A STUDY OF THE MARKETING OF FARM TIMBER IN INGHAM COUNTY, MICHIGAN

Thesis for the Degree of M. S.
MICHIGAN STATE COLLEGE
Richard Charles Fry
1941

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A STUDY OF THE MARKETING OF FARM TIMBER IN INGHAM COUNTY, MICHIGAN

by

RICHARD CHARLES FRY

A THESIS

Submitted to the Graduate School of Michigan
State College of Agriculture and Applied
Science in partial fulfilment of the
requirements for the degree of

MASTER OF SCIENCE

Department of Forestry

1941

THESIS

ACKNOWLEDGMENT

The writer wishes to express his appreciation to Mr. William J. Baker, Associate Professor of Forestry, for his assistance and kindly advice. Acknowledgment is also extended to Mr. C. S. Logsdon, Assistant Professor of Economics, and Mr. C. J. Holcomb, Assistant Forest Economist, for their encouragement and criticism of this study.

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IN INGHAM COUNTY, MICHIGAN

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STATEMENT OF THE PROBLEM

Michigan timber is usually sold as stumpage or as harvested logs. This timber is also sold by disposing of the entire tract of timber for an agreed price, called the lump sum method, or according to a set price for each measured thousand board feet (M.B.F.), called the log scale method. These selling or marketing methods have developed through different conditions of competition and conditions of supply and demand of raw materials.

If a timber seller is so located that only one buyer is available, the seller deals with this buyer according to the latter's specifications for timber. In this way the seller, limited to the species, quality, form of timber, and other individual specifications of the buyer, has negligible marketing problems. However, if the more common case exists in which several agencies are buying timber in one locality, the timber owner has opportunity to select his market outlets. Each of these outlets might require different specifications for raw materials, according to the equipment, markets, financial status, and policies of the buyer. The timber owner is faced with the difficulty of locating not only the buyer whose specifications most nearly fit the timber available for sale but also that buyer whose purchasing methods are most satisfactory to him.

The timber marketing problem, then, concerns the correlation of the available supplies of timber with the requirements and buying policies of the purchasers.

In order to adjust to these different conditions of buyer and seller there have developed various methods of selling and purchasing timber which together with the agencies involved is known as the marketing system.

Both buyers and sellers in many marketing systems depend upon their intimate contact with and knowledge of sources of supply, markets, and prices for their existence. Likewise, the buyers of timber in Michigan or elsewhere know approximately where to buy and sell material which they handle and the approximate value of these products. However, the sellers of timber in Michigan do not have this advantage. Except for information obtained from neighbors, whose information may be erroneous, sellers have little way of knowing where to sell, how to sell, how much they should receive for their products, or even how to measure the quality and quantity available for sale.

The timber seller, in most cases a farmer, is hardly in a position to compile the necessary information for wise disposal of the timber. He may transact such a sale only once or twice in his lifetime, whereas marketing information is usually the accumulation of years of experience in buying and selling timber. As specific information other than personal experience is not available from any source, the only course lies in the laborious search of markets for the kind of timber available for sale and a study of the methods of measurement and sale of timber. The average farmer has neither the time, training, facilities, nor the interest for such work. Furthermore, studies by trained workers have been concerned almost entirely with the management and improvement of woodlands.

Farmers are encouraged to plant trees, care for them, and improve the woodlands so that they might have quality timber products to sell. But at this point the timber owner's difficulty begins---where and how to sell these products. Not disregarding other forest values, it would seem reasonable to expect the farmer to have more incentive to plant and grow trees if a profitable disposition of the anticipated products were to be realized.

REVIEW OF PREVIOUS WORK

As early as 1915, the problem of the marketing of farm woodland products was recognized in Michigan by the study of Frothingham (5). This author mentions the requirements for various products, lists the firms that deal in rough forest products, excluding sawmills, and advises that the farmer should "ascertain for what uses each kind of material will bring the best price .... and investigate the available markets." However, no study was made to determine what uses and markets will bring or has brought the best price for different products in this state. A later bulletin by Chittenden and Robbins (4) devoted several pages to the marketing of woodlot products. It was suggested that "accurate estimates of timber and careful study of available markets are essential to adequate returns." Emphasis was placed on accessibility (related to the cost of production and marketing) as a factor largely determining the stumpage value. In 1935, Ramsdell (9) listed the location of primary and secondary wood-using industries in Michigan. The size and equipment of the primary (sawmills) industries were described, but the timber requirements of these industries were not included.

Other state and federal agencies have completed similar work. The federal bulletins have necessarily dealt with instructions concerning the measurement of forest products and general marketing hints. Many state agencies, publishing material concerning the marketing of forest products, have made suggestions for measuring and selling woodland products but without basing the recommendations on presented data.

However, a few state agencies have made localized studies during the last several years. Several of these studies may be mentioned as outstanding in that they are the result of fact-finding projects rather than theoretical generalizations. Telford (10) attempted to show which products, such as poles, lumber, veneer, cross ties, etc., under certain conditions in Illinois, would return the highest stumpage value.

Bruner (3) in South Carolina showed comparative values for trees for pulpwood, saw timber, and poles. For example, a 16-inch (diameter $4\frac{1}{2}$ feet from the ground) southern pine tree under given conditions was valued at 43 cents for pulpwood, 89 cents for saw timber, and $6.50 for poles. The extension services of several states have published current market information, especially local stumpage and log prices. Brundage (1, 2) through interviews with buyers and sellers has investigated the marketing system for handle stock and basket stock in Indiana. He has shown by means of a great number of case studies the relative importance of: (1) various methods of sale and (2) forms in which the material is sold, and has compared stumpage returns under these and other conditions.

The several books written on farm woodlands have included information on the marketing of woodland products. A recent book by Guise (7) describes how mensuration, utilization, and valuation assist in the profitable disposal of products and mentions the methods of sale and specifications for various products. Other books and publications on woodland products contain similar marketing information.

In summarizing the previous work it may be said that most of the publications have been of general and descriptive nature, usually lacking qualitative information necessary for sound marketing recommendations.

OBJECTIVE AND SCOPE OF PROJECT

It has been recognized that the task of collecting market data requires considerable facilities and expense. In addition, full cognizance of all the conditions and practices is essential to a complete understanding of the problem. Therefore, a logical attack on the problem would seem to begin with an analysis of the present conditions, or a survey of the marketing system. For this project, an intensive survey of a relatively small area was considered most appropriate for the time and facilities available. Ingham County was the area selected because of its proximity to the project headquarters at Michigan State College. Also competition for timber among the larger mills in the surrounding counties made an interesting competitive situation, as there are no large sawmills located within the county.

The objective of this project, then, is directed at the discovery and description of the present practices and conditions of the timber marketing system of Ingham County.

