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## ABSTRACT

### AN ANALYSIS OF PULPWOOD MARKETING IN MICHIGAN

by Gordon D. Lewis

This study was made to determine the structure of the pulpwood market as it exists in Michigan, and to determine the purposes served by the various segments of the marketing chain. Special consideration is given to the pulpwood transportation system and procedures, and to the potentialities of cooperative marketing as a method of making pulpwood production more attractive to the more stable producers.

Data were obtained by mail questionnaires in 1957 and 1959, and field interviews were conducted in the summer of 1959. In 1957, mail questionnaires were sent to all Lower Michigan pulp mills and to the railroads serving them to gather information pertaining to transportation methods and costs. In 1959, a second set of mail questionnaires was sent to Michigan and Wisconsin pulp mills to obtain data as to pulpwood consumption, prices, sources, and methods of procurement. In the summer of 1959, field interviews were conducted with the public landowners, pulpwood marketing cooperatives, and selected producers. These sources of primary data were supplemented with information from a number of secondary sources.

Michigan pulpwood, the major revenue-producing product of the forests of the state, is the chief raw material for the Michigan pulp and paper industry and constitutes almost one-fourth of the Wisconsin





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pulpwood consumption. This pulpwood is produced primarily by small, part-time producers dealing directly with the pulp mills. All production is carried out under contract; but is quite irregular, varying from 700,000 to 1,000,000 cords per year depending on pulp mill demand.

At present, the main source of pulpwood stumpage is the small private forest ownerships, but due to poor cutting practices in the past, there is a definite trend toward taking a greater proportion of the annual procurement from the public forest lands. There is a continuing steady decline in the pulpwood productiveness of the private woodlands.

No Michigan pulp mill is completely dependent on the pulpwood middleman, and, at present, only a limited number are using the services offered by the pulpwood dealers. As dealer services are dependent on the distance between the pulp mill and the wood supply, the present trend toward greater usage of the more common hardwoods and the over-supply of the other species tend to discourage the use of the dealer system. The greatest advantage of the use of the middleman is that the pulp companies may grant contracts of greater size to fewer individuals, thereby reducing the administrative costs. However, as the use of pulpwood dealers does not free the pulp companies from having to grant financial aid, many companies feel that the dealers do not fully serve their purposes.

All Michigan pulp mills grant aid to their suppliers. This aid is usually in the form of advance payments on wood which has been cut but not delivered. No pulp company provides funds for stumpage procurement, and few will purchase stumpage for their suppliers.

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All pulp companies pay basically the same price for pulpwood, but they tend to compete with one another in nonprice terms. The willingness to purchase pulpwood at points other than the mill woodyard and to assume the costs of transporting it to the mill permits the mills to compete for wood in the same areas without affecting the price while reducing the costs to the seller.

Pulpwood production is a profitable operation, but the extent of profitability varies greatly depending on the species, locations, and negotiating abilities of the producers. However, the long-term effect of the characteristic cutting practices on private lands is that the landowner may not be maximizing his long-run profits.

AN ANALYSIS OF PULPWOOD MARKETING IN MICHIGAN

By

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## PREFACE

This study was undertaken as a part of a continuing study of the pulpwood market carried on jointly by the Department of Forestry and the Agricultural Experiment Station at Michigan State University. It does not pretend to be a new approach to the problem or to develop a perfect solution to all the difficulties. It is, I hope, a clear, logical presentation of the pulpwood market as it exists today with a few suggestions for the correction of certain difficulties.

I have attempted to be as unbiased as possible and to present all sides of all problems discussed. However, marketing is a human endeavor and research in marketing attempts to explain why people carry on this endeavor. It is difficult not to be sympathetic with certain groups and not to paint their problems much blacker than absolutely necessary. In spite of my efforts, it is highly possible that some unknown personal bias may have crept in. The reader is hereby warned.

I would like to apologize to botanists, silviculturists, and other technically-minded scholars for the usage of the word species in this study. In my usage, the word covers everything from a true species to a forest type. This was done, not through ignorance, but to avoid some very awkward expressions.

To try to express my gratitude and thanks to all who made this study possible would be impossible; the result would read like a directory of pulpwood marketing. But without the assistance of the producers, middlemen, pulp companies, public agencies, and many others, this study would

have had no foundation. They gave freely of their time, opened their records, and expressed their views and opinions beyond all expectation. They provided authoritative sources of information on the minute aspects of the actual practices. Their problems in earning a living in the pulpwood market brought forth many of the human aspects which cannot be shown in statistics.

Specifically, I would like to express my heartfelt thanks to a small number of people who not only provided me with information, aid, and assistance, but who also provided the inspiration and motivation necessary for the undertaking.

Special credit is due Dr. Lee M. James for his teachings, his encouragement, and his guidance. His interest in the project, and in me, created the atmosphere necessary to develop the study, and his assistance throughout the project insured its completeness.

I am indebted to Dr. T. D. Stevens and the staff of the Department of Forestry at Michigan State University for the means of carrying out this project. Without the financial assistance, it would have been impossible to do the study, and without the "coffee break" debates, much mental stimulation would have been lost. Credit is also due to the Department of Agricultural Economics for providing me with analytical techniques.

Thanks are due Dean Ross Williams, School of Forestry, Montana State University, for encouraging me to complete the manuscript.

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## CHAPTER I

### INTRODUCTION

The importance of markets to forestry and sustained-yield management of all woodlands has been recognized repeatedly in forest literature. Duerr states that:

The marketing process holds a pivotal position in the forest economy, not only because it is the means of getting much of the economic output in the hands of consumers, but also because it determines the major tangible rewards--hence incentives--for forest management (Duerr and Vaux, 1953, p. 335).

This implies that forest management is a productive process which responds, although more slowly than other processes, to the variations in supply and demand. It assumes that the landowner is concerned with problems of price and value in an effort to maximize his financial returns. Marquis (1939, p. 24) states that "it [forest management] must be in response to the profit motive" if it is going to become applicable to private ownership. Only the government can practice forestry without some type of a market for the forest products, and this is forestry in the negative sense only. Without markets, wood becomes a product with no economic value, and without profitable markets there is no production.

Advocates of tree planting have always maintained that such plantings are profitable in the long run by pointing out the increase in the value of wood products over time. And, within reason, they are correct. Analysis of the forest situation suggests a continuing rise in relative timber prices. However, this is reforestation, not sustained yield. Sustained



yield, as defined by the Society of American Foresters (1958, p. 96), requires that an annual or periodic income equal to the interest on the capital value invested be received. The decisions of management must be based on the existing markets and market conditions. The forest manager cannot wait for inflation to make his operation profitable.

On the other hand, forest management does not have the flexibility of the management of other enterprises. The planning period usually ranges from five to ten years as compared to six months to one year for other productive processes. Once a plan has been determined, it is impossible to vary it rapidly to meet changing market conditions. The forest manager must base his course of action on the market conditions of a relatively long time period; he cannot take advantage of the short term market fluctuations. Thus, in order to develop a plan of sustained-yield management, it is necessary that there be a stable, continuous market for forest products.

However, the quantity removed at any one time will vary with stand condition, silvicultural requirements of the species involved and the end product desired, and the size of the woodland. These removals then may range from very small quantities to relatively large quantities of one or more species of varying desirability. If there is a market for the removals and if the volume is large enough to be salable, the cutting is commercially feasible; if not, it is termed a pre-commercial cutting and will increase the costs to be charged against the future returns from the stand. The lack of desirability because of species can only be overcome by technological advances, but, quite often, thinnings are forced to be pre-commercial as they do not yield a great enough volume to be acceptable in the market. Thus, it is necessary for forest management to have open



markets if an open market be classed as one that will accept the product regardless of the quantity offered.

Open market pricing is important as the greater part of the timber land of the United States consists of ownerships of 500 acres or less, independent of any connection with timber utilizing organizations (U. S. Forest Service, 1958). The larger private ownerships are either in the hands of wood using concerns or are large enough to obtain preferential treatment from the wood consuming companies. These large ownerships seldom operate in the open timber market, but rather operate under market conditions of their own selection. The smaller landowners, however, do not have the power, either through size or organization, to adjust the market to meet their needs. Their output must flow through regular market channels in direct competition with all other wood in the channels. This flow of wood should be controlled by price in order that it be maintained at a level equal to the market demand for it. Thus, forest management requires that there be enough buyers to prevent price control and that market information dissemination to permit the sellers to learn of the market conditions be from sources other than the buyers.

### Pulpwood Marketing

Pulpwood buyers may be classified as oligopsonists. The economies of scale resulting from the possibilities of larger equipment and greater expansion have given a decreasing unit cost of production which has led to fewer and larger pulp and paper companies controlling the industry. This, on the more local scene, is intensified by geography to, at times, an almost monopsonistic condition. Duerr (1960, p. 292) feels that pulp companies, being mutually repulsive, maintain distances between mills

great enough that the transportation costs act for them in the same manner as protective tariff barriers. Under these conditions, it may be assumed with confidence that the prices offered for pulpwood are not those arising from the equating of supply and demand in an open competitive market, but are prices administered by the buyer.

Administered prices are stable prices. The prices once set are seldom adjusted for short periods of supply disequilibrium, but rather are adjusted to long term trends and for errors in procurement judgment. In the face of variations in market demand for pulp and pulp products, the companies limit their procurement rather than change the pulpwood price. Defenders of this type of pricing feel that it is the only way of providing a type of price stability which would encourage management on small woodlands while facing the reality of an unstable market.

If it were assumed that the economy of an area containing the timber-sheds of several pulp companies suddenly declined in reaction to a general business recession, and pulpwood price cutting was resorted to in an effort to offset the losses due to the falling prices of pulp and pulp products, the result would be a decreasing return per cord for pulpwood sold. Galbraith and Black (Waugh, 1954, pp. 54-60) suggest that as long as any per cord return were available, the seller would increase production in order to maintain his income at its pre-recession level because of the nature of his fixed costs. Farm woodlots would be especially susceptible to this type of cutting as the woodland output can be adjusted much more rapidly than that of agricultural crops provided the management plan is discarded. However, any woodland owner would follow the same course if his overall income were tied to prices received for the sale of any recession affected product, or if pulpwood sales make up a large part

of the income. Of course, the extent of the overcutting would be directly connected with the length of the recession. If economic conditions became so bad that industrial workers were laid off, a "back to the land" movement could develop with these workers returning to their rural holdings and entering the pulpwood market with the only product presently existing on the land. The overall result would be an increasing flow of pulpwood into a steadily softening market. The prices would continue to decline until economic conditions improved or the market collapsed. By this time, few pulpwood producing woodlots would still be on sustained-yield management.

On the other hand, if the prices for pulpwood were administered, and woodlot management assumed, the woodlot owners would have little tendency to discard management plans and overcut. While the price would remain constant, the quantity accepted would decline with the economic conditions so that the seller would have no chance to increase his income through additional pulpwood sales. For an individual seller, the market would be limited to a given quantity. With the quantity he may sell fixed regardless of the price he is willing to accept, there is no incentive to cut more than that quantity. If it is assumed that the recession purchased quantity is less than the pre-recession quantity, and that the pre-recession quantity was within the allowable cut of the woodland, the management plan would remain useful and the woodland would be still in proper condition for sustained yield production when the economic situation improved.

Administered pricing may have the effect of stabilizing the market to some extent, but its effect on forest management is questionable. First of all, it ignores the needs of the landowner. In periods of





economic decline, he is willing to accept a smaller unit return in order to obtain enough income to meet his expenses, but this system does not permit him to do so. His pulpwood ceases to be an economic good, and the pulpwood market becomes a "fair weather friend."

Secondly, forest management, through administered pricing, would require pulp company control of pulpwood cutting on all woodlands in the timbershed. Unless there were some system of rationing, there would be the possibility that a small number of sellers would overcut to supply the entire reduced demand, thereby forcing others completely out of the market. While this would limit excessive cutting to a small number of woodlands, it would eliminate all pulpwood income for many others.

Lastly, the effect of the market loss may, in itself, be adverse to forest management in the recovery period. A pulpwood producer who found himself once without a market may feel that the greatest return would be derived by discarding the management plan, selling the total cut when the market reopens again, and employ his time elsewhere. This attitude may be prevalent among farmers and landowners whose main source of income is from selling in a more price-competitive market.

The administered pricing of pulpwood could be used to encourage forest management by the restriction of the quantity marketed in periods of economic decline, but under the present system in which the final production decisions are made by the landowner, administered prices may cause an adverse social reaction and may be resented by the pulpwood seller.

Being faced with a fixed price controlled by a limited number of buyers, the pulpwood sellers may increase their returns only by reducing the prices offered to the next lower levels of the market chain. Actually,

this is achieved, in part, by the actions of the final buyers. Pulp companies set two prices on pulpwood, the middleman price and the producer price, with the former being greater than the latter. In this sense, the pulp companies attempt to administer prices on two marketing levels, but the middleman does not necessarily maintain this spread. It may vary with the local supply situation. Thus, a producer could increase his returns by changing from dealing directly with a pulp company to selling his pulpwood through a middleman or vice versa depending on market conditions while a middleman may increase his returns by reducing the price he pays the producer. In certain regions, the middleman may have greater control over this ability to increase his cost-price spread as the pulp companies insist on procuring through middlemen only, but in other areas where pulp companies procure directly from producers, the middleman must be more flexible in his pricing.

It is only at this level of marketing pulpwood that supply and demand tend to exert an influence on pricing. Pulpwood procurement is normally done by contract with the size of the contract dependent on the procurement agencies' propensity for bookkeeping. However, most contract quantities exceed the productive capacity of any single private woodland. Thus, a seller obtaining a contract must procure pulpwood from sources other than his own timber stands. This may be done by purchasing pulpwood from others or by procuring additional stumpage from forest landowners.

If the contract were obtained by a middleman, it is more likely that the required pulpwood would be purchased from producers. The fact that the producers will market through a middleman is an indication that they cannot obtain enough stumpage to deal directly with the pulp company, or that they

are part-time producers, each selling a very limited amount of pulpwood. In size of operation, any producer selling through a middleman is quite small in comparison to the middleman to whom he is selling, and as pulpwood is a relatively low value product in relation to its weight, it cannot be transported far, so the producer is faced with a limited number of buyers. The overall situation is quite similar to that between the pulpwood seller and the pulp company.

There is, however, one large difference. The pulpwood middleman is bound by his contract to deliver a certain volume of pulpwood, and in many cases a large part of his income is dependent upon fulfilling his contract obligation. The producer supplying him is under no such obligation. Pulpwood production, especially among the part-time producers, offers supplementary income, and is not the major source of livelihood, so that they are in a position to accept or reject any price offer as they see fit. The supply they are willing to market will vary inversely with the remuneration of the alternative occupations and directly with the price offered. Thus, in spite of the monopoly position of the middleman in the local pulpwood markets, alternative occupations for the pulpwood producer and the resulting lack of dependence on the pulpwood market prevents complete monopsony control and permits price variations to influence the flow of pulpwood.

