product _____		
Total :			Amount \$ _____		

CRANES CREST

3. Past Harvesting for Own Use:

Date	Product	Quantity	Uses
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:

4. Recent Sales (1950-56) If none, record the last sale made, if possible.

a. Date	Product	Location	Quantity	Grade and		Price	
				Species	Scale	Acres	Per Unit
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
Buyer	:	:	:	:	:	:	:
(Name)	:	:	:	:	:	:	:
(Address)	:	:	:	:	:	:	:

- b. Method of price determination _____
- c. Returns expected based on: (1) Price & volume (with or w/o grade, species) estimate by _____ (), (2) Price & volume (w/o estimate) (), (3) Lump sum offer ().
- d. Reasons for sale: _____
- e. Who suggested sale _____
- f. Agreement: Verbal (), Seller's written contract (), Buyer's written contract ().
- g. Basis of payment: Seller's/Buyer's log scale at _____ (), Mill tally ().
- h. Marketing services used: _____
- i. Method of selecting (1) Buyer: _____ No. contacted ()
(2) Trees: _____ Marked by: _____
- j. Distances: _____
- k. Other details: _____

a. Date	Product	Location	Quantity	Grade and Species	Scale	Acres	Price Per Unit
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
Buyer	:	:	:	:	:	:	:
(Name)	:	:	:	:	:	:	:
(Address)	:	:	:	:	:	:	:

b. Method of price determination _____

c. Returns expected based on: (1) Price & volume (with or w/o grade, species) estimate by _____ (), (2) Price & volume (w/o estimate) (), (3) Lump sum offer ().

d. Reasons for sale: _____

e. Who suggested sale _____

f. Agreement: Verbal (), Seller's written contract (), Buyer's written contract ().

g. Basis of payment: Seller's/Buyer's log sale at _____ (), Mill tally ().

h. Marketing services used: _____

i. Method of selecting (1) Buyer: _____ No. contacted ().

(2) Trees: _____ Marked by: _____

j. Distances: _____

k. Other details: _____

5. Planned Sales Date _____ Products, Species, _____
or Harvesting & Quantities

Reasons _____

Date _____ Products, Species & Quantities _____

Reasons _____

6. a. Indicated knowledge of grades (logs, lumber, etc.) and size specifications: _____

b. Indicated knowledge of merchantability of stands (type, tree size, age, accessibility, vol./a and # of trees/acre required for harvesting, etc.): _____

c. Sources of market information: extension forester (), state service forester (), county agric. agent (), SCS agent (), other () _____

d. Knowledge of availability of management and market services _____

e. Price expected in future, higher (), lower (), same ().

f. Any indicated idea of possibility of increasing income from forest land _____

g. Any indicated problems in management, financing or marketing of forest products, taxes, etc. _____

7. Forest program Plans

a. Woods work (other than harvesting a final crop): Planting (), weeding (), thinning (), improvement cutting (), girdling and poisoning (), pruning (), other ().

b. Sustained yield planned. Yes () No ()

c. Skills and experience of labor force in woods work _____

d. Type of equipment for harvesting and handling woods products _____

e. Does the farmer feel that he has labor time available or that it would be profitable to use his labor for more work in woods? _____

APPENDIX B



TIMBER SALE AGREEMENT

This agreement entered into this _____ day of _____, 19____,
 between _____ of _____ hereinafter
 called the seller, and _____ of _____
 hereinafter called the purchaser.

WITNESSETH:

Article I

1. The seller agrees to sell and the purchaser agrees to buy all the timber marked for cutting by the seller as hereinafter defined and located upon the following described property: _____

All trees to be cut are marked with a paint spot about four foot from the ground and on the stump approximately six inches from the ground.

2. The seller guarantees title to said timber and to defend it against any and all claims for taxes, mortgages, or any other legitimate encumbrances at his own expense.

Article II

The purchaser agrees:

1. To pay the seller the sum of \$ _____ for the marked trees on the above property.

2. Unless written extension of time is granted, all timber shall be cut, paid for, and removed on or before _____, 19____.

3. All unmarked trees shall be protected against unnecessary injury in felling, skidding, or hauling operations.

Article III

The seller hereby expressly grants to the purchaser the right of ingress and egress across and upon the sale area and any adjacent property of the seller for all men, materials, and logging and sawmilling equipment, but specifically reserves the right to approve the location of any new roads across cultivated fields.

Article IV

It is mutually agreed:

That any trees not marked with paint which are cut shall be paid for at twice the stumpage value of the tree.

Article V

The purchaser agrees to suppress immediately any fires originating from acts or negligence of the purchaser or of his agents, and to pay in full for any damages to young growth or other property of the seller caused by any such fire.

Article VI

It is mutually understood and agreed by and between both parties hereto that:

In case of dispute over the terms of this contract, final decision shall rest with an arbitration board of three persons, one to be selected by each party to this contract and a third to be a graduate forester (such as the State Forester).

In WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals, this _____ day of _____, 19__.

Witness:

_____	_____ (Seal)
_____	_____ (Seal)