Both the buyers and sellers of timber were considered valuable and first-hand sources of information. Personal interviews with all the buyers located or operating in the county and interviews with as many sellers as possible appeared to be the only feasible method of obtaining data on the type of timber being sold, the forms of material sold, methods of sale, and practices and policies of those involved in the system. Interviews with approximately fifty persons who had sold timber within the last five or six years was desired.

At the same time it was considered possible to investigate the background for these conditions and practices by discovering the prevalent attitudes and ideas on the marketing of timber. In other words, comprehension of the attitudes of those participating in the marketing system might lead to a better understanding of why the system has developed as it has. For example, if the average seller does not think he can cut and skid his own logs because of inadequate equipment, then suggestions for selling logs on the roadside would be valueless as far as these sellers are concerned. By recognizing all of the considerations, a better understanding of the entire situation can be realized.

PROCEDURE FOR FIELD WORK

Interviews with timber sellers. In order to obtain information from timber sellers personal interviews were made with over fifty such sellers in Ingham County.

The initial step consisted of discovering the names and locations of those who had sold timber within the last five or six years. Several attempts were made to locate recent sellers of woodlot products by inquiring at random of farmers and general stores throughout the rural areas of the county. This process appeared rather slow and expensive, as apparently this information was not of common knowledge. Therefore, contact was made with township supervisors, who know of timber sales through tax adjustments. The result of this action was encouraging, as these supervisors supplied names of 27 sellers and 8 buyers of timber. All of the sellers and most of the buyers were previously unknown to the author. In talking with these people, sufficient other sellers were uncovered to obtain the desired number. The following information was asked of the sellers:

1. Name and location of seller.
2. Acreage of farm and acreage of woodland.

3. Date last sold timber.

4. Species, volume, form, basis of scale, and price received for each product.

5. Record of buyers and the method of sale.

6. Record of previous sale.

7. Specific reason or reasons for using these marketing methods.

8. Opinion as to the most profitable methods of woodlot product disposal.

9. Objective in maintaining a woodlot.

10. Other remarks and memoranda.

Interview with timber buyers. Personal contact was also made with all known buyers of timber residing in Ingham County. This list included sawmill owners and independent buyers. Many of this group were located quite easily through the sellers. The remaining buyers were located through Ramsdell's directory (9). The following information was desired of the buyers:

1. Name and address of buyer.

2. Description of mill and equipment.

3. Species, form, quantity, scale, and price of timber handled annually.

4. Type of products manufacture, prices, and markets for each.

5. Opinion as to the most profitable methods of woodlot product disposal.

6. Other remarks and memoranda.

PROCEDURE FOR OFFICE WORK

Organization of data. In the office the data from the timber sellers were transcribed from the original data sheet to their respective columns on the large summary sheet. Likewise, data from the buyers were transcribed to the respective columns on the buyers' summary sheet.

Summarization of data. Each column of figures was totaled for each set of summary sheets. The mathematical work, such as averages and ranges were then computed. The classifications of the non-arithmetical data were tallied. The remainder of the office work consisted of the preparation of the results for presentation.

CLASSIFICATION OF DATA OBTAINED FROM SELLERS

The sellers interviewed were fairly well distributed over the county except in Lansing Township and Delhi, an adjacent township, where no sales were recorded. Over 50 per cent of the sales were consummated in 1940 and 1941, while a few sales dated back to 1936. This fact may not necessarily indicate that there was more timber cutting in the last two years in Ingham County, as the more recent sales are merely easier to locate. However, several sellers did observe that in the last two years they were more pressed by buyers to sell than previously.

This study does not presume to include all the sellers of timber in Ingham County the last six years, but the data do represent a major portion, as the five months field work (not full time) covered almost every section in each township, every rural store and gasoline station, and other feasible sources for location of recent timber sellers.

Fifty-three timber sellers were interviewed. However, data from only fifty of these were selected for analysis, as that from the other three sellers was too incomplete for accurate treatment. Of the fifty selected, two sellers sold lumber instead of logs or stumpage. An analysis of the remaining forty-eight timber sellers follows.

Acreage. The total acreage of the farm wood cut on these forty-eight farms was 1,067 acres, ranging from 2 acres to 75 acres with a median of 20 acres. In cases where the woods were not entirely cut over, six were cuttings for sugar bush improvement, and in three other cases only mature timber above 15 to 17 inches was removed.

Volume of timber sold. The total amount of timber sold from the forty-eight farms was reported as 3,510,000 board feet.

Certain adjustments were necessary for a few of the reported volumes. In six cases, the volume cut was reported in terms of mill tally, whereas the volumes of the remaining sales were measured by the Doyle scale. Mill tally scale was converted to the Doyle scale by deducting the average overrun of the particular mill involved. One portable mill reported an average overrun of 30 percent, another 25 percent. Although these overrun figures are high when compared to larger mills, the small logs sawn by the portable mill average 14 or 15 inches (top diameter) and account for such a large overrun. When all of the volumes are adjusted to the common denominator of the Doyle scale, the total volume cut amounts to 3,326,000 board feet. Reference to volumes hereafter will be in terms of the Doyle scale.

The smallest sale was 500 board feet; the largest, 375,000 board feet from a fifty-acre tract. For the forty-eight farms the average volume was approximately 70,000 board feet sold per farm. The volumes by species are shown in Table 1.

Although these volumes do not include the entire cut from the county during the period studied (cut of fuelwood, custom sawing not included in these figures), yet the figures represent a fair sample of the timber cut, and the proportions are probably typical of Ingham County.

Table 1

Volumes by species sold (Doyle scale)

Species	M.B.F.	% of total	Average M.B.F./sale	Number of sales
American elm	922	27.7	23	40
Hard maple	692	20.8	22	31
Red oak	477	14.3	20	25
Soft maple	375	11.3	17	22
Beech	234	7.0	16	15
White oak	216	6.4	12	18
Basswood	162	4.9	10	17
White ash	131	3.9	5	25
Hickory	46	1.5	12	4
Black cherry	26	0.8	4	6
Swamp white oak	18	0.5	6	3
Sycamore	15	0.5	8	2
Slippery elm	4	0.1	2	2
Black ash	3	0.1	3	1
Black walnut	3	0.1	3	1
Rock elm	2	0.1	2	1

Form in which timber was sold. Of the sixty-one sales from the forty-eight farms, five were sales of logs at the road or on the truck. Fifty-six sales were of stumpage, although in some cases the seller might have paid for part but not all of the logging operations. The sellers of logs were paid the following amounts per thousand feet for cutting and skidding in excess of the stumpage offer.

1. Cutting and skidding - $2.00 per M.
2. Cutting and skidding - $1.88 per M.
3. Cutting and skidding - $5.00 per M.
4. Cutting and skidding - $4.00 per M.
5. Cutting and skidding - $3.00 per M.

Average - - - - $3.18 per M.