Now, if pulpwood be obtained by stumpage purchase, the competitive conditions vary quite considerably depending on the ownership of the timber stand and the area involved. If there were a unit of measure of competition for stumpage and the competitive conditions were plotted graphically so that the vertical axis indicated competition and the horizontal axis indicated area, a relatively regular arc or bell-shaped curve



would be developed with competition being minimum at the extremes of area and maximum at the midpoint. This, of course, assumes equality of stand density, stand composition, timber quality, site, and many other factors, but it does give some idea of the effect of size on marketing opportunities.

Where competition does occur, it is mainly between the stumpage buyers on the basis of their minimum acceptable return. Except on public lands, stumpage prices are determined by the buyer, and for public stumpage, the minimum acceptable price is determined from the buyers' viewpoint. The costs of stumpage production are never considered.

The small private landowner may be considered to be a passive factor in pulpwood stumpage transactions. He is approached by a producer and a bid is made on the timber. Usually this is the only bid. The landowner's preoccupation with other work and his lack of knowledge of buyers of pulpwood and pulpwood stumpage prevent him from soliciting other bids. A very decided factor of indifference enters into stumpage sales from the seller's side. For the individual sale on a small woodland, there is no interplay of supply and demand. Price variations are due primarily to stand condition, cutting restrictions, and location rather than to response to changes in supply and demand. Individual landowners will not vary the removal permitted in response to a change in the price offered while an increase in price will bring few additional landowners into the pulpwood stumpage market. This is to be expected in a market where the factors which determine price are many and complex. The buyer determines the price for each operation on the basis of the costs to him. The seller, having no concept of the costs involved on either side, is at a disadvantage.



In the case of the large private and the public ownerships, stumpage sales are seller controlled. The large private owners offer stumpage at a given price to selected buyers. There is no competition. The buyer either accepts or rejects the offer. If it is rejected, the landowner makes the same offer to another stumpage buyer. On the other hand, sales on public lands are made on a bid basis, but a minimum acceptable price is set. Competition on these public stumpage sales is often limited by the size of the sale and the payment requirements. Both landowners, public and large private, base their stumpage prices on the costs of harvesting and marketing the resulting pulpwood. Thus, while the public stumpage sales may be somewhat more competitive than those on the private lands, the prices on all large sales are controlled by the seller on the basis of the buyer costs of operation. Competition between buyers is present, but variable, while the interaction of price and quantity, in the sense of greater production and smaller demand at higher prices and vice versa, does not occur.

The pulpwood market cannot be considered by any means a normal market. It is characterized by administered prices and a large potential supply. Price competition is found only in one segment of the marketing system, and only where there is a middleman-producer relationship. Price determination is usually based on the producer costs of operation and is developed for each successive, higher stage as the pulpwood progresses from the forest to the pulp mill. Under these conditions, the equating of supply and demand is achieved, not by the classical "higgling and bargaining of the market" (Smith, 1937, p. 31), but by the almost dictatorial control of the buyers.

This buyer control is not, in itself, bad. The great potential



supply of timber which is being produced with relatively little cost could have a very depressing effect on a completely open market. A system of orderly marketing would prevent a disastrous flooding of a completely open market, but at present the disinterest of the pulpwood and stumpage sellers prevents a seller organization from developing such a system. The ultimate buyers have taken it upon themselves to provide a method of market control which is an imperfect form of orderly marketing. By maintaining stable prices and controlling the flow of pulpwood in the market channels by contracts with selected sellers, the pulpwood buyers prevent a constant oversupplying of the market while completely supplying their own needs. Those sellers who receive contracts consistently form a stable marketing group that can maintain itself in the market.

#### Pulpwood Marketing in Michigan

In Michigan, pulpwood production is the major revenue producing operation on the forests of the state. It provides a source of income for thousands of full- and part-time woods workers while permitting forest landowners to obtain a return from their forests. To the owners of small forest tracts, it represents the only method of obtaining a product from their lands in a reasonable time, while the larger owners depend upon pulpwood production to yield a return on silvicultural treatments required in the production of sawtimber.

In addition to providing a livelihood for many woods workers and forest owners, pulpwood production in Michigan supports the Michigan pulp and paper industry almost entirely and provides some 24 percent of the requirements of the pulp mills of Wisconsin. In 1958, pulpwood production in Michigan was 900,000 cords worth approximately \$27 million of which

slightly less than one-half of the volume and slightly more than one-half of the value was exported to Wisconsin. The remaining pulpwood provided 83 percent of the roundwood requirements of the Michigan pulp and paper industry; an industry which, in 1957, employed some 33,000 workers and paid wages and salaries totaling \$159 million. The industry added \$272 million in value to the product by manufacture (Bureau of the Census, 1959).

The pulp and paper industry came into the Lake States at the turn of the century to base itself on that part of the timber resource which the lumber industry considered inferior for its needs. This was, at that time, primarily spruce and hemlock, which were very adaptable to pulping. The steadily diminishing supply of commercially available swamp conifers and technological developments in pulping caused the industry to turn to those species which were invading the cut-over, burned-over timber lands that had been divided into many small ownerships. The pulpwood market became a source of income for farmers clearing crop lands and for others who owned lands which had proven to be non-agricultural.

The stabilization of the land ownership pattern after the depression of the 1930's changed the picture slightly. Upper Michigan and parts of northern Lower Michigan saw increases in public land holdings while the southern part of the Lower Peninsula remained primarily in private ownership. The increased demands of an expanding industrial and urban population caused the rural sections of the southern part of the state to concentrate on agricultural production and either liquidate or ignore their timber holdings. The pulp mills established in the area were forced to look outside the section for their supply. The pulp mills which had established themselves further north continued to tap private woodlands,

but those areas which had reverted to public ownership were closed to cutting. Thus, all pulp mills drawing on Michigan for pulpwood had to draw mainly on private lands in the northern parts of the state, and from varying distances. The differences in location advantages brought about the development of a rather complex procurement system.

Although the public forest lands are slowly coming back into pulpwood production, the major source of pulpwood for Michigan and some Wisconsin pulp mills is still the small woodland. Some 43 percent of the 900,000 cords produced in 1958 came from public forest lands. The rest was timber from the 12 million acres of commercial forest lands owned by some 174,000 private citizens and organizations with the greater part coming from the 8 million acres in 173,000 ownerships of less than 500 acres. Thus, there exists a situation in which a few multimillion dollar manufacturing units are almost entirely dependent upon a great number of very small producing units for their raw materials.

While the pulp companies are dependent upon these small units, they are not at their mercy. The pulp mill often offers the only market for the small woodland owner's products. In many cases, the individual woodland is too small to encourage sawtimber production as the volume of the end product would be too small to permit economical harvest, or the woodland is in such poor silvicultural condition that the timber is usable only as pulpwood. Also, the lack of other markets demands that, if the landowner is to receive any return from his woodlands other than products for home use, he must sell pulpwood.

Pulpwood production may be the "highest and best" use<sup>1</sup> of much of the non-agricultural lands in small ownerships. Although estimates of just what constitutes economic feasibility in sawlog operations are vague, it is felt that small tracts will never contain enough volume of sawtimber to make it worthwhile, either to the landowner or to the sawtimber operator, to concentrate on sawlog production. As the other markets for forest products are either too small, too local, or too exacting in their requirements to encourage the production of any other forest product, pulpwood may be the only answer to the small woodlot problem.

Actually, the question of dependency arises when the pulpwood seller markets his product. Species preference and market location may limit a seller to a single outlet for his pulpwood; an outlet that may be consistently glutted. The great number of producers, without exceeding the statewide allowable cut, are constantly offering greater amounts of pulpwood than the present market can or will absorb. Thus, while the industry is dependent on the small suppliers for its raw material, many suppliers are dependent upon a single pulp mill for their market.

A similar situation exists throughout the entire pulpwood marketing system. Each level in the channel through which pulpwood passes from the forest to the mill is based on a highly competitive supply base and faced with monopsonistic or oligopsonistic markets. The existence of competitive marketing conditions depends upon whether the particular group in question is being viewed as a purchasing or a selling organization. In general, by looking at the two extremes, the producers and the pulp

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<sup>1</sup>"Land resources are at their highest and best use when they . . . provide an optimum return to their operator or to society." (Barlowe, 1958, p. 13.)

companies, it may be said of pulpwood marketing that an almost perfectly competitive group of sellers is supplying an almost perfectly oligopsonistic group of buyers.

It is this question of the differences in the market position that draws attention to pulpwood marketing. Whenever there exists a large number of relatively small sellers attempting to supply a few relatively large buyers, there is always the possibility of market control in such a manner as to be adverse to the sellers. When the sellers belong to that group of landowners that the U. S. Forest Service (1958, p. 107) maintains has the major responsibility of supplying the nation with the necessary forest products to meet the anticipated future demand, an adverse marketing situation for the present products may have a detrimental effect on the future supply.

## CHAPTER II

### OBJECTIVES AND SCOPE OF THE INVESTIGATION

As pulpwood is the major product of the forests of Michigan, an investigation of the entire pulpwood marketing system is essential to the understanding of the actions and reactions of forest landowners to sustained yield forest management. It is necessary to know the marketing procedures which are followed and the results which occur from following them.

#### Objectives of the Investigation

The objectives of this investigation are to determine the structure of the pulpwood market as it exists in Michigan at the present time and to determine what purpose is served by the various segments of the marketing chain. More specifically, the objectives may be listed as:

1. The determination of the quantities of pulpwood involved, the sources of the pulpwood, and the movements of pulpwood within the state, out of the state, and into the state.
2. The determination of the supply of pulpwood by species as the base for the maintenance of the pulp and paper industry on a sustained basis and to compare it with the actual pulpwood production.
3. The determination of the number and location of the ultimate buyers and their methods of procurement.
4. The determination of the various market agents and to examine

the relationship between them. In view of the potential advantages of cooperative marketing, it is necessary to determine what have been the results of such marketing in Michigan.

5. The determination of the ownership and relative importance of the sources of pulpwood and to examine the methods of timber sale and cut regulation of the different ownerships with emphasis upon the effect of present policy on the future supply.

6. The determination of the methods by which pulpwood is transported to market and to examine the relative costs of the various methods both from the pulp company viewpoint and from the seller viewpoint.

7. The comparison of the costs incurred in producing pulpwood and the prices offered for the pulpwood to determine the relative profitability of the production of the different species of pulpwood and relation to the returns from wood pulp production.

#### Scope of the Investigation

This study was carried out as a part of a continuing study of the structure, organization, and operation of the pulpwood market for Michigan-produced pulpwood. The detailed production studies are limited to Michigan, although some consideration of the output of pulpwood in Wisconsin is necessary as the pulp mills of that state constitute the only out-of-state consumers of Michigan pulpwood. These Wisconsin pulp mills exert no little influence on pulpwood production in, at least, one part of Michigan.

Emphasis is placed primarily on showing the existing market institutions and explaining the advantage and disadvantages of the methods of operation of each. It is upon these units in the marketing system that

the pulpwood producer must depend for the maintenance of the flow of his product to the pulp mills and the returns on his labors to him. In most cases, these structures were formed, not by the producer, but by the purchaser. Thus, they are worthy of very close scrutiny to determine their value to both marketing parties.

One of these institutions, the cooperative, is given special consideration. The assumption of Bratton (1949, p. 190) and many others that cooperative marketing is the elixir to cure many of the ills of the producers of forest products from small woodlands requires that this type of organization be examined in detail. As Michigan is blessed with two types of cooperatives which have been in operation in the field of pulpwood marketing for some time, it is possible to present a rather detailed analysis and to present cooperative marketing as a special type of market structure.

The effects of the potential, sustainable production of pulpwood and its possible effect on price were also investigated. The question of a "fair" price for pulpwood and the possible results of price changes on production has been the subject of much discussion in the trade publications and has resulted in a Congressional hearing and investigation. An analysis is made on the basis of production returns and price-production relationships, but no attempt was made to determine what a "fair" price for pulpwood should be. It is understood that this is being considered by an anti-trust investigation group which has much better data collecting methods than those available for this study.

Throughout the study, the actions of the market agents are referred back to the forest landowner, especially the small woodlot owner, to



question the possible effects of such action upon the continuing productivity of these lands.

## CHAPTER III

### METHODS OF PROCEDURE

This study is a continuation, modification, and expansion of a prior study in pulpwood marketing. In 1954 and 1955, Dr. Lee M. James gathered primary data by means of questionnaire-guided interviews with pulp company representatives, pulpwood dealers, producers, contractors, and pulpwood-selling landowners. This information was supplemented with secondary data obtained from other agencies and individuals.

All the public landowners and almost all the pulp companies using Michigan produced pulpwood were interviewed. The other groups were sampled by random selection of names from lists supplied by the pulp companies and certain dealers and producers.

The results obtained from this study were later published as a Michigan State University Agricultural Experiment Station bulletin (James, 1957).

While there is no question as to the quality of the original study, changes in the pulp and paper industry and the existence of areas which were not taken into consideration in the original study have given rise to a need for expanding the study to examine pulpwood transportation, pulpwood supply potential, and the cooperative marketing of pulpwood; and to determine the effect of the expansion of the industry upon the market structure and the cost-revenue relationships.

The additional primary data required were gathered in 1957 and 1959. The data-gathering process followed, in general, the procedures set up for

the original pulpwood study in Michigan by James (1957), but was separated into two distinct phases.

Information gathered in 1957 pertained to the transportation aspects of pulpwood marketing and was collected by mail questionnaires and correspondence.<sup>1</sup> The contacts were limited to Lower Michigan pulp mills and the transportation organizations serving them. As a result, the questionnaire returns--with a little prompting--were 100 percent. A publication covered this segment of the study and is included in part in this paper (James and Lewis, 1960, pp. 444-69).

The information pertaining to the small trucking contractors was obtained from five pulp companies, 21 dealers, and 17 producers by questionnaires and supplemented with material collected for the original study. It had been found in the data collecting process in 1954 and 1955 that the small truckers themselves were a very poor source of information as most rates were determined by negotiation for each contract, and the resulting contracts had little relation to the costs involved. Thus, it is necessary to depend on the more cost-conscious users of small trucking contractors for much of the information.