The prevailing wages paid by sawmills to their own crews is $2.00 or $2.50 for cutting and $2.50 for skidding, totaling $4.50 or $5.00 per M.

Method of sale. There were thirty-eight sales by the Doyle scale and twenty-three sales by the lump sum method. In the latter case, it is the practice of the buyer to look over the wood, estimating the possible cut. He then offers to the seller a lump sum price on the total merchantable timber. The seller may not know how many thousand feet of timber he is selling until the logs are scaled for the payment of cutters and skidders.

In the case of the Doyle scale method, payment is based on the measurement of the logs after the trees are felled and bucked.

Market channels. There were nine classes of buyers to whom timber was sold. The number of sales handled by each type of buyer is listed in Table 2.

Table 2

Classification of market channels

Type of outlet	No. of sales
Local portable mills	14
Local stationary mills	6
Local buyers	2
Out-of-county portable mills	2
Out-of-county stationary mills	27
Out-of-state mills	2
Handle factories	5
Veneer mills	2
Basket factory	1
Total	61

Those sawmill operators who live in Ingham County and have moved their mills from one woodlot to another are designated as local portable mills. Local stationary mills represent those sawmills in Ingham County that have never been moved, although their size and character may indicate portability or semi-portability. Local buyers live in Ingham County and buy and sell timber independently of other manufacturing concerns. Out-of-county stationary mills represent stationary sawmills located in Michigan outside of Ingham County. Out-of-county portable mills are portable as described above but are located outside of Ingham County, somewhere in Michigan. Out-of-state mills are also stationary mills. Handle factories are located in Ohio and Indiana. The basket factory is located in Michigan. The two veneer mills are both located in Indiana.

Prices received. Complete information on prices could not be obtained in a few cases from the seller, but part of the lacking data was supplied by buyers or neighbors. In all cases of sale by the Doyle scale, the price received per M.B.F. for each species was obtained. However, for two lump sum sales the price was not revealed, resulting in 59 sales with price data. The prices given for sale of logs were adjusted in order to compare these sales with stumpage sales. The additional amount above what could have been secured for stumpage was indicated by the sellers and was deducted from the log prices for this adjustment.

Table 3 shows for the fifty-nine sales the average price returns by each method of sale.

Table 3

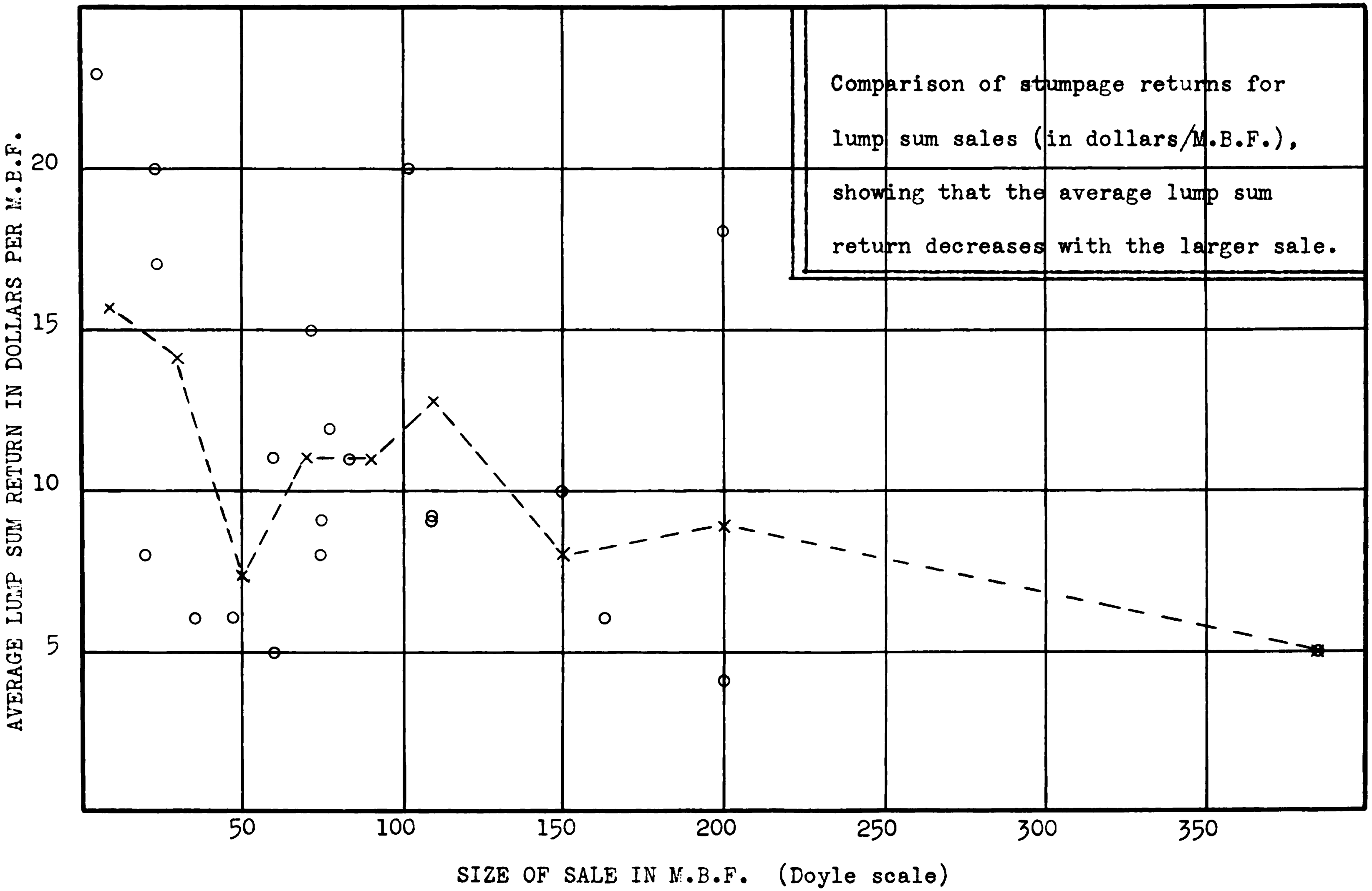
Comparison of stumpage values received under different methods of selling

Method of sale	Average price per M. (not weighted by vol.)	Average price per M. (weighted by vol.)
Log scale	$16.36	$14.96
Lump sum	11.05	9.49
Difference	$ 5.31	$ 5.47

For those averages not weighted for volume, the prices received for individual species were added, and the total divided by the number of species involved. For the weighted averages, the volume of each species sold was multiplied by the price received for that species and the total divided by the total volume of all the species.

Table 3 shows approximately the same difference for each method of sale under the two methods of averaging. However, the lower price return by the weighted average indicates that the large volume sales are receiving a lower price per M.B.F. in case of lump sum sales. The graph on page 18 indicates such a trend.

In the Indiana study, Brundage (1) also found that log scale sales returned several dollars more per M. than lump sum sales for basket stock. However, in this study the lump sum sales involved less volume per sale. Brun-



Comparison of stumpage returns for lump sum sales (in dollars/M.B.F.), showing that the average lump sum return decreases with the larger sale.

dage suggested that, "Since smaller lots of timber increase the buying and handling costs, it was thought that possibly this was one factor influencing a lower stumpage rate for lump sales." Yet the fact that in Ingham County the lump sales involve larger volumes per sale with smaller returns seems to discount this explanation, at least for Ingham County sales.

Several of those purchasing by the log scale method offered the following explanation: The seller, not aware of the actual volume involved, is influenced by the "sound" of the lump sum price rather than calculating the total value by multiplying the volume by the correct price per M.B.F. In other words, a thousand dollars for a piece of timber would naturally seem like a large sum of money whether there were 100 M.B.F. or 200 M.B.F. for sale. On the other hand, if the quantity to be sold is small, the seller will demand more money "to get something out of it," as they express it.

Table 4 shows the range of prices paid according to the method of sale.

Table 4

Range of prices paid per M under different methods of selling

Method of sale	Low	High
Log scale	$7.00	$90.00 ($30)
Lump sum	4.00	23.00

The $90.00 per M. sale of black walnut was followed by a $30.00 per M sale of white ash--the figure in parentheses in the above table (Table 4).

Table 5

Average prices for stumpage sold by Doyle scale in dollars per M.B.F.

Species	Price/M.B.F.	No. of Sales
Black walnut	$90.00	1
White ash	23.06	17
Black cherry	19.40	5
Hard maple	18.63	16
Slippery elm	18.00	1
White oak	17.00	10
Red oak	16.58	12
Basswood	15.14	7
Swamp oak	15.00	2
Soft maple	11.10	10
Hickory	10.67	3
American elm	10.44	18
Birch	10.28	7
Rock elm	8.00	1

Table 5 shows the average stumpage prices paid for each species sold under the log scale method.

The number of sales indicates the basis for the average stumpage price. In the case of such species as black walnut, slippery elm, swamp oak, hickory, and rock elm, the stumpage price means very little except to indicate what some buyer has paid at least one time or another. The averages for the remaining species may be regarded as representative of the prices paid for these species in Ingham County during the last six years.

The average stumpage prices paid by each class of buyer for all sales are listed in Table 6.

Table 6

Average stumpage prices paid by each class of buyers (not weighted by M)

Buyer	Price per M.	No. of sales	Species
Veneer mills	$57.50	2	Bl. Walnut Hd. Maple
Handle Factories	26.60	5	W. Ash Bass. Elm
Out-Of-State Lmbr. Mills	18.00	2	All species
Local Buyers	16.50	2	" "
State Stationary Mills	16.08	26	" "
Local Portable	10.23	13	" "
Local Stationary	10.17	6	" "
State Portable	10.00	2	" "
Basket Factories	10.00	1	" "

The high return for veneer stock includes the $90.00 per M. sale of black walnut, and is not necessarily representative of veneer stumpage values. It will be noted that the return for handle stock is more than $3.00 per M. higher than the average return for white ash, although all handle stock sold was white ash. Apparently white ash sold to buyers other than handle factories received a lower stumpage return.

Brundage (1) found that for Indiana basket stock the stumpage price varies inversely as the distance of haul; but, for white ash handle stock, Brundage (2) found very little fluctuation. Chittenden and Robbins (4) stressed accessibility as a large factor in determining stumpage values in Michigan. In Ingham County accessibility is no real problem, as almost every section is bounded by good roads. Distance also does not seem to affect stumpage prices, as those mills farther distant are paying the highest prices. The handle factories, together with the large stationary mills in adjacent counties, maintain established prices regardless of location. If the quality is poor, the material is not considered for purchase; or in rare cases the price is reduced in order to close a sale which includes some high quality timber.

Neubrech, (8) in describing the activities of Indiana buyers, implies that jobbers or independent buyers may pay lower prices, because they are in the business to make a profit from the transaction rather than from manufacturing. However, data in this study show the situation in Ingham County to be reverse. Information from both sellers and buyers indicates that the independent buyers have paid higher prices than any other outlet except out-of-state veneer, handle, and lumber mills. It is the practice for these buyers to deal in high quality timber, therefore higher prices are paid. An inference is that if the timber can be sold to an independent buyer the opportunity is better for a higher price than if sold to a local sawmill.

It is interesting to note, in Table 6, the difference in prices paid by the state stationary mills and the local portable mills, both of whom are apparently cutting the same type of material. Sufficient numbers of sales in each case appear to make these price averages representative. There are at least several possible explanations for this difference in price paid by each class of buyer.

First, it has been shown that sales by log scale have returned a higher price per M. on the average than the lump sum sale. The state stationary mills generally buy on log scale while the local portable mills buy in lump sums. Thus, a certain relationship appears here.

However, the primary cause of this relationship may be concerned with the market of each type of buyer. The state stationary mill is larger and better equipped, both financially and physically, and possesses markets requiring high grade lumber. Generally, the less permanent, portable mills do not have such outlets. For one reason, good markets may be the result of many years experience and contact, and again lower prices may be paid to sellers with limited working capital. If the lumber buyer performs part of the market service of financing, generally the seller must pay for this service in the form of lower lumber prices.

Because the larger mills do have outlets for high grade lumber, their average selling price may be considerably higher than that of the portable mill. Naturally the larger mill is then in a position to pay higher prices for timber, and the portable mill must seek a cheaper method of securing raw supplies - namely, the lump sum method of purchasing timber. The important point, however, is that the higher prices are generally paid for higher quality timber. For example, five timber sellers mentioned that these larger mills would not buy their timber due to poor quality. The alternative requires selling to another class of buyer - local mills paying perhaps $6.00 per M.B.F. less for such stumpage.

CLASSIFICATION OF DATA OBTAINED FROM BUYERS

Thirty-seven wood-using industries were located and interviewed. It is believed that every Ingham County operator dealing in stumpage and logs has been included here. In addition, other operators who haul logs to their mills in adjacent counties are included. An analysis of the information from these wood-using industries follows:

Classification of wood-using industries. Table 7 shows the major classes of wood-using industries.

Table 7

Classification of buyers and wood-using industries operating in Ingham County

Type of operation	Number of operators
Portable mills	13
Stationary mills	10
Independent buyers	4
Remanufacturing industries	12
Total	39

As reported by the timber sellers, these operators handle all of the material sawn in Ingham County and most of the remainder bought but hauled from and sawn outside the county. Of the 3,326,000 board feet reported sold by the timber sellers, 94% was sold to the above operators.