Data sources for the longer trucking hauls were limited to a sample of one trucking concern which had filed rates with the Michigan Public Service Commission for pulpwood hauling and which was the chief contract carrier for one Lower Michigan pulp mill. As this carrier limited its hauls to distances greater than 75 miles, it tended to operate beyond the competitive range of the smaller contractors. The use of a single concern,

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<sup>1</sup>Sample copies of all questionnaire material may be found in the Appendix.

while regrettable, is unavoidable. This trucking company is the only large concern which limits its activities to pulpwood transportation alone. Thus, the published rate schedule of the trucking company and questionnaire material from the pulp company utilizing the trucking organization provided the best data on a large, purely pulpwood transportation operation.

Detailed tariff rates were obtained directly from the major railroads transporting pulpwood to Lower Michigan pulp mills. The pulp mills provided lists of loading points within their procurement areas, indicating those at which they would accept pulpwood and those they did not use. The lists were forwarded to the railroads which served the areas to obtain the rates charged, the distances of haul, and the number of railroads involved in transporting the pulpwood from each loading point to the mills.

With these data for large and small trucking contractors and for the railroads, it was possible to develop a comparison of the costs of transportation for pulpwood shipments by rail and truck. However, due to the peculiarities of pulpwood procurement in Michigan, it was necessary to consider the costs from two viewpoints. The assumption of rail transportation costs and the payment of higher prices for the longer truck delivery distances by the pulp companies create costs for the pulpwood buyers while the differences in prices for rail-delivered and truck-delivered pulpwood and the presence or absence of additional handling costs create varying costs for the pulpwood sellers.

In the spring of 1959, another series of questionnaires was mailed to all Michigan and Wisconsin pulp mills. These questionnaires followed the pattern of those used in the original study, but differed from those

of 1957 in that the 1959 pulp mill questionnaires were primarily to obtain volume, price, and cost information. The returns were not as great as in 1957 in spite of as many as two reminder letters sent at thirty-day intervals (Table 1). Those Wisconsin pulp mills which reported using no Michigan pulpwood were eliminated.

TABLE 1.- Returns of pulp mill questionnaires by Michigan and Wisconsin pulp mills procuring pulpwood in Michigan: 1959

Questionnaire Condition	Pulp Mill Location			
	Wisconsin		Michigan	
	Number	Percent	Number	Percent
Completed	16	69.6	9	69.2
Partially Completed	2	8.7	3	23.1
Data Refused	2	8.7	0	0.0
No Response	3	13.0	1	7.7
Total	23	100.0	13	100.0

The majority of the pulp mill questionnaires were returned completely filled out, but a number of mills expressed reluctance to give price and cost data. However, information from similar mills in comparable locations permitted estimates of costs to be made with little fear of error. As will be discussed later, many of the costs and prices are almost standard for the various mills. In one case, one

company reporting for two mills gave only the totals without differentiating between the mills. This required some estimating of locational data, but permitted basing the estimates upon sound totals. The reporting mills accounted for 71 percent of the consumption of Michigan produced pulpwood.

Interviews with public landowners were held in the summer of 1959. These interviews were made on the basis of formal questionnaires, but an open-end questioning technique was used. A 100 percent sample was taken, and consisted of interviews with the Division of Forestry of the Michigan Department of Conservation for all the state forests and with the supervisors of each of the three national forests in the state for the federal ownership. In addition, informal "spot" interviews were made with several national forest officers working directly on cutting areas.

Other landowners were not contacted directly as it was felt that the time lapse between this study and the original study was too short for any great change to occur in practices and policies of private landowners, especially the smaller ones. A study of the pattern in landownership in the northern half of the Lower Peninsula (Yoho et al., 1957) provided data as to forest landowner attitudes, and comparison with landownership data from the original study indicated that similar conditions exist throughout the state. Thus, this study was used for developing the section on forest landowners.

Interviews were held with all the cooperatives in Michigan that market or had recently marketed pulpwood, but with one notable exception the results were meager. The lack of activity in pulpwood marketing had caused several to discard all past records of such transactions. However, by interviewing with open-end questions of the opinion type, it was

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possible to obtain much information as to pulp company relations and methods of operations from a distinctly different point of view.

Producer interviews were limited to five with pulpwood operators who marketed through the cooperatives. It was hoped that a more unbiased group could be contacted in this manner rather than using lists provided by the pulp companies. In the original study, names of producers and middlemen had been obtained from the Michigan pulp companies, but it was felt that the names given were those of individuals who were highly biased in favor of the pulp companies submitting the lists. Of course, the same is probably true of the cooperative producers. They, naturally, would be in favor of marketing through a cooperative middleman, and their views would not necessarily correspond with those of a completely independent producer. However, discussions of their reasons for joining the cooperatives gave an excellent view of the problems of the small producer dealing with pulp company representatives and other (non-cooperative) middlemen. The results of these interviews and those of the original study are thought to give a reasonably complete picture of the producer operation in Michigan.

Information concerning the operations of the independent, full-time producers was obtained primarily from the public agencies and from a single large timber operator. Although this is a far from acceptable sample or sampling technique, the information obtained is quite similar to that from other indirect sources and is felt to be reasonably accurate, especially as it agrees quite well with the data obtained in interviews for the original study.

In general, the 1959 data collection was divided into two parts; a light, extensive sample and a very intensive sample. Those areas



which had been covered in the original study were lightly resampled from a slightly different direction to determine if any notable changes had occurred. If there were no changes, the original data were assumed to be acceptable and applicable. If changes were evident, then the collecting was intensified to bring the original data up to date. In those areas which the original study had not stressed or had omitted, intensive data collecting was planned and carried out. Thus, while this study closely parallels the 1957 study, certain areas such as cooperative marketing and supply potential receive much more emphasis while the areas well covered in the basic study are lightly passed over and only significant changes noted.

Mathematical statistical analyses have been almost entirely eliminated. In attempting to cover so wide a field, it is felt that statistics would become so complex and awkward as to detract more from the ease of data handling than it would add in accuracy. With the exception of price-production relationship analyses, the data presented in tabular or graphic form are the actual data collected or averages and percentages. In this type of study where the accuracy of the data varies greatly from one sample to the next, it is difficult to attempt to analyze the information statistically as an analysis cannot weight itself as to the accuracy of the data.

Where questions or disagreement in the information arose because of the diversity of sources, and field verification or determination was impractical, U. S. Forest Service data were used as a standard and the other sources adjusted to conform with such information. This was especially true in the case of production and cost figures. The Forest Service was selected as arbiter without appeal as the field

studies found a great number of answers prefixed with "I think . . ." or "I should judge . . ." while Forest Service replies were usually based upon definite studies on the forests and from the Lake States Forest Experiment Station in which the errors of estimates could be determined. The effect of the recent Congressional committee hearings in Wisconsin and in Washington, D. C., upon the divergence of answers given in interviews and in mail questionnaires is unknown, but the possible presence of such an effect leads toward greater reliance in Forest Service data than in private sources. Forest Service data were more acceptable than those from other public agencies as the other agencies lack both the staff and the funds to carry out research and often even to keep their records current.

The whole process of the study is to move downward along the supply chain from the pulp mills to the forests. This requires the study of a series of units which decrease in size of operation and increase in number as the study progresses. In general, the process has been from pulp mill to middleman to producer to landowner with attention being given to the different supplementary units or contractors where they occur.<sup>1</sup> However, the structure of the marketing system prevents the elimination of a certain amount of overlapping and reiteration as the overall system of supply differs with each unit being supplied.

The market units are examined to determine the methods of operation, the organization and structure, the location, and the advantages and disadvantages of each. An analysis is made as to the relationships of each unit to the other units of the marketing chain. Certain units may exist

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<sup>1</sup>Definitions for the various units are given in the sections given to the study of them.

alone, but in almost all cases, the operation of one influences the others. However, it must be remembered that the boundaries between the units are by definition only and there may be cases of boundary overlapping by individual operations. Actually, it is possible for a supplier to operate in all the market units at one time; thus, making the entire process a single operation by a single unit.

The analysis of costs and prices is not made until each unit has been individually examined, and is treated as if for a single operation. The costs are primarily the costs of moving pulpwood through the entire marketing chain, and as such are considered for purposes of illustration to be the costs to a single hypothetical individual. This is done to eliminate confusion due to the difficulty in determining the point of title transfer. The services provided by others are treated as a cost of operation. No attempt is made to try to determine a margin for profit and loss for each marketing unit; only for the marketing system as a whole, because of the variability of the overall structure.

The methods of procedure of this study of pulpwood marketing are to present a logical picture of the channels through which the pulpwood moves, based upon a combination of field data checked against and correlated with supplemental information collected from libraries and files of a number of organizations. All data, both primary and secondary, were accepted, rejected, or modified on their respective merit and weighted accordingly. All analyses, with one exception, are made on the basis of actual data rather than on the terms of some accepted norm or mean.

## CHAPTER IV

### REVIEW OF LITERATURE

The ultimate dependence of forestry upon the markets for forest products has given rise to a number of marketing studies which, according to Gregory (1957, p. 454), are based on the assumption that if marketing information is made readily available, forest management will automatically be established or improved. An additional emphasis was given to marketing research under this assumption when the U. S. Forest Service (1958) in its Forest Resource Report No. 14, asserted that, in order to meet the future demand, a good part of the nation's future supply of wood must be provided by the small, almost entirely unmanaged woodlots. If management is going to come to these woodlands, it is necessary to provide market information.

The majority of the pulpwood marketing studies have been done by public organizations and are primarily oriented toward the marketing of pulpwood and other products from farm woodlots and other small holdings. Lloyd S. Tenny maintains that this is due to the fact that the large commercial operations are able to collect and analyze their own cost data and market information while the small operators cannot (Thomsen and Foote, 1952, p. 340). Guthrie (1950, pp. 11-20) indicates that the pulp and paper industry has always been in agreement with this policy to some extent. He states that the future of the industry depends on "obtaining an ample supply of cheap pulpwood," and as a good part of this

supply must come from small private lands, distribution of marketing information to these landowners is highly desirable.

However, several studies have been done which are industry oriented. Foreman (1950) and Hutchinson and Wikstrom (1952) studied the potential of lodgepole pine in Montana as a base for the establishment of a pulp mill in the state while the U. S. Forest Service (1959<sup>a</sup>) analyzed the potential of establishing a hardwood pulp mill in Wisconsin. In these studies, the problem was to determine the potential market conditions for a given raw material based on the future demand for the finished product. However, these studies did not give consideration to the pulpwood market structure. They were primarily concerned with the total supply and its utilization.

Along the same lines, Bray (1944) advocated that in the East the pulp and paper industry concentrate on the problems of utilizing hardwood pulpwood. The result of increased utilization would be the creation of a market for those species most commonly found on farm woodlots while providing a low cost raw material for the pulp industry. McGovern (1946) continued this approach as a method of preventing a pulpwood shortage. Both maintain that hardwood utilization would give a greater value to the small woodlot, and thereby interest the landowner in better utilization of his forest lands. They, apparently, assume that the actual marketing procedures and information flow would be established by the pulp companies and maintained by company procurement agents.

#### Pulpwood Consumers

While the development of new raw materials does interest the pulp

industry and could result in a larger pulpwood market, Duerr (1949, p. 186) asserts that, as the seller enters the pulpwood market at infrequent intervals, the effect of the larger market with the buyer as a source of information is questionable. The seller is often at the mercy of the first buyer to contact him as he knows no other purchasers. In an early attempt to offset this disadvantage, Tilford (1931) developed a listing of the major buyers of forest products in the United States. This listing was on much too broad a scale to be useful to others than the larger timber sellers so more comprehensive listings were developed for more local areas. McCauley and Quigley (1957) published a listing of buyers and specifications for Ohio while the U. S. Forest Service has provided them for several other states as well. Huffman (1958) included a list of forest products buyers in Montana as a part of his directory of manufacturing concerns. The North Carolina Department of Conservation (1960) developed a similar list for the forest products buyers alone. The Michigan Department of Conservation goes somewhat further as it publishes directories of wood using industries for different sectors of the state and revises them at irregular intervals. This is best exemplified by the Directory of Wood Using Industries in the Lower Peninsula of Michigan (Michigan Department of Conservation, 1955).

In spite of expectations, these lists leave much to be desired. Laber (1960), in his study of log and timber buyers in northwestern Montana, discovered that the buyers of forest products from the small forest landowners are very unstable in their operations. Several buyers interviewed had entered and withdrawn from the forest products purchasing field a number of times in the ten year study period. An

even greater number had withdrawn permanently. All, however, were carried in the State Forester's file as being in operation. In the same area, Bolle (1960) found that even the larger timber sellers are faced with erratic markets.

In the case of pulpwood marketing in the Lake States, the same holds true to some extent regardless of the differences in the size of operation. Stoddard (1959), in his analysis of pulpwood marketing, found that while the pulp companies do not go out of business, the irregularity of procurement often leaves the seller without a market for considerable periods. James (1957) found that Michigan mills with small stockpiles tend to be much more irregular in their procurement than when they have large stockpiles, but procurement efforts tend to be very erratic at all times.

On the other hand, Lodewich (1930, pp. 52-56), in his section on pulpwood, maintains that the pulp mills offer a much more stable outlet for the smaller sellers than the other wood using industries, and the listing of the pulp mills is good when addresses are given as inquiries to the mills will be referred to the company buyer or agent in the area. However, he felt that listings alone are insufficient. The small forest landowner is not necessarily in the best competitive position merely because he has more than one buyer for his timber. An accurate knowledge of market channels and specifications is required for the landowner to operate successfully in the pulpwood market.

Eldredge (1939) introduced the idea that the pulp companies should take a more active role in developing procurement policies and distributing market information to encourage forest management on all timber lands. The pulp and paper industry must live within the allowable cut,

and any expansion can come only through additional pulp company land procurement and the management of all forest lands. However, Cruikshank (1947) states that as southern pulp company lands can supply only one-third of the demand, it would be financially advantageous for the industry to aid public agencies in encouraging sustained-yield management on privately owned, non-company lands.

Demmon (1946) stressed the dependence of the Lake States pulp mills upon the small private landowner, but he pointed out that the pulp company attitude toward the small forest landowner would have to change before a workable relationship could be established. He found that the pulp companies tend to consider the small timber stands as areas of timber mining rather than timber cropping. Demmon (1948) further stressed that public and pulp company foresters should cooperate to provide the technical aid and marketing information necessary to insure sustained-yield forest management on all forest lands. He implied that if this was not done, the only answer to the problem would be public regulation.

In the South, the pulp and paper industry has responded to the needs of the small forest landowner. Perry and Guttenberg (1959) found in Arkansas that the pulp company foresters are providing many of the services normally delegated to the state forestry agency, and, in some cases, the pulp companies are actually taking over the management of non-company lands. Through leasing programs, the pulp companies set up management plans for small woodlots while paying the owner a fee based on the productivity of the stand. Thus, the landowner receives some return from his forest lands while being relieved of the details of management. The pulp companies obtain through these leases enough land for



practical management while doing away with the expenses and adverse public relations involved in land procurement.