The portable mills moved their job locations from woodlot to woodlot, sometimes operating in other counties, sometimes coming from other counties to Ingham County. Some of these operators move their mills four or five times a season; therefore, as it is difficult to keep track of their job locations, their places of residence assume importance for classification purposes. All portable mills except two reside in Ingham County. One-half of the stationary mills are located outside of Ingham County, but these mills draw so heavy on Ingham County timber that their inclusion at this point is essential to complete the marketing picture. The independent buyers reside and operate in the county. The extent of their activities covers buying and cutting stumpage, felling and hauling the logs to local or out-of-state mills. Complete description of the buyers from Ohio and Indiana represent one part of the system not possible to include here. These buyers may operate independently or may be affiliated with handle or veneer mills. Their place is not important as far as total volume is concerned, as they bought only 1.3% of the 3,326,000 board feet from the timber sellers. However, their many small purchases at relatively high prices certainly have a definite place in setting the price structure for white ash and veneer quality stumpage. In several cases, timber sellers have commented that white ash was not sold to a local buyer because the price offered was lower than that being paid by out-of-state buyers.

The remanufacturing industries indicate to some extent the possibilities of marketing locally sawn material. One-half of these industries buy lumber from sawmills in the county.

Volume of timber handled. The volumes handled by these wood-using industries are indicated in Table 8.

It is noted that in Ingham County the portable mills cut twice as much timber as the stationary mills located in the county. Considerable timber was hauled from the county and sawn by stationary mills in other counties. Table 8 indicates only the relative importance of portable as against stationary mills sawing timber in Ingham County. The table also shows the small importance of the independent buyers in the county as far as volume is concerned.

Much of the timber cut by these Ingham County operators, however, never entered the log marketing picture. For one reason, some of the timber was cut and sawn for use on the timber owner's farm and is never bought and resold. Another portion was cut by the sawmill operator

Table 8

Volumes of timber harvested by types of operators in 1940-41

Type of Operator	No. of Operators	Vol. Cut Annually	Vol. Cut in Ingham County. Sawyers & Buyers	% of Ingham County Cut
Portable mills				
(Residence-Ingham Co. (Job Location-Ingham Co.	4	613	613	38
(Residence-Outside Ingham Co. (Job Location-Ingham County	2	415	415	26
(Residence-Ingham Co. (Job Location-Outside Ingham Co.	4	1390		
(Residence-Ingham Co. (not operating 1940-41	3			
Stationary mills				
In Ingham Co.	5	515	515	32
(Outside Ingham Co.	5	6300		
Independent buyers in Ingham Co.	4	66	66	4
Total	27	9299	1609	100

from his own timber land.

In addition to timber purchased by sawmills, other timber was purchased by dealers who jobbed the material out in the form of logs to sawmill operators. The latter sawed the logs on a contract basis (but called custom sawing by the trade) after which the dealers disposed of the lumber. Therefore, custom sawing for farm use by the timber owner must be distinguished from contract sawing for the sale of lumber. Independent buyers purchased stumpage and sold only logs and other rough forest products. The volume handled by these methods are shown in Table 9.

Species cut by sawmills and buyers in Ingham County are shown in Table 10.

<u>Form in which timber is purchased</u>. Stumpage, rather than logs, is the usual form in which timber is purchased by all those buying in Ingham County, as is indicated by the following classification:

1. Number of operators who buy stumpage only ---- 12
2. Number of operators who buy logs only ------- 0
3. Number of operators who usually buy stumpage, but will buy logs if requested ---- 5

There are several reasons why buyers in Ingham County prefer to buy stumpage instead of logs. For one thing, some buyers rely on lump sum purchases of stumpage as a

Table 9

Volumes of timber purchased or custom sawn in 1940-41

Kind of Operation	Volume in MBF	Volume in MBF Ingham County Cut	% of Ingham County Cut
Custom sawn for farm use			
In Ingham County	564	564	35
Outside Ingham Co.	65		
Contract sawing			
In Ingham County	150	150	9
Outside Ingham Co.	1100		
Purchased by sawmills			
Located in Ingham Co.	784	784	49
Located outside Ingham Co.	6525		
Purchased by independent buyers	66	66	4
Cut from operator's own woodland	45	45	3
Total	9299	1609	100

Table 10

Volumes by species of timber handled by sawmills and buyers in Ingham County

Species	Volume in MBF	%
Red oak	323	20
Elm	311	19
Soft maple	286	18
White oak	175	11
Hard maple	155	9
Basswood	131	8
Cottonwood	109	7
White ash	37	2
Hickory	30	2
Beech	29	2
Sycamore	11	1
Black walnut	7	0.5
Black cherry	5	0.5
Total	1609	100.0

means of profit; other firms merely prefer to purchase stumpage as a means of increasing the efficiency of their own operations. Control of log lengths according to the orders on hand is much more direct. Also, a higher quality log is produced by an experienced crew who know how to avoid breakage and splitting of the trees in felling. The experienced crew also knows what type of logs the mill can utilize and does not waste time cutting trees and bucking logs which might be left in the woods or on the roadway by the mill buyer.

It is interesting to note that Brundage (1) found that all the basket companies in Indiana prefer to buy logs delivered to their mill yards. The marketing system in Indiana for basket stock is different from that in Ingham County, however, in that the Indiana sawmills (of basket stock) specialize in manufacture, while a middleman--timber buyer, specializes in buying and cutting stumpage.

Method of purchase. Of the 17 sawmills and buyers purchasing timber, 11 of these customarily purchased by the lump sum method, although logs may also be purchased if requested by the seller. The remaining 6 operators always purchase by the log scale method. The Doyle scale is used by these operators.

Prices paid. The larger sawmills generally maintain a standard price for each species, but the smaller mills may pay the same price for all species or pay a lump sum for all timber purchased at one time. In the latter case, difficulty arises in determining the actual prices paid per M.B.F. However, considerable effort was made to obtain the average price paid in sales of operators not paying consistent prices. The prices paid by all operators purchasing timber in Ingham County are summarized in Table 11.

Table 11

Summary of prices paid by operators purchasing lumber in Ingham County

Type of Operation	No. of Operators	Av.Price/MBF Weighted by Volume	Av.Price/MBF not Weighted by Volume
Portable mills	4	$11.27	$11.43
Stationary mills Ingham Co.	3	14.40	13.76
Independent Buyers Ingham Co.	4	21.36	22.27
Out-of-Co. Stationary mills	5	15.71	

For those averages not taking the volume into account, the prices for individual species were added and the total divided by the number of species involved. For the weighted averages, the volume of each species purchased was multiplied by the price of that species and the total divided by the total volume of all the species.

Table 11 indicates the relatively low prices paid by portable mills and high prices paid by the independent buyers. Also, it will be noted that the out-of-county stationary mills have paid an average of more than a dollar per thousand board feet more than the county stationary mills.

The presumption is not made that timber should always be sold to an independent buyer or even to a stationary mill in preference to a portable mill. The analysis shows only what the average price paid in the past has been. An independent buyer may pay a very low price for certain timber that is not typical of the type generally handled. The purchasing practices of the major operators handling timber in Ingham County are summarized in Table 12.

Table 12

Summary of the purchasing practices of operators handling timber in Ingham County

Kind of Operator	Type of Operation			Meth. of Purch.			Form of Purch.	
	Custom	Purchase	Custom & Purch.	Lump sum	Log scale	Both meth.	Stump.	Logs & Stump.
Portable mills	5	2	3	5			5	
Stationary mills		4	4	3	4	1	3	5
Independ. buyers		4		2	2		4	
Totals	5	10	7	10	6	1	12	5

It is noted that only portable mills do custom sawing. Also the portable mills buy stumpage in lump sums only; whereas stationary mills are more inclined to buy both logs and stumpage by the scale.

DISCUSSION OF MARKETING POLICIES AND PRACTICES

The first part of this thesis describes the marketing system existing in Ingham County for the last several years. The present phase is an attempt to discover some of the reasons behind this marketing set-up. In order to determine these reasons the following questions were asked of the timber sellers:

1. If stumpage were sold, why did you not cut or hire someone to cut and log the woods yourself?

2. After your experience in selling timber, what do you consider the most profitable method of disposal?

3. Why did you sell to one buyer and not to another?

4. For what purposes have you maintained your woodlot?

Likewise, the following question was asked of the timber buyers:

1. In your opinion, what methods of sale should give the most satisfaction to the timber sellers?

The answers to both sets of questions are basic and necessary for the complete picture of how and why certain marketing practices and conditions exist. Field experience has shown that a bias is more liable to be formed if only one group, such as timber sellers, is interviewed. It has also been found that interviews with both groups need to be in the same area. In this way the same cases may be discussed with the seller and the respective buyer of the same timber. To be sure, the information on the same sale may not always coincide, but this very fact may be an indication of the validity of the information. In other cases, information unobtainable from sellers was obtained from buyers, and vice versa, indicating the value of working one area intensively and obtaining information from more than one agency in the marketing system.

<u>Sale in form of stumpage, logs, and lumber.</u> The reasons given by sellers for not carrying on their own logging operations (based on responses of 40* sellers) are classified and listed below by the number of responses:

1. No time--too busy on farm, dairy, etc.---- 11
2. Mill men (loggers) thought to be more efficient ---------------------------------- 8
3. Not experienced in logging --------------- 7
4. Not in position to log, work in town, etc. 5
5. Too much bother and responsibility ------- 4
6. No equipment ----------------------------- 3
7. Too lazy --------------------------------- 2

Almost every publication on the marketing of farm woodland products describes how the farmer can take advantage of spare time in the winter to cut, skid, and sell logs instead of stumpage, thereby enhancing his income. It has been shown here that there were only five actual sales of logs in which the sellers averaged \$3.18 per thousand board feet for cutting and skidding. With regularly employed loggers claiming their average of \$4.50 to \$5.00 per thousand board feet is barely a living wage, it can hardly be assumed the farmer can

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* Five of the 48 sellers sold logs; the other 3 did not answer the question.

make money by doing his own logging. An advantage in selling logs, however, lies in the control of the woods operations. If the seller is planning for another crop of timber, he will be careful to protect young growth; whereas the buyer of stumpage will only be interested in getting the timber out as cheaply as possible. On the other hand, if the seller wishes to dispose of all his timber, disregarding the final condition of the woods, he may find no great advantage in selling logs instead of stumpage.

Other reasons for selling stumpage such as the expression "The mill men are more efficient than I" have prevailed. In such cases the sellers admit they have cut timber before, but they may feel they are growing old and are not in physical condition for such work, especially where there is considerable timber to cut. Other sellers have mentioned that they have cut and skidded logs previously, but the depreciation on their light equipment overbalanced the expected returns. Others mentioned lack of experience in felling and cutting logs to the best advantage. Two sellers admitted that they were "too lazy" to cut their wood.

In partial answer to the second question, forty of the forty-eight sellers mentioned preference in selling stumpage while eight would sell logs after considering past experience in selling timber. Of course, some of these people, not having sold logs before, were in no position to judge the point; therefore, this particular analysis does not seem to take on important significance.

In answer to the same question, all of the timber buyers said that they believed timber owners would find more satisfaction in selling stumpage than logs. By satisfaction is meant both money returns and mental satisfaction.

The average farmer, according to every timber buyer, has insufficient experience in felling and bucking. Considerable breakage is usually encountered, and improper log lengths are cut even when properly instructed by the buyer. The most common errors are shallow under cuts (causing trunk splits) and measuring a twelve-foot log with two lengths of a five and one-half foot saw (resulting in an eleven-foot log which must be scaled as a ten-foot log).

Cases have been cited by these buyers in which almost half of the available volume has been split, broken, or lost through improper felling and bucking. Perhaps some of these claims are exaggerated, but all the timber buyers do maintain that the average farmer loses more than he gains in actual monetary returns by cutting of his own timber.

Buyers are also of the opinion that the average farmer will feel better satisfied if he does not cut the timber himself. In some cases, the farmer has felt disgusted with the work and has asked the buyer to finish the job of logging. According to these buyers, the average farmer will endeavor to get out of whatever work he can. In other words, he is growing lazy and will not "have a good taste left in his mouth" if he sells logs.

Perhaps the only true procedure in determining price returns under each method of sale and with different types of buyers involves separate offers by each method on the same piece of timber. Actual cases under such conditions are difficult to locate, as the timber would have to be cut, measured and sold under the log scale method, subsequent to a lump sum offer.

There were nineteen sales in which the price received was the highest of several offers, but either the sellers were reluctant to reveal the amounts of the other bids or the other offers were based on the same method of selling. However, one case may be cited which a lump sum offer of $600.00 was made for an 18-acre tract of stumpage by a portable mill operator. After this mill had been set up in a neighbor's woods the price was raised to $800.00. The timber owner not wishing to clear cut his woods sold the larger trees by the log scale method in the form of stumpage to a larger stationary mill. The trees sold cut to a 17-inch diameter limit brought \$800.00 with a \$1500.00 offer for the entire merchantable stand by the same stationary mill. It was noted that high quality oak and ash formed considerable portions of the timber sold here.

Although the usual form in which timber owners sell their timber products is stumpage and possibly in log form, yet the timber owner may dispose of this products in form of lumber.

In the northern part of the lower peninsula of Michigan it is a common practice for farmers to acquire sawmill equipment for converting their own timber into farm lumber. In a few years, these operators find they can sell lumber to and do custom sawing for their neighbors. A similar practice of hiring the timber custom sawn with the subsequent disposal of the lumber by the farmer also exists.