In the Lake States, however, such is not the case. Sutherland and Tubbs (1959) found that the small woodland owners in Wisconsin are not interested in forest management. Leasing arrangements are unknown. The pulp company foresters have little actual contact with the landowners; pulpwood is bought from producers. Timber management aid is available through state foresters or county agents, but the majority of the owners do not avail themselves of these services. However, James (1960, p. 572) states that "the smallness of the farm woodland militates against regular, frequent cuttings." In Michigan, he found that only about two percent of the farm woodlots are cut for pulpwood each year. This would indicate that there are many years between pulpwood harvests on any given farm so a disinterest in woodlot management and pulpwood marketing is to be expected. However, James did find that in the Upper Peninsula, where the woodlots average almost 100 acres in size, pulpwood cuttings are made at intervals of less than five years. This area should provide a basis for leasing arrangements as Perry and Guttenberg (1959) recommended 99 acres as the minimum size woodlot adaptable to leasing management.

### Pulpwood Middlemen

The pulpwood middleman is a phenomenon that first arises in that stage of forest exploitation termed by Duerr (1960, p. 345) as "the aftermath." The need for the middleman arises as the timber resource consists of lightly stocked stands of small trees, usually of the poorer species and quality, and forest ownership is comprised of many small

tracts with large ownerships being rare. The pulp companies must procure the needed quantities of pulpwood from larger timberlands with production per unit of area and per ownership being much smaller than in prior stages of forest utilization. The most logical approach to procurement becomes the establishment of someone within the procurement areas who will accept the responsibility of concentrating pulpwood from these widely scattered, poorly productive stands at some central point for transfer to the pulp company. People who accept this responsibility on a fee basis are pulpwood middlemen.

In the South, the pulpwood middlemen (known locally as pulpwood contractors or dealers) are a very definite part of the pulpwood market structure. Lodewich (1931) found in Virginia in the early 1930's that the majority of the pulp mills in the state used the services of contractors while Todd and Zirkle (1949) stated that, in Georgia, nearly all pulpwood moves through contractors. They also found that the contracts between the pulpwood middlemen and the pulp companies are normally for specific quantities from carefully delineated procurement areas. Within these areas, each contractor is the sole agent for the company granting the contract. Duerr (1949) stated that while the contractors are granted exclusive territories, they are permitted to have contracts with a number of pulp companies. It is the responsibility of these contractors to contact the producers and to supply, if necessary, the funds to insure delivery of the pulpwood to the pulp mills, to field woodyards, or to rail sidings.

The pulpwood middlemen, while created by the pulp companies for the benefit of the contracting companies, also benefit the suppliers. Stoddard (1959) found that the pulpwood contractors are often the only

source of credit available to the producers. Skok and Beazley (1960) came to the conclusion that the absence of the pulpwood middlemen forces timber-purchasing producers to depend upon the landowner for credit. According to their findings, pulp mills offer credit only to a small minority of the producers so those without pulp-mill credit sources are forced to buy stumpage from those landowners who are willing to wait until the pulpwood is sold at the mill before receiving stumpage payments.

Wackerman (1945) found that contractors offer the producers services as well as credit. The contractors in North Carolina purchase pulpwood at roadside and provide the transportation facilities necessary to transport the wood to the mill receiving points. Lodewick (1931) stated that pulpwood producers are offered groceries and other supplies by certain types of middleman. James (1957) found that Michigan dealers will also purchase stumpage for producers, especially on the large timber sales.

In most of the marketing literature, the pulpwood middleman is accused of unethical practices and of preventing the development of forest management on the smaller tracts. Watson (1941) maintains that the dealers take advantage of their monopoly position to force the landowners to accept unfavorable "lump sum" payments for their timber and to permit clear cutting of the stands. The Regional Committee on Southern Forest Resources determined that such action, while not always the case, is to be expected in the present market system. The middleman's profit is the spread between the price set by the pulp companies and the price he has to pay the producer. The middleman can only maximize his profits by "beating down" the price paid to the producer.

The Committee also found that while there is little or no competition between the pulpwood middlemen, the small sawmill is competing quite strongly for the small timber. As the small sawmiller will take the better part of the timber, the pulpwood middleman will often encourage the landowner to clear cut for pulpwood. As the competitors bid in "lump sums," the landowner can only accept the bid that offers the greatest immediate return.

Bourdo and Johnson (1959) maintain that the landowner will receive the greatest return by marketing both pulpwood and sawlog products, but Wackerman (1945) found that the lack of a unified market forces the landowner to sell to one or the other buyer, but not to both, as the quantities involved would be too small to interest either buyer. This is especially true if the landowner is attempting any type of forest management. He recommended that middlemen be encouraged to handle several products instead of limiting themselves to any single one, or that the landowners band together for cooperative marketing, and act as their own middlemen.

#### Pulpwood Marketing Cooperatives

As cooperatives have worked quite well in the marketing of agricultural products, they have often been advocated as the solution to the small woodland problem since, according to Koller (1947), cooperative marketing is the only method by which a large number of sellers can bargain successfully with a few large buyers. Holsoe (1948) determined that the forest-products cooperative is the proper institution to fill the void left by the public aid programs between the services of the public foresters and the purchase of the products. He feels that while

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public assistance to the small woodlot owner is, in itself, an excellent thing, the demand for the services of the assisting foresters is too great to permit them to do more than provide the landowner with a few of the simpler techniques of forest management, and the landowner cannot be taught a highly technical forestry course in a few lectures and demonstrations. Also, he maintains that when the focal point of the program--the marketing of the forest products--is reached, the public forester is usually prohibited by law from entering directly the negotiations between the buyer and the seller.

A cooperative, on the other hand, would be able to provide the services of a forester for its members at all times to aid in the management of individual woodlots, or as advocated by Walkup (1960), combine the woodlots of all the members into a single management unit. The primary function of the cooperative, however, would be to enter the sale negotiations directly to obtain the best return for the seller. This is possible, according to Farmers Bulletin No. 1927 (U. S. Department of Agriculture, 1943), because of the greater bargaining power of the individual acting as part of a group, the ability of the cooperative to concentrate relatively large quantities of the product for sale, and the superior knowledge of the forest-products market held by the manager of the cooperative.

However, Cope (1941) pointed out that cooperatives are not immune to failure. There must be a reasonable amount of merchantable timber under the cooperative's control, a market for the existing timber products, and a willingness on the part of the members to accept the restrictions imposed by the cooperative for the establishment of the cooperative. To maintain itself, the cooperative must be able to

establish a permanent yield of forest products, and it must be able to sell these products for a greater price than the member landowners could obtain by selling outside the cooperative. It is this last requirement that causes Galbraith (1952) to maintain that cooperatives usually benefit the non-members more than the members. A relatively large buyer pays the same basic price to all sellers in a given area as individual price discrimination toward a great number of small sellers is not economical. While this may be a problem, Rettie and Ineson (1950) found that the greater the amount of processing of the products a cooperative can do, the greater its returns will be. The additional processing will not only increase the value of the product; it will also eliminate the increasing of the returns to non-members.

In pulpwood marketing, additional processing beyond delivery of the pulpwood to the mill is highly unlikely on a cooperative basis, and as the pulp companies pay a fixed price, the pulpwood marketing cooperative has little opportunity to eliminate the benefits received by non-members because of the efforts of the cooperative. Warner (1953) found in North Carolina that unless a cooperative received middleman status with the resulting increase in price, it is impossible for it to provide a higher return for its members. However, unless it can maintain a stable flow of pulpwood to the mill, the obtaining of middleman status is extremely difficult. He pointed out that as the majority of the members of a cooperative are farmers, it would be necessary for a pulpwood cooperative to hire pulpwood cutters during certain seasons to maintain the constant flow. This periodic hiring does not permit obtaining of the better personnel, and it may prove too expensive.

Along with the problem of maintaining a price differential is that

of maintaining a timber supply. Moore (1937) found that, in Britain, cooperatives developed to overcome a loss of markets which had resulted from forest depletion and a lack of interest on the part of the landowners in forest management. He maintains that sustained-yield management must be an integral part of any cooperative marketing as many small forest landowners do not consider their timber as a permanent crop, but as a one-time source of income. Bratton (1949) found in Michigan that cooperative marketing of pulpwood from small private ownerships through a cooperative having no forest management regulations is highly successful at first, but gradually declines as the members remove all the merchantable timber from the woodlands. In fact, Franson (1949) found that Michigan's only successful forest-products marketing cooperative is dependent upon managed public forest lands for the greater part of its timber supply. If a cooperative is unable to interest its members in forest management on their own lands, the cooperative is almost assured of failure.

In order to insure a constant supply of products for a cooperative, Sapiro (1923) advocated that "iron-clad" contracts with severe penalties for noncompliance be used to bind the members to the cooperative. However, Solin (1940) found that in order to obtain membership, forest products cooperatives, in general, have to keep the membership requirements as non-restrictive as possible. As the woodlots are not the primary source of income, landowners do not feel that they should bind themselves by contract too strongly.

Thus, it appears the pulpwood cooperatives may be in a very precarious position, especially as the members may withdraw with only the loss of a small membership fee if they are not required to market their



forest products through the cooperative. The landowner may market through the cooperative to maximize his per unit of measure returns, but may often maximize his short-run total returns by marketing-- through the cooperative or alone--his entire pulpwood supply without regard to the management plan, and without fear of financial penalty for his action.

#### Pulpwood Producers and Landowners

Korstian (1944) states that a number of Federal and state agencies have been providing private landowners and operators with information and advice on forestry practices for a number of years, but in spite of the large amounts of money and effort invested, there is still little interest in forestry on the part of the smaller woodland owners. The Timber Resource Review (U. S. Forest Service, 1955) indicates that the industrial landowners are realizing the value of their woodlands and treating them properly, but the smaller woodland owners, upon whom the responsibility of meeting the future demand falls, are not increasing the productivity of their forest lands to any great extent. Yet, according to James (1960), the farm woodlot owners have a double stake in forest-products production; they sell forest products from their own woodlots and harvest a large part of the timber sold from other woodlands.

Because of this double interest in small woodland production, the landowner and the producer must be considered together as they are interchangeable in operation and dependent on each other for their livelihood. This is especially true in pulpwood production.

Bruce (1959) found that there is an inverse relationship between the

volume to be cut and the farmer's willingness to cut on his own woodland. He points out that where the volume to be removed is small, the full-time producer is reluctant to buy stumpage, thereby encouraging the landowner to cut his own timber. The smallness of the size and the quantity of the timber involved in pulpwood production offers an ideal situation for a small landowner to become a pulpwood producer on his own land. It is only logical that the experience gained will encourage the landowner-producer to continue to produce pulpwood by procuring stumpage elsewhere, but the limitations of his experience and his funds will limit his operations to the smaller tracts unacceptable to the larger operator.

However, Duerr (1949) points out that the small forest landowner enters the forest-products market at an almost extreme disadvantage. He states that farm woodlot products production is a "minor part of a minor operation" so the seller is completely unfamiliar with the timber market and with the harvesting and processing required for a given timber product. Yet, the smallness of the volume to be sold does not encourage the seller to become familiar with the market, and as the small volume attracts only the small buyers, he may be forced to sell to dealers of limited capacity or questionable ethics. The U. S. House of Representatives (1941) reported that, in pulpwood selling, farmers are tied to a monopolistic program. The market condition may be more a factor than market knowledge. The Interbureau Committee on Farm Technology (1940) found that the small forest landowner is often faced with a poor market in the sense that the market accepts material from farm woodlots on a minimum quality basis only. The poor condition of the farm woodlot eliminates the existence of a quality oriented market for woodlot

products so that any product produced will bring only the minimum price. In order to obtain enough volume to make a cut profitable to a logger, the landowner must sell everything merchantable. This does not improve the stand. Under these conditions, the only recommendation the Committee could make was that the woodlot owner do his own harvesting and marketing in such a manner as to increase the value of future harvests on the tract.

Cunningham et al. (1939) felt that it would be necessary to stabilize forest land ownership in larger holdings either by facilitating private ownership or by arranging for public acquisition before continual production could be gained. Smith (1954) recommended that the state subsidize new wood-using industries to create better markets in areas with sufficient timber supplies to offer landowners incentive for proper forest practices.

In southern Illinois, the Interbureau Committee approach has been advocated. Hosner and Lane (1953) determined that it is profitable to sell stumpage for stand improvement on woodlots as small as twenty acres, but they also pointed out that a landowner may increase his returns two to three times by doing his own woods work. They found that a farmer can earn \$1.42 per hour by improving his stand in his spare time. Preston (1949) indicated that stumpage represents only one-fourth of the costs of production. However, Zasada (1949) found that the farmers tend to limit their market by cutting one size of one product.

In the same area, Minckler and Hosner (1958) determined that the returns in the various stages of harvesting and marketing pulpwood, when expressed as a percentage of the value of the product at the pulp mill, is 4 to 10 percent for stumpage, 32 percent for felling and

bucking, 13 percent for skidding, 26 percent for loading and hauling, and 18 to 23 percent for business profits. Thus, a landowner may greatly increase his returns by doing his own harvesting and marketing, but the authors cautioned that every landowner should not attempt to market his pulpwood at the mill just because the total return is increased. The additional equipment and labor required may demand additional investments which may not be consistent with the returns.

Bruce (1959) found in Washington that a capital investment of \$4,900 is required for a landowner to do his own logging. This figure includes farm equipment which may be used for both farming and logging so the additional investment need not be large for farmers. He indicated that, generally, it is the fear of a large capital investment rather than the actual investment that kept many farmers from doing their own logging. In addition, a lack of logging experience, a lack of available cheap labor, and the availability of producers greatly encourages stumpage sales.

He also pointed out that Washington farmers are willing to accept a lower price for their stumpage provided they feel the loggers are honest and will do a proper harvesting job within the landowners' concepts of management.

In Tennessee, Britt and Martin (1959) found that about one-half of the pulpwood sales are made by landowners at field woodyards. These owner sales yield \$11.00 more per cord than pulpwood sold as stumpage. While the landowners who sell stumpage feel that they are not getting a fair share of the total return, no seller has any idea of the costs involved in the various operations. They also found that no sales are being made as part of a management plan or to improve the stands. Of

the total sales, 50 percent are made to obtain income to meet current financial obligations while the others are made simply to obtain a sparetime income.

The Forest Committee of South Carolina (1944) found that the forest landowners are not interested in improving their woodlands to encourage the development of a better market. The farmers of South Carolina sell pulpwood in periods of high pulpwood prices, in the event of crop failures, or when they are clearing lands for agricultural purposes. This would indicate that the farmers enter the pulpwood market only when an unusual market condition develops or when they require a ready source of income, and that such marketing is definitely not a part of a plan of continual pulpwood production. Larson (1960) reemphasized this when he stated that, in spite of educational and cost sharing programs, the small private ownerships include 81 percent of the forest land that would profit from treatment.

Sutherland and Tubbs (1959) found in Wisconsin that while farmers have a better understanding of woodlot values than other landowners, all the small forest landowners questioned indicated a complete lack of interest in trying to obtain a periodic income from their woodlands. However, Worley (1960) found that many landowners place high non-monetary values on their woodlands as they exist, and past experience with producers discourages them from permitting cutting. He indicates that those landowners who could best benefit from proper utilization of their woodlands feel that the time required to do their own harvesting and marketing can be best spent on their farm crops so they could make a "quick income." Almost 82 percent of the landowners interviewed were perfectly satisfied to let the timber grow naturally. Duerr and others

(1946) found, however, that absentee landowners are more apt to sell timber than farmers.

Hutchison and Winters (1951) maintain that this lack of interest is due to the poor marketing system. Farm woodlots contain small quantities of timber of various degrees of quality, but, due to the lack of concentration facilities, the only markets available are those industries which utilize the lowest quality material. As the landowner must sell everything merchantable to interest a buyer, and the only market is for low-quality timber, there is no incentive to improve the woodland condition, and the narrow margin between the costs of management and the price received for the low-quality product does not encourage management. In fact, the Forest Committee of South Carolina (1944) stated that growing trees on a pulpwood rotation is not economically sound.

In Michigan, James (1957) found that the market structure does tend to discriminate against the single landowner marketing his pulpwood directly to the pulp mills on a stand-improvement basis. Although the Michigan market is rather flexible in operation, the use of contracts by the pulp companies for all procurement plus a general rejection of the middleman tends to force the small landowner to sell stumpage to a contract holding producer rather than doing his own harvesting. James pointed out that the average farmer-producer sells almost twice as much pulpwood as is produced on the average farm woodlot, indicating that if a landowner wishes to do his own harvesting, he must expand his operation to other woodlands in order to obtain enough pulpwood to be able to get a contract.

It was also pointed out that while the contracts between the mill and the producers tend to vary in formality, the contracts between the

landowners and the producers are quite informal, and contain few cutting restrictions. This is especially true among the large group of heterogeneous small forest landowners other than farmers. The large number of absentee owners, with notable exceptions, are usually willing to sell stumpage on the basis of a single offer with relatively few restrictions.

The pulp companies, realizing some of the defects in the marketing system, have made some effort to encourage profitable pulpwood production. Jeffords (1956) reports that, by use of the contractor system and the establishment of company-operated field woodyards, a pulpwood seller may deliver small quantities of pulpwood, observe the actual scaling and culling, and receive payment upon delivery. This eliminates any chance of the middleman attempting to increase his returns by reducing the producer price, but the local contractor is credited with the sale. As the woodyards permit the use of mechanical equipment in unloading the seller's truck, the time and effort required for completion of the marketing transaction is reduced. This eliminates the expense of hand-loading railroad cars for those producers who cannot deliver directly to the pulp mill. It is assumed that this cost reduction will make pulpwood management an economic operation.

The same report maintains that the adaptation of purchasing by weight will do much to relieve the complications and eliminate the mysteries arising from the different units of measure for pulpwood.

Along the same lines, Malsberger (1956) reports that the pulp companies, either individually or through the Southern Pulpwood Conservation Association, are engaged in extensive public relations to familiarize the small landowner with the pulpwood market, with pulpwood as a profitable product, and with the harvesting procedures. This

indicates that the pulp companies realize their dependence upon the small landowners as the main source of the future supply of pulpwood, and are attempting an ephemeral type of vertical integration. He points out that the southern pulp and paper industry will always be dependent on the small landowner for between 25 and 50 percent of its raw material supply, even when the pulp-company lands reach their full productivity.

### Pulpwood Costs and Prices

The majority of the marketing studies have assumed that either the landowner is going to sell stumpage or do his own woods work in a slack season. Holcomb and Herbert (1943) maintain that stand improvement and the marketing of forest products provides an excellent source of additional income for the Michigan farmer while not making demands on the time needed for crop production. Jensen (1940) determined that the returns on pulpwood production from timber below eight inches in diameter were very small. He recommends that this be established as a minimum cutting limit. Hough (1941) showed that pulpwood producers may increase their profits by cutting selectively rather than clear cutting. He indicated that purchasing stumpage on the basis of actual production rather than by a lump sum payment is more profitable, both to the pulpwood producer and to the landowner.

Black (1953) points out that while investments of time and labor in farm woodlots will yield a return, it is only in relation to the total income of the farm as a unit and in comparison with alternative investments that such investments become significant. Scott (1955) stated, however, that timber, under the existing woodlot conditions, is a flow resource. The producers feel that if they do not capture it



all at one time, someone else will take it. This concept discourages timber buyers from purchasing stumpage on a stand improvement basis. They feel that they must cut everything at the same time.

One of the major problems in determining what investments in small woodlands will return is the variability of the price received. The price offered for pulpwood stumpage is a residual; the maximum being the difference between the price of the pulpwood delivered to the pulp company and the costs of producing and transporting it from the timber stand. However, Chapman and Meyer (1947) point out that the prices vary greatly due to the differences in the knowledge of the parties involved and to their bargaining ability.

Guttenberg (1956) advocates the reporting of prevailing stumpage prices by a responsible agency. It would provide a basis for the valuation of land and timber values for sales and management plans, and for appraisals for taxation and damage estimates. He maintains, however, there are five price populations which must be evaluated: (1) stumpage prices for timber removed from company lands for company use, (2) stumpage prices for timber under long term leases, (3) stumpage prices on public lands, (4) stumpage prices for private competitive sales, and (5) stumpage prices for private, illogical sales. Reports of such prices would, at least, provide the small landowner a reasonable estimate of a price for his type of sale or a basis for determining the market value of his stand.

McCauley and Quigley (1958) and McCauley (1960) did provide listings of price ranges and averages for forest products in Ohio while the Lake States Timber Digest in Wisconsin and the Forest Woodlands Product Market Report in Washington plus many others report prices and market

conditions on a semiannual or monthly basis. However, these price reports deal primarily with the price offered by the consuming mills for the cut products.

Senator Humphrey (1957) introduced a bill in Congress providing that the prices of forest products be reported in the same manner as those for agricultural products. The purpose of this bill is to provide aid to the small landowner for "more efficiently and profitably marketing forest products." However, Shaw (1958), speaking for the wood-using industries, and the American Forestry Association (1957) maintain that as price information is always available upon request from any operating unit of the forest-products industry, price reporting would be an expensive and unnecessary addition to the government programs. Shaw also feels that such price reporting will lead to price supports and public controls in forest-products marketing. Mosebrook (1957) provided a listing by states of the state and private sources of price and marketing information.

The U. S. House of Representatives (1957<sup>a</sup>) caused a study of the price trends and relationships for the major forest products to be made. This was followed by annual demand and price situation reports by the U. S. Forest Service and the Commodity Stabilization Service (1958 and 1959). However, the stumpage pricing in these reports is rather limited and may be open to question. Zivnуска and Shideler (1958) studied the feasibility of price reporting for standing timber. They determined that there is no conclusive evidence that stumpage price reporting is possible. In their study area, they found no relation between stumpage prices and such factors as volume, forest type, density of the stand, and length of haul. The study does point out the lack of knowledge concerning the price determining mechanism in the marketing of forest

products.

These various studies, when taken together, appear to cover the field of pulpwood marketing, but, in reality, they indicate some of the problems in studying forest products marketing. The majority of the studies are oriented toward helping the landowner market all of the products on his woodlot. By necessity, these studies seldom extend beyond the first buyer. Those studies which attempt to look at the entire marketing system are too broad in scope to study individual relationships. Of this type of study there are two groups: those which study a single product within a wide geographical area, and those which limit themselves to a smaller area but examine the markets for all forest products produced in the area. Yet, it is only by examining the complete market structure for a single product within a logically limited area that the relationships between the buyers and the sellers can be examined in detail. This is especially true in Michigan where the pulpwood market is the major outlet--and often the only outlet--open to timber sellers.

## CHAPTER V

### PULPWOOD PRODUCTION, EXPORTS, AND IMPORTS<sup>1</sup>

In 1958, almost 900,000 cords of pulpwood of all species were produced from the forests of Michigan. Only about 51 percent of this wood was consumed within the state; the remainder was exported entirely to Wisconsin. Imports of pulpwood into Michigan totaled 91,000 cords, with 84,000 cords of this being Canadian pulpwood procured by one Lower Michigan pulp mill. The remaining 7,000 cords were imported from Minnesota.

#### Trends in Pulpwood Volumes

Little upward trend can be seen in pulpwood production statistics in Michigan from 1946 to 1958 (Fig. 1). The 1958 pulpwood production was 55,000 cords greater than the 1946 output, a 7 percent increase as compared to a 96 percent national increase--from 17 million to 33 million cords--for the same years (U. S. Forest Service and Commodity Stabilization Service, 1959). Within the period, production fluctuated from a low of slightly more than 500,000 cords to a high of nearly 1,000,000 cords.

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<sup>1</sup>Much of the material in this chapter was published in the Michigan Quarterly entitled "Michigan Pulpwood Production and Markets" (James and Lewis, 1960<sup>a</sup>), and is again presented here with some amplification.

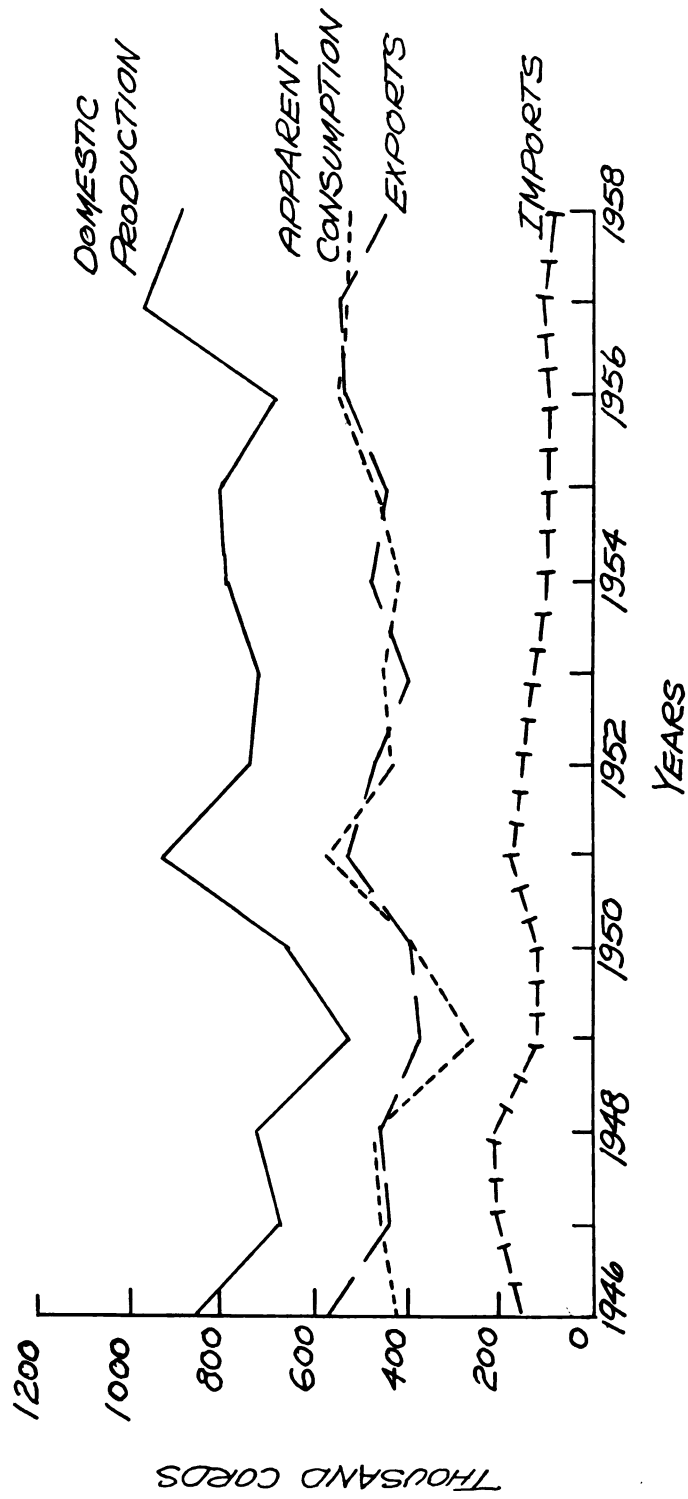


Fig. 1. - Pulpwood production, exports, imports, and apparent consumption in Michigan for all species: 1946-1958

The annual statistics on Michigan's apparent consumption<sup>1</sup> of pulpwood and Michigan's pulpwood exports are amazingly similar. Both have fluctuated between 400,000 and 600,000 cords, although the apparent consumption fell below 400,000 cords in 1949. With the exception of 1946 and 1949, the exports and the apparent consumption have been almost equal, and prior to 1952 they increased and decreased together, but at different rates. However, since 1952, there has been a tendency for one to increase as the other decreases and to decrease as the other increases. In terms of general trends, the apparent consumption is gradually increasing while exports are nearly constant. This relative stability in exports results from the fact that exports are mainly from the western half of the Upper Peninsula, and their flow is to nearby mills in Wisconsin.

Michigan pulpwood imports, mainly from Canada and moving by water to one pulpmill in Lower Michigan, have declined steadily. Imports comprised 19 percent of the 1946 domestic production, and only 10 percent of the 1958 production; an absolute decline of 66,000 cords. Importation of pulpwood into Michigan reached its maximum in 1948 and declined thereafter because of the conversion of Michigan pulp mills to greater aspen usage following the recession of 1949.

In Wisconsin, pulpwood production has a very definite upward trend. From 1946 to 1958, production rose from 428,000 to 828,000 cords--a 93 percent increase--with only a few minor fluctuations (Fig. 2). The 1958 Wisconsin apparent consumption was slightly (36,000 cords) less than that of 1946, but nearly five times as great as Michigan's. Wisconsin's

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<sup>1</sup>Apparent consumption equals production plus imports less exports.