While these practices are not as prevalent in southern Michigan, three such situations were encountered in Ingham County. One timber owner has been sawing about 40,000 or 50,000 board feet annually from his own land. That portion not used on the farm is sold to industrial concerns at a price that returns about \$11.00 per thousand board feet for the stumpage. The elm, soft and hard maple which he saws may not be worth much more than this figure, but the operator claims the following benefits:

1. Control of the woods management so that young growth is protected.

2. Employment of hired men throughout the winter.

3. Inexpensive method of acquiring lumber for a 1200-acre farm.

4. Enjoyment derived from the mill operation and filling in slack season during the winter.

The other two cases involve the hiring of a custom mill and the sale of lumber. One case was considered successful, the other rather disastrous. In the former case there was sawn out 85,000 board feet of basswood, elm, soft and hard maple lumber. Considering an over-run of 25%, 68,000 board feet of stumpage would have been available at about $14.00 per thousand board feet or $952.00 total value (Doyle scale). The actual conversion cost amounted to $16.00 per thousand board feet, and the lumber sold for $30.00 per thousand board feet, leaving $14.00 per thousand board feet for profit and stumpage value.

However, the other similar case resulted in substantially different returns. There was sawn from a 40-acre tract 232,000 board feet of hard and soft maple, elm, white ash, red and white oak, basswood, beech, sycamore, and black cherry. The total conversion cost amounted to about $3,000 ($12.00 per M.B.F. for cutting and skidding plus piling costs). At present there has been sold 172,000 board feet for a total of $3,382.00 or almost $20.00 per M. board feet. The remaining 60,000, piled in the open for 5 years, has deteriorated so that only $500.00 is the value placed by one prospective buyer. In addition bad debts have accumulated, and the owner has become "disgusted with the whole business". Assuming the remaining lumber was sold and a total of $1,000 was netted on the entire operation, the stumpage return would have amounted to only $5.48 per M.B.F. without figuring the profit or interest on the investment. The original stumpage was worth at least $12.00 per M or about $2,208.00 (assuming 25% overrun Doyle scale); therefore, over $1,000 was lost by sawing the logs into lumber. On the basis of this example, little encouragement can be given for this type of operation under similar conditions. Perhaps the greatest error lay in sawing out the lumber before the markets and the specifications were known. Another obstacle arose through the lack of grading with consequent reduction of prices received for the lumber. General unfamiliarity of market and lumber values also contributed to the loss.

The following conditions would be favorable to this type of operation:

1. Possession of orders with specifications for lumber to be sawn.
2. Possession of that quality and quantity of timber to fill the orders.
3. Reputable and skillful sawyer available to saw and grade the type of lumber desired.

4. Proper piling and handling of the lumber.

5. Sufficiently well organized cost control plan so that the cost will not exceed the stumpage value, profit, interest and insurance.

6. Sufficient interest and business acument to carry on the operation to completion.

Sale by lump sum or by log scale. In answer to the remainder of question 2 the forty-eight timber sellers divide in their opinion on the best method of sale as follows:

1. By lump sum -------- 13 or 27%

2. By log scale ------- 35 or 73%

Several of those who had sold by log scale were not satisfied with this method of sale. A number of explanations account for this condition.

The main reason for the log scale falling into disrepute has to do with the high quality timber usually required by the log scale buyers and the low quality timber accepted by the lump sum buyers. A log scale buyer may agree to cut to a certain diameter limit and pay a set price per thousand for each species. However, some trees containing unforseen rot or other defects may be felled, and, although proper deduction on the gross scale could be made, yet these logs will not pay their way to the mill under the prices stipulated for those species. Therefore, the common practice is to leave these logs in the woods where they represent a loss to the seller. However, this seller may see his neighbor dispose of similar poor quality logs to a lump sum buyer. This buyer claims that since he has bought all of the timber, he might as well take all of it. The log scale buyer, of course, pays for only that timber which he hauls away, no matter how much of it he has cut down. In several cases, the sellers of log scale stumpage were violent in their opinion that they had been duped. They declared that they would sell again only by the lump sum method so that all of their logs could be "sold".

It is interesting to note that Brundage (1) found that one reason some companies in Indiana prefer to buy in lump sum do so because they have opportunity to leave in the woods those low grade logs that will not pay their way to the mill. However, as has been pointed out, in Ingham County the log scale buyers offer the same explanation for leaving logs in the woods. Apparently the log scale buyers in Indiana feel bound to purchase all the trees that have been felled, but the lump sum buyers in that state, having bought all the woods, feel free to take out only marginal and super-marginal logs. Evidence shows that Ingham County buyers do not follow such practices.

It has been mentioned that the lump sum buyers generally pay less per thousand board feet than the log scale buyers. Therefore, the lump sum buyers, paying less for the timber, can afford to take out a marginal log which is smaller and inferior to that of the log scale buyer.

To prevent the development of this attitude against log scale sales which seems to be prevalent in certain sections of the county, especially in Onondaga Township, the log scale buyers might instigate one of two possible solutions. They might grade the logs, paying so much less per thousand board feet net volume for the poor logs or pay a flat fee for each poor log. The object would be to remove all of the large logs cut in order to maintain good relations with the seller. Any method of doing this would seem to work to the advantage of both parties. Probably grading the logs would be the most logical, but operators in Ingham County are reluctant to do so.

Another reason sellers object to the log scale method concerns specifications which are not checked by the buyer before the logs are loaded onto the railroad cars. If some of the logs are rejected, considerable loss is incurred by the seller. The latter then wishes he had sold lump sum so that there would be no "apparent loss". Such cases occur generally in railroad shipments of white ash, black walnut and other more valuable species to Ohio or Indiana. If such buyers wish to continue purchasing by log scale, it would seem to be to their advantage to inspect the logs in the woods or before loading on the cars.

Such stipulations as one firm publishes, "Logs will be inspected for grade only at the mill", do not seem conducive to the continued good will of some timber sellers.

A third reason for preferring the lump sum method, according to some sellers, involves the ease in transacting the sale. The seller does not have to be present when the logs are scaled nor does he have to be concerned with the type of scale and its application. In effect, there is no room "for argument over the scale". As these sellers express it, some people apparently are more satisfied with less bother and responsibility at a sacrifice in money returns. After a thorough discussion of this point with several timber owners, it seems no small amount of education will change their minds. Especially, this attitude is typical of people who believe farm timber is practically valueless and should be cut off as quickly as possible. This attitude is definite and found in all parts of the county, but usually with owners of small tracts of woods.

Because of the prevalence and custom of lump sum sale, this method of purchasing can hardly be termed as a sharp practice. Neither do these buyers appear to be making excessive profits by such methods. All of the homes of these buyers were visited, and only one home had been refurnished in the last twenty years. Only one buyer possessed a recent model car. These observations might not be indices of timber buying successes, but at least the living standards of all the timber buyers were obviously no higher than the average farmer in the same area.