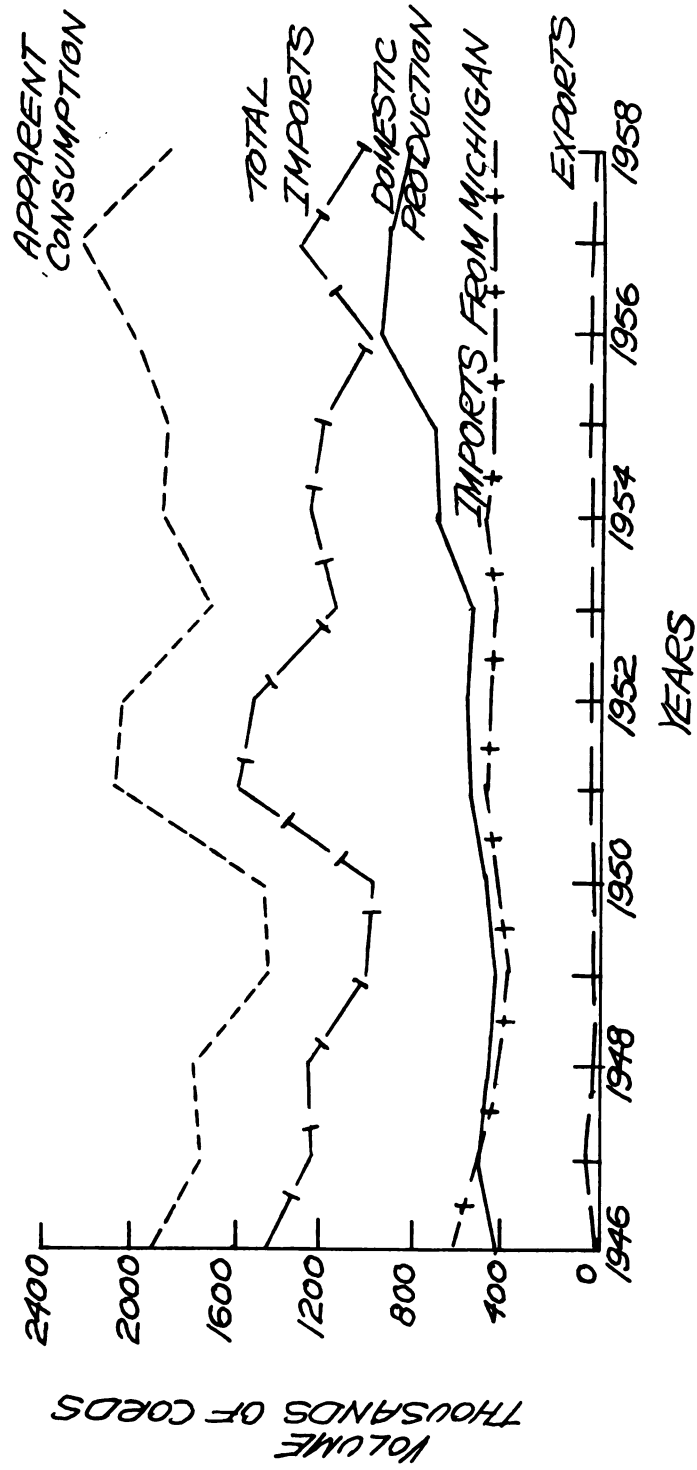


Fig. 2. - Pulpwood production, exports, imports, and apparent consumption in Wisconsin for all species: 1946-1958

apparent consumption fluctuated widely between a low of 1,426,000 cords in 1949 and a high of 2,246,000 cords in 1957, but in spite of these fluctuations a very slight upward trend is evident.

The annual variations in Wisconsin's imports followed those of the apparent consumption quite closely from 1946 to 1953 with the exception of 1950. After 1953, Wisconsin-produced pulpwood took a greater share of the market and the demand for imported wood declined. The reduction in Wisconsin's production in 1957 gave rise to greater pulpwood importation to meet an increasing demand. It should be noted that imports of Michigan-produced pulpwood into Wisconsin were relatively constant throughout the thirteen year period, and strikingly so after 1955. This would indicate that, in periods of changing demand or domestic production, the change would first be noted in variations in the demand for pulpwood from the more distant sources.

In terms of species, pulpwood production in Michigan has shown some remarkable changes, both on an absolute basis and on a percentage basis. The limitations of the forest resources are definitely causing a shift from the use of the historically more desirable softwood species to the use of the less desirable softwoods and the hardwoods (Fig. 3).

In Michigan, the softwood species, which comprised 70 percent of the 1946 production, accounted for 43 percent in 1958. The reduction was reflected mainly in a decline in hemlock production which dropped from 30 to 4 percent of the total (Table 2). While spruce production declined from 15 percent to 10 percent, balsam fir maintained its position at 12 percent of the total production. Although pine pulpwood production declined from 10 percent in 1946 to 5 percent in 1955, it rose sharply to comprise 17 percent of the total in 1958.



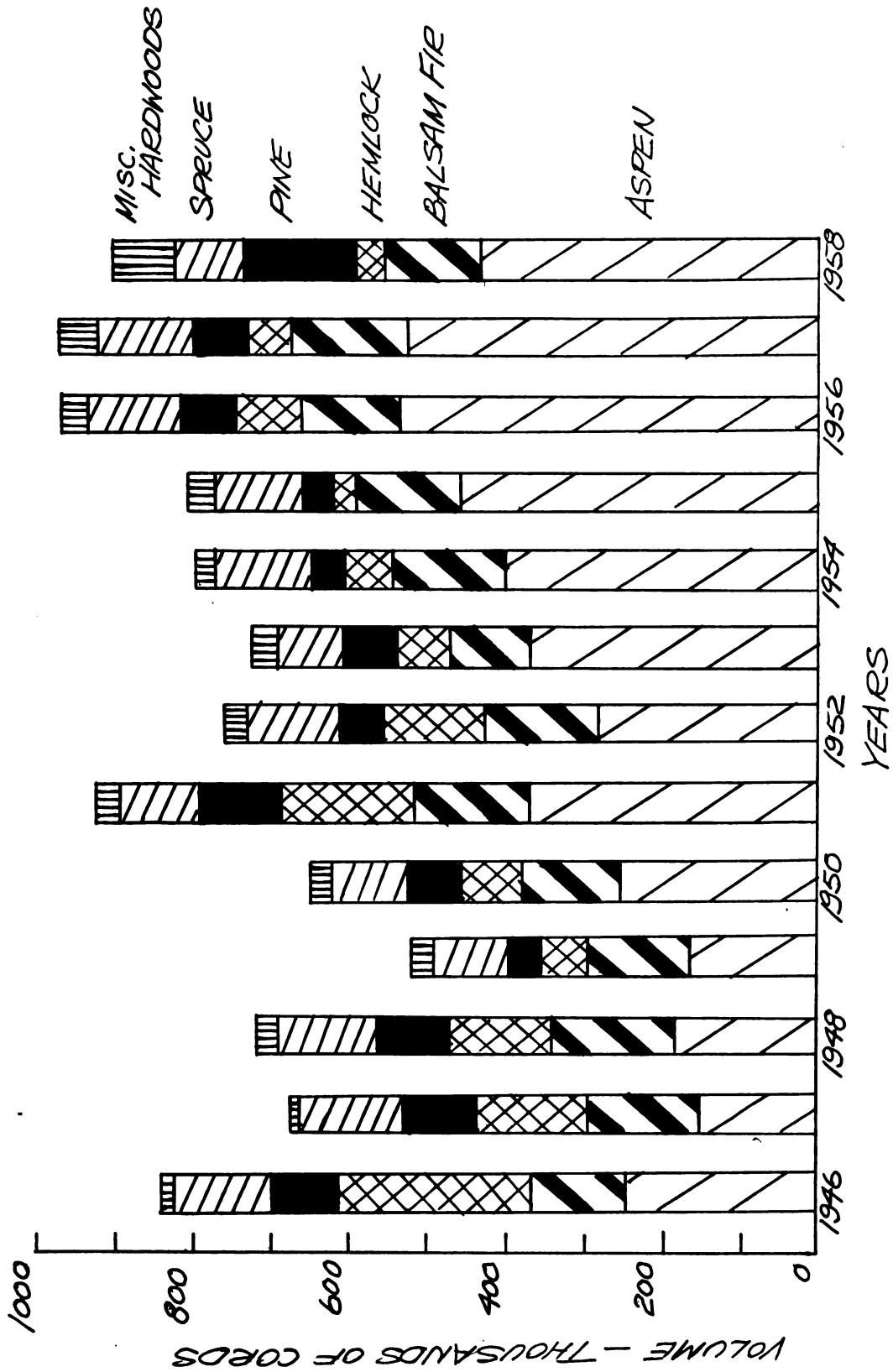


Fig. 3. - Pulpwood production in Michigan for selected species: 1946-1958



TABLE 2.- Pulpwood production in Michigan as a percentage of the total  
Michigan production for selected species: 1946-1958

Year	Species					Miscellaneous Hardwoods
	Aspen	Balsam Fir	Hemlock	Pine	Spruce	
- - Percent - -						
1946	29.18	13.84	29.55	10.01	15.02	0.96
1947	22.45	20.54	22.88	12.74	19.69	1.43
1948	24.97	22.42	18.06	12.21	18.34	2.66
1949	32.37	23.49	11.85	7.36	18.67	4.76
1950	38.28	18.73	12.83	10.04	15.01	4.26
1951	38.70	14.98	18.07	10.99	11.74	3.65
1952	36.10	20.00	16.39	7.62	15.75	3.00
1953	50.46	14.11	9.76	9.25	11.15	4.57
1954	50.55	17.22	7.77	5.41	14.90	3.31
1955	56.71	15.01	4.46	4.72	13.66	4.71
1956	55.64	12.28	9.15	6.91	11.85	3.72
1957	55.11	15.03	6.19	7.16	12.08	5.72
1958	48.23	12.82	3.11	16.53	9.59	8.74

Aspen production rose from 29 percent of the total output in 1946 to a high of 57 percent in 1955. Although it declined to 48 percent in 1958, this has been compensated for by increases in the production of pulpwood from the miscellaneous hardwoods. The miscellaneous hardwood pulpwood output increased some 875 percent; raising its proportion of the total production from less than 1 percent in 1946 to almost 9 percent in 1958.

Unlike Michigan, where there has been little increase in the total pulpwood production, Wisconsin's output nearly doubled from 1946 to 1958. The production of any species would have to increase considerably to hold its own in terms of percentage.

Production of softwood pulpwood in Wisconsin, with the exception of pine, has varied little in absolute volume (Fig. 4). As a result, hemlock production declined from 15 percent of the total output in 1946 to 7 percent in 1958 (Table 3). Balsam fir dropped from 11 percent to 8 percent while spruce fell from 7 percent to 3 percent of the total production. Only the production of pine pulpwood, among the softwoods, has increased to any great extent. This increase has enabled pine pulpwood to maintain its proportion of the total output at almost 18 percent.

Aspen production increased greatly and was able to maintain its position of comprising 45 percent of the total while the miscellaneous hardwood pulpwood production increased, both actually and relatively. Between 1954 and 1958, pulpwood production from the miscellaneous hardwoods increased 100,000 cords to increase its proportion of the total output from 0.02 percent in 1946 to 19 percent in 1958.

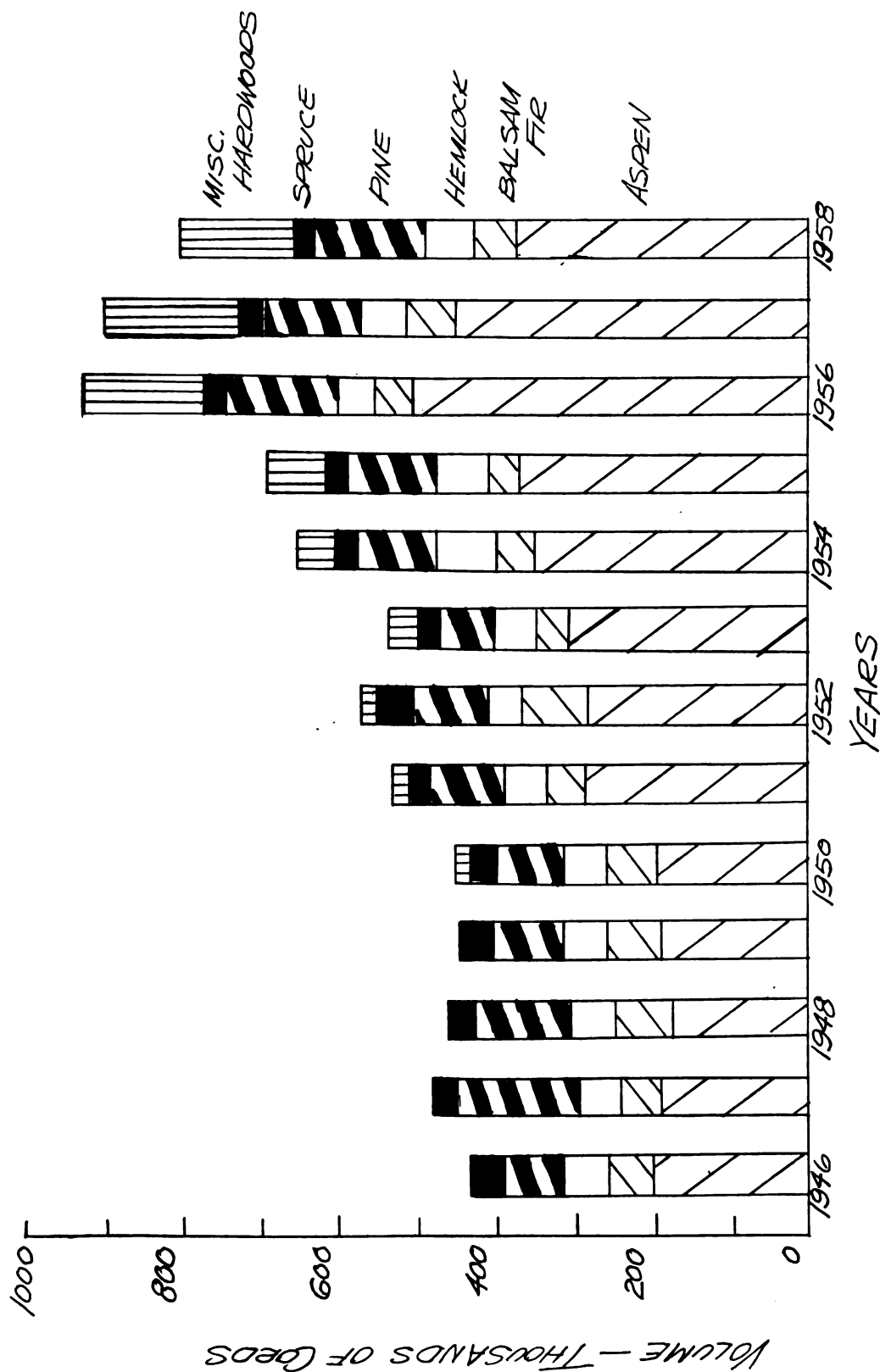


Fig. 4. - Pulpwood production in Wisconsin for selected species: 1946-1958

TABLE 3.- Pulpwood production in Wisconsin as a percentage of the total Wisconsin production for selected species: 1946-1958

Year	Species				
	Aspen	Balsam Fir	Hemlock	Pine	Spruce
					Miscellaneous Hardwoods
	- - Percent - -				
1946	47.28	11.09	14.99	17.16	7.41
1947	38.02	10.84	10.19	31.97	6.23
1948	35.77	18.71	10.82	25.11	7.32
1949	43.27	18.28	9.44	19.27	6.36
1950	42.20	14.98	10.23	20.13	6.81
1951	49.91	9.70	9.12	18.04	5.41
1952	47.34	13.02	11.31	16.31	6.69
1953	55.21	8.14	9.19	12.87	4.63
1954	50.41	8.09	9.15	16.40	4.40
1955	51.04	6.79	8.21	17.07	3.26
1956	52.82	6.46	5.77	14.62	2.43
1957	48.48	6.40	6.12	13.45	2.95
1958	44.52	7.49	6.68	17.90	2.73
					0.02
					0.01
					0.02
					----
					4.34
					3.00
					2.58
					7.45
					7.03
					10.59
					17.11
					18.88
					17.81

### Areas of Pulpwood Production

The 1958 production of pulpwood in Michigan tended to be concentrated in specific areas rather than being evenly distributed over the state (Fig. 5). This production concentration is due mainly to the nearness of pulp mills or market areas, and the site requirements of a given species.

Some 44 percent of the 1958 production was cut in the western half of the Upper Peninsula. This section produced greater quantities of all species excepting pine and aspen than any of the other three divisions of the state (Table 4). The presence of relatively large tracts of public and private timber lands, and the ease of access to the Wisconsin markets permitted this area to excel in the production of those species which had enough value to permit their being transported some distance. In addition, the Michigan production of the northern softwood species was limited to this area and the eastern half of the Upper Peninsula by the site requirements of these species.

The eastern half of the Upper Peninsula produced less than one-half as much as the western half or some 18 percent of the total. This pulpwood went primarily to those pulp mills situated in that section of Upper Michigan.

The northern half of the Lower Peninsula produced 34 percent of the 1958 production and was the main source of pulpwood for all the Lower Michigan pulp mills. Only one Lower Michigan mill went out of the Lower Peninsula for additional pulpwood, and that was due to previously developed sources of supply and technological preferences. However, within the area, there is a shifting of production. Unlike the 1954 situation

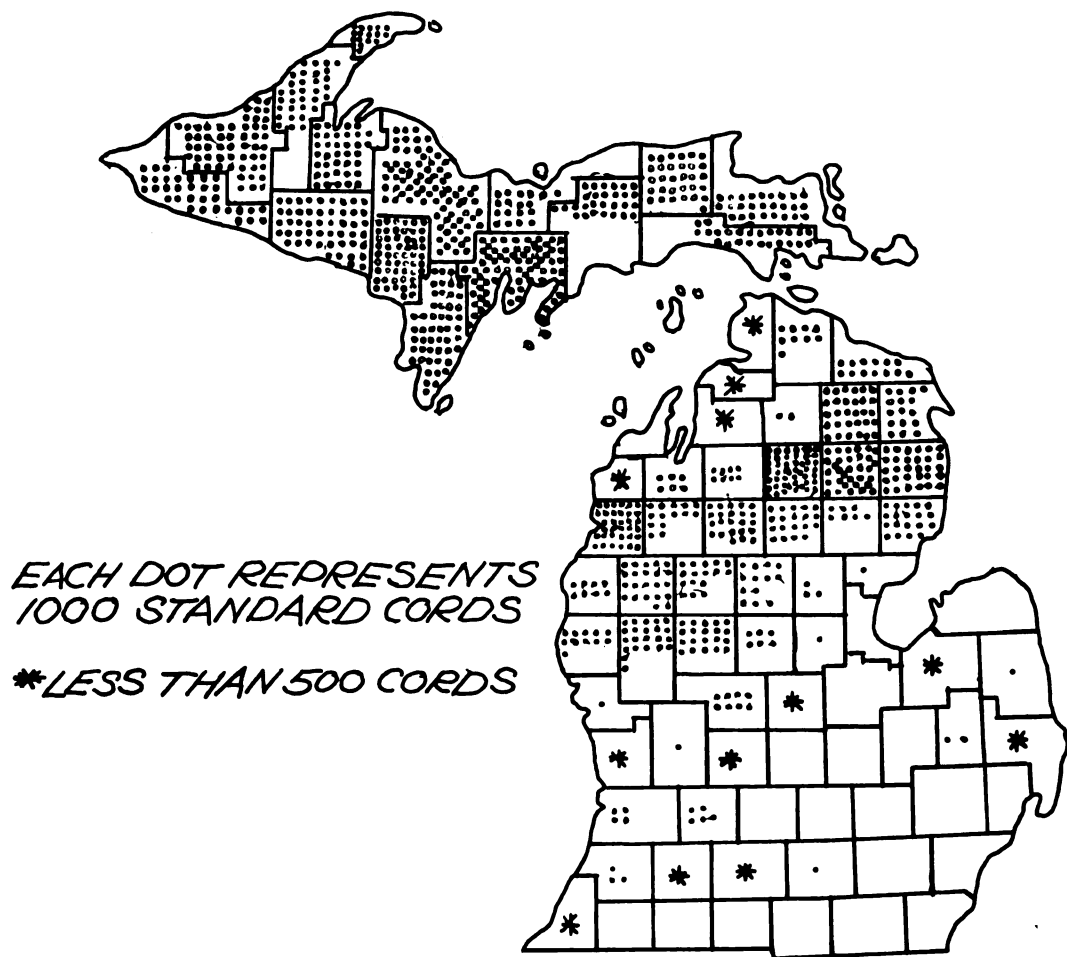


Fig. 5. - Pulpwood production of all species in Michigan by county: 1959 (Source: Forestry Division, Michigan Department of Conservation, Lansing, Michigan)



TABLE 4.- Pulpwood production in Michigan by region and species: 1958

Species	Upper Peninsula		Lower Peninsula		All Michigan
	Western Half <sup>a</sup>	Eastern Half <sup>a</sup>	Northern Half <sup>b</sup>	Southern Half <sup>b</sup>	
- - Standard Cords - -					
Aspen and White Birch	173,000	45,700	189,500	26,400	434,600
Spruce	54,200	27,800	4,300	0	86,300
Balsam Fir	61,000	49,400	5,000	0	115,400
Pine	14,700	32,900	100,300	800	148,700
Tamarack	400	400	0	0	800
Hemlock	32,000	3,100	100	0	35,200
Miscellaneous Hardwoods	57,600	3,700	10,300	7,000	78,600
Total	392,900	163,000	309,500	34,200	899,600

Source: Lake States Forest Experiment Station, U. S. Forest Service, St. Paul, Minn., Forestry Division, Michigan Department of Conservation, Lansing, Mich., and mill questionnaires

<sup>a</sup>Upper Peninsula divided by the western boundaries of Alger and Delta Counties

<sup>b</sup>Lower Peninsula divided by a line drawn from Bay City to Muskegon

reported by James (1957), when production was concentrated in the western portion of the northern counties, the 1958 map shows production to be spread throughout the northern counties. In fact, the locus of heaviest concentration is now on the eastern side of the peninsula. This change is tied to the development of new pulp mill markets.

The southern half of the Lower Peninsula produced less than 35,000 cords (4 percent) which consisted mainly of aspen going to one mill, but some pulpwood was supplied to the other mills in the area.

Almost all the pulp mills in Michigan use some aspen pulpwood. As a result, the production of aspen pulpwood is found throughout the state, but low prices cause concentration around the mills or receiving points to minimize the hauling costs (Fig. 6). The areas of production are limited more by the location of the markets than by the location of the timber. However, some aspen is exported to Wisconsin from both Michigan peninsulas.

In contrast, the production of pulpwood from the northern softwoods--spruce, balsam fir, and hemlock--is limited almost entirely to the Upper Peninsula by site and climatic requirements of the species (Fig. 7). Due to location and high value of the pulpwood, much is exported. In 1958, 69 percent of the spruce and balsam fir production was exported while almost all the hemlock and tamarack were shipped out of the state.

Pine production is centered mainly in the northern half of the Lower Peninsula (Fig. 8). The localized production of this species is also due to the location of the timber stands rather than to the available markets. Domestic demand and the distance to the out-of-state markets prevent exportation of too great a share of the production. In

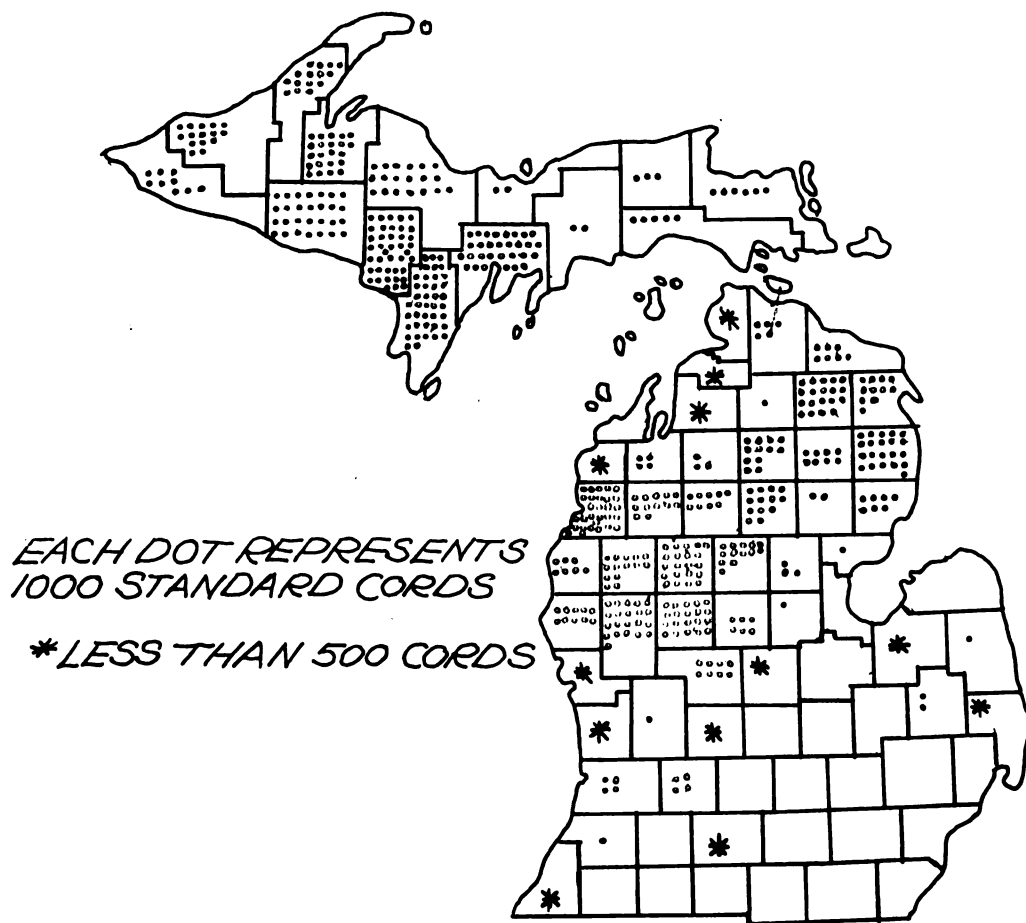


Fig. 6. - Aspen pulpwood production in Michigan by county:  
1959 (Source: Forestry Division, Michigan Department of Con-  
servation, Lansing, Michigan)

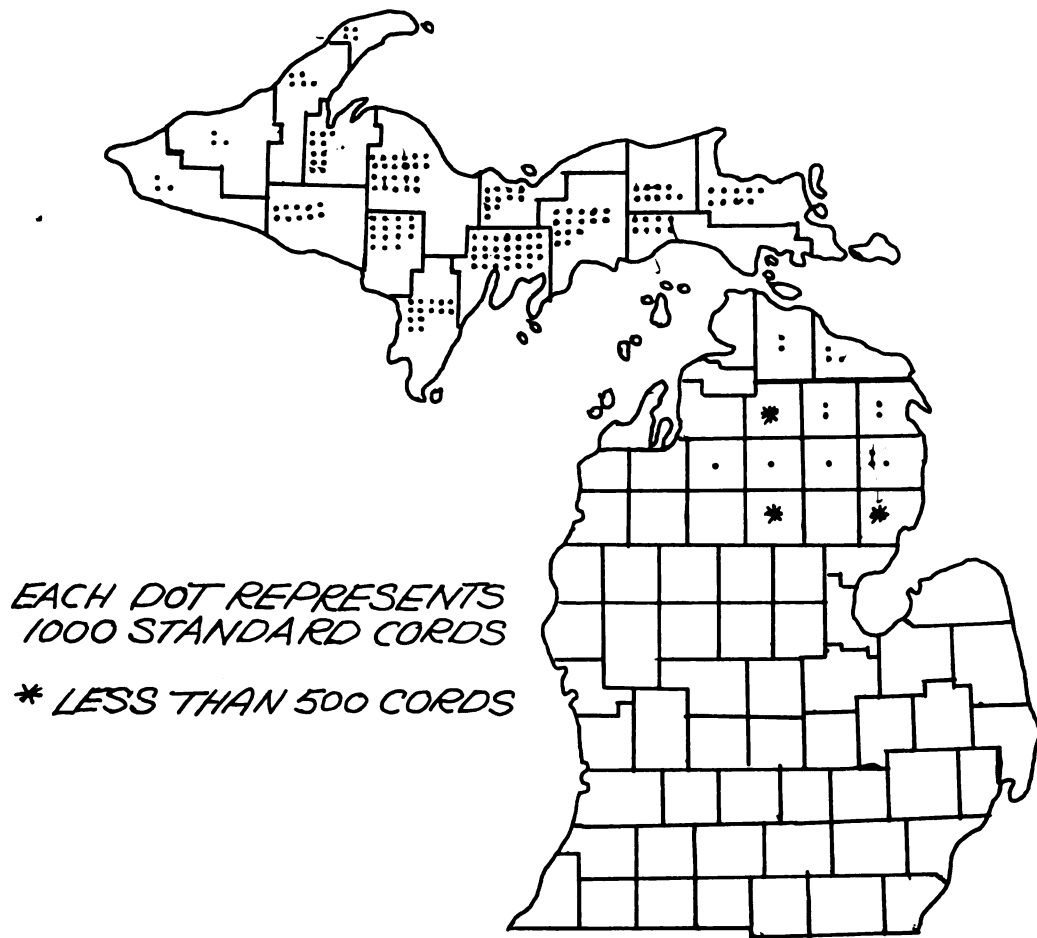


Fig. 7. - Balsam fir and spruce pulpwood production in Michigan by county: 1959 (Source: Forestry Division, Michigan Department of Conservation, Lansing, Michigan)