Many buyers purchasing timber in the county stated that the Doyle rule gives an unfair estimate of the actual volume, but each buyer went on to state that the prices would have to be adjusted to any other scale introduced. Those buying by log scale believe that their profits are tied up in the overrun in the Doyle rule; while those buying in lump sums believe that their profits lie in the buying of stumpage at relatively low prices per actual (mill tally) board feet. Both of these points are substantiated by statements of timber buyers in Ingham County.

It has been pointed out that some buyers pay lower prices because of poor market outlets. However, sawmill operators working part time with inefficient equipment can afford to pay even less for timber because generally they are also the operators with poor markets. One measure of efficiency is the number of thousand board feet cut per man day. When one mill in Ingham County cuts ten thousand board feet with five men and another mill cuts only four thousand board feet with five men with same equipment, it would seem that there is a distinct efficiency differential. There are numerous reasons for inefficiency. The most common found in Ingham County being: (1) poor quality timber, (2) lack of sufficient power, (3) inexperienced labor, (4) poor saw fitting, (5) unstable set-up, and (6) lack of co-ordination with logging operations.

The two main causes, poor markets and manufacturing inefficiency, therefore, greatly reduce the amount that such buyers are able to offer for timber and still remain in business. It may be argued that such operators should not be in business, but the fact that they are and can afford to pay only one-half or one-third as much for timber as larger mills does not necessarily indicate their dealings are "unfair". These operations may have a definite place in the marketing system of the county in that they offer an outlet for inferior and otherwise unsalable material. However, their operations should be confined to such activities, as the better quality timber will bring a better price if sold to the larger mills possessing good markets.

In answer to the question as to which method gives the best returns to the seller, the buyers divided as follows: half in favor of lump sum sales and half in favor of log scale sales. Some of the buyers mentioned the log scale method as the more honest method, but others insisted that the lump sum method would bring more satisfaction due to argument and bother in measuring the scale. Therefore, the method of purchasing by lump sums is not only customary, but also thought by many buyers to be the best method for the sellers. This attitude alone makes for difficulty in establishing other methods of sale.

Sale to various market channels. The timber sellers responded to Question 3 as follows:

1. Highest offer of several offers --------- 19
2. Only offer received -------------------- 11
3. Desire to sell all of the wood ---------- 5
4. Too small quantity or poor quality to sell elsewhere ---------------------- 4
5. Desire to sell only part of the woods --- 4
6. Desire to deal with responsible buyer --- 4
7. Bad experience elsewhere ---------------- 2
8. Friend of the buyer -------------------- 1
9. Money needed quickly, sold to first offer ---------------------------------- 1

These comments served to explain why timber is sold to one buyer and not to another. The number of cases in which competition appeared exceeded the number where there was no competitive buying. The quantity and quality available for sale definitely affects the channel used. The four cases in which the volume was small or quality inferior resulted in sales to county mills whose prices for timber are lower than the state stationary mills. Desire to sell all or only part of the wood restricts the possible market to those willing to buy under the desired conditions. Therefore, the importance of knowledge of each buyer's practices are very necessary in addition to the location, prices, and specifications in order to make marketing recommendations. Also the four cases in which the seller desired to deal with a responsible buyer would show the desirability of information on the credit rating and contract execution. The final three items are perhaps of little importance; yet, they indicate the existence of lack of sound marketing planning.

Objectives of farm woods maintenance. The last question asked of timber sellers brought the following responses:

1. Fuel ----------- 36
2. Pasture -------- 27
3. Timber crop ---- 20
4. Sugar bush ----- 12
5. Own pleasure --- 2
6. Posts ---------- 1
7. Windbreak ------ 1
8. Prevent soil erosion.-------- 1

Usually more than one item was mentioned by each seller. The fuel and pasture item ordinarily occur more frequently than shown here according to the Lake States Forest Experiment Station (6). However, in the interviews, the question was merely asked "For what purpose or purposes did you maintain your woodlot?" In no case were any of the possible answers suggested to those interviewed. In some cases the seller may be using fuel wood from his woodlot but did not mention this fact. Therefore, the results listed above merely indicate the purposes in the minds of the sellers for maintaining farm woods and, in turn, point to the way in which these woods are handled by their owners. The high rating of fuel and pasture show that these timber owners look more to immediate benefits rather than to the less tangible but more permanent forest values. For the highest, long-time returns a combination management and marketing plan is necessary, but such a plan is not likely to be carried out or even formulated if the timber owners are not shown the more profitable long-time benefits.

SUMMARY OF FINDINGS

The findings of this study may be summarized under the following points:

1. Within this area 50 timber sellers and 37 timber buyers were interviewed for basic data.

2. Of 63 sales from the 50 sellers, 56 were sales of stumpage, 5 of logs, and 2 of lumber.

3. Sale by the Doyle scale led those by the lump sum method, 38 to 23.

4. Stationary mills in surrounding counties accounted for twice as many sales as local portable mills.

5. Other types of buyers accounted for a small number of the remaining sales.

6. Stationary mills in the surrounding counties paid on the average of $6.00 per M board feet more for timber than local portable mills. Sales to other buyers occurred too infrequently to determine their average price returns accurately.

7. Lump sum sales averages over $5.00 per M board feet less than log scale sales.

8. Sales of logs increased the average return over the stumpage offer by $3.18 per M board feet, while the wage paid to mill crews for falling, bucking and skidding has averaged $4.50 to $5.00 per M board feet.

9. Distance from the market does not affect stumpage prices in Ingham County; in fact mills over 100 miles distant paid more for the same type of material than the local mills.

10. Lump sum sales with large volumes returned less per M than sales with small volumes.

11. Analysis of information from timber buyers shows independent buyers paid at least $7.00 per M more than local stationary mills, who in turn paid at least $2.00 more than the local portable mills.

12. Due to established market outlets, larger stationary mills are generally in a more favorable position to pay higher prices for the better quality timber than the small stationary or portable mills. The quality of timber for sale may determine the type of mill or buyer to which the timber can be sold.

13. Judging from past experience, timber sellers decided on the method of sale - 73% favor log scale method and 27% favor the lump sum method. Also, 83% favor sale of stumpage over sale of logs.

14. Analysis of the reasons given for favoring one market outlet over another shows the number of offers, the amount of timber available for sale, and personalities involved affect way in which timber is sold.

15. Timber owners may or may not be successful in

entering the sawmill business. The markets should be located previous to the sawing and all the costs of operation, interest, insurance, and profit must be included in order to compare the stumpage return with the current stumpage prices.

16. The fact that timber owners signify short time and tangible objective in woodland maintenance indicates lack of interest in or ignorance of other forest values. Timber owners repeatedly mention they have not been shown that such values as wind and soil erosion, wild life, timber, and minor forest crops actually pay their way. This fact may be attributed to the general lack of woodland management and marketing knowledge.

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