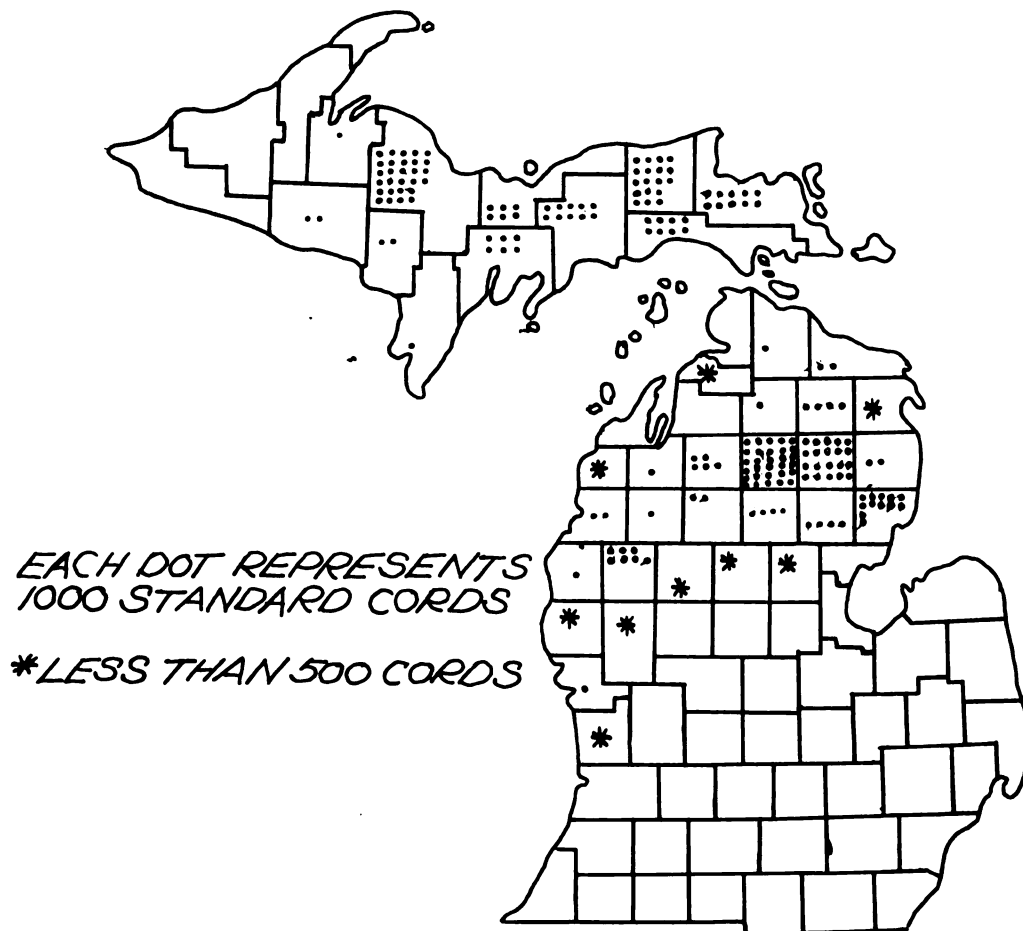


Fig. 8. - Pine pulpwood production in Michigan by County:  
1959 (Source: Forestry Division, Michigan Department of Con-  
servation, Lansing, Michigan)

1958, slightly more than one-fourth of the annual production was exported.

Hardwood pulpwood production is widely distributed, but is restricted by value to those stands near the mills which utilize the pulpwood (Fig. 9). As more mills begin to use greater amounts of this type of pulpwood and the price increases, production should become even more widespread.

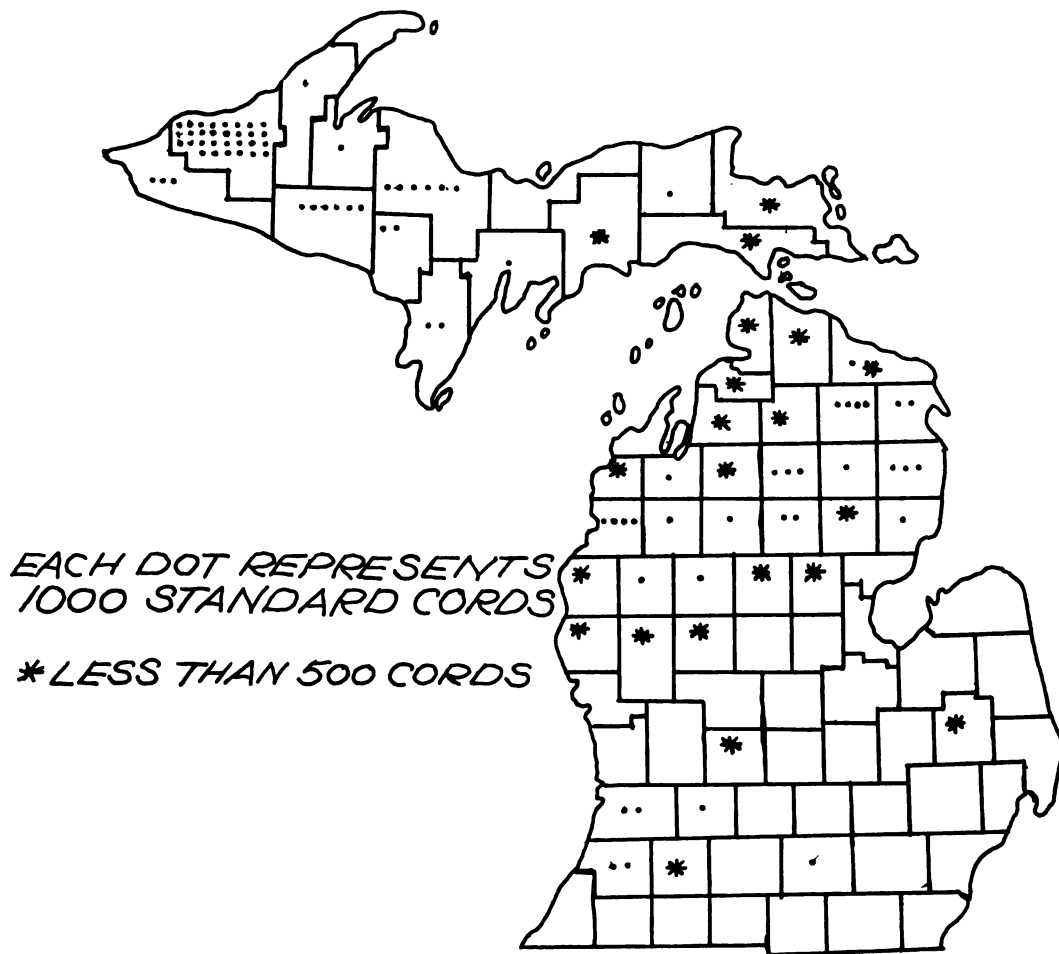


Fig. 9. - Miscellaneous hardwood pulpwood production in Michigan by county: 1959 (Source: Forestry Division, Michigan Department of Conservation, Lansing, Michigan)

## CHAPTER VI

### PULPWOOD SUPPLY

As pulpwood is the major revenue producing forest product in Michigan at the present time, and as it is the basic raw material for the greater part of the Michigan pulp and paper industry and for a number of Wisconsin pulp mills, it is necessary to give some consideration to the available supply. The fact that a producing area falls within the procurement territories of a number of pulp mills does not insure a pulpwood market. If the available supply exceeds the fixed capacity of the mills, the surplus timber is left without a market. However, if the pulp mill capacity is large enough, it is possible that the pulpwood will be in short supply.

Since pulpwood is a product of growing timber, it has the potential--but not necessarily the absolute--ability to be continuous in supply, and it will be considered on this basis. The financial investment required to establish a pulp mill and the presence of state and Federal forest lands make consideration of the pulpwood supply from a depletion viewpoint unrealistic. Pulp company practices in the South (Malsberger, 1956, p. 642) indicate the pulp mills will protect themselves by encouraging sustained-yield forest management on private woodlands while it is normal policy to manage public forest lands for the maximum sustained yield production possible within economic limits (U. S. Forest Service, 1959<sup>b</sup>, p. 9). Thus, it is best to discuss



pulpwood production on a sustained-yield basis.

Sustained yield implies a "continuous production with . . . an approximate balance between net growth and harvest" (Society of American Foresters, 1958, p. 96). However, this definition assumes a fully regulated forest containing the desired level of inventory. In order to reach this level of stocking, it is necessary that the allowable cut be limited to that volume which may be removed during a given period while building up sufficient growing stock to meet specified growth goals (James and Lewis, 1960<sup>a</sup>, p. 825).

In actual practice, the allowable cut is a tenuous managerial concept in that it is not based entirely on growth, but rather is controlled by (1) the purposes of management, (2) market conditions, (3) silvicultural needs, (4) logging problems, and (5) the degree of harvest continuity desired (Davis, 1954, pp. 120-21). Usually the allowable cut is quite conservative for depleted timber lands in order to build up the stands to the desired inventory levels as rapidly as possible. The U. S. Forest Service in Michigan sets its total allowable cut for pulpwood at 56 percent of the growth in the Upper Peninsula and 46 percent of the growth in the northern half of the Lower Peninsula (U. S. Forest Service, 1959<sup>a</sup>, p. 84). However, these figures may vary from year to year because of the above reasons.

#### Allowable Cut and the Actual Cut in Michigan

In 1958, the actual cut of pulpwood in Michigan was slightly more than one-third of the estimated allowable annual removals (Table 5). Aspen and paper birch had an excess of allowable cut over the actual cut of 704,500 cords while the miscellaneous hardwoods had an excess of

406,900 cords with the greatest concentrations of the excess being in the northern half of the Lower Peninsula. These hardwoods accounted for 86 percent of that part of the allowable cut not taken. Balsam fir and spruce had an excess of 49,600 and 46,000 cords respectively while hemlock pulpwood production was 65,600 cords less than the allowable output. The allowable cut for tamarack was 16,400 cords greater than the actual cut. Only the actual cut of pine pulpwood exceeded the allowable cut, and this by the narrow margin of 2,900 cords (Table 6).

However, in terms of production areas, the excess of allowable cut over the actual cut becomes somewhat smaller for specific species. In the western half of the Upper Peninsula, pine and spruce are being overcut while the excess of the allowable cut of balsam fir over the actual cut is only 6,500 cords. In Lower Michigan, pine is being relatively heavily overcut while those species which show an excess of less than 10,000 cords have a very small allowable cut. Only the eastern half of the Upper Peninsula shows a substantial margin between the allowable cut and the actual cut for all species. The southern half of the Lower Peninsula is restricted to hardwood pulpwood production by species distribution.

Remembering that the allowable cut is a conservative figure, the regional excesses of the allowable cut over the actual cut indicate that the pulpwood markets are absorbing all the timber that can be taken of a few species in some regions, but, in general, far more pulpwood is available for cutting in Michigan than is being consumed by the pulp mills. The tremendous excess in hardwoods is focusing attention on hardwoods as a reservoir of potential pulping stock (Federal Reserve Bank of Minneapolis, 1959).

TABLE 5.- Comparison of actual and allowable annual removals for the major pulpwood species and types in Michigan: 1958

Species	Upper Peninsula	
	Western Half <sup>a</sup>	Eastern Half <sup>b</sup>
	- - Standard Cords - -	
Aspen and Paper Birch		
Actual Cut	173,000	45,700
Allowable Cut	288,100	287,300
Hemlock		
Actual Cut	32,000	3,100
Allowable Cut	60,600	32,000
Pine		
Actual Cut	14,700	32,900
Allowable Cut	8,300	48,400
Balsam Fir		
Actual Cut	61,000	49,400
Allowable Cut	67,500	74,700
Spruce		
Actual Cut	54,200	27,800
Allowable Cut	53,500	65,400
Tamarack		
Actual Cut	400	400
Allowable Cut	5,300	11,900
Miscellaneous Hardwood		
Actual Cut	57,600	3,700
Allowable Cut	105,600	92,300
Total		
Actual Cut	392,900	163,000
Allowable Cut	588,900	612,000

Source: Ray E. Pfeifer (1959) Pulpwood Procurement and Allowable Cut in Michigan. Division of Forestry, Michigan Department of Conservation, Lansing, Michigan.

<sup>a</sup>Eastward to and including Marquette and Dickinson Counties.

<sup>b</sup>Westward to and including Alger, Delta, and Menominee Counties.

TABLE 5.- Continued

Lower Peninsula		All Michigan
Northern Half <sup>c</sup>	Southern Half <sup>c</sup>	
- - Standard Cords - -		
189,500	26,400	434,600
495,500	68,200	1,139,100
100	---	35,200
7,800	400	100,800
100,300	800	148,700
89,000	100	145,800
5,000	---	115,400
22,800	---	165,000
4,300	---	86,300
13,400	---	132,300
---	---	800
---	---	17,200
10,300	7,000	78,600
205,600	82,000	485,500
309,500	34,200	899,600
834,100	105,700	2,185,700

<sup>c</sup>Northern and southern halves divided roughly by a line drawn from Bay City to Muskegon.

TABLE 6.- Excess of allowable cut over actual cut in Michigan for the major pulpwood species and types: 1958

Species	Upper Peninsula		Lower Peninsula		All Michigan
	Western Half	Eastern Half	Northern Half	Southern Half	
- - Standard Cords - -					
Aspen and Paper Birch	115,100	241,600	306,000	41,800	704,500
Hemlock	28,600	28,900	7,700	400	65,600
Pine	-6,400	15,500	-11,300	-700	-2,900
Balsam Fir	6,500	25,300	17,800	---	49,600
Spruce	-700	37,600	9,100	---	46,000
Tamarack	4,900	11,500	---	---	16,400
Miscellaneous Hardwoods	48,000	88,600	195,300	75,000	406,900
Total	196,000	449,000	524,600	116,500	1,286,100

Source: Table 5.

### Supply and Price Relationships

It is not within the scope of this study to develop schedules of supply as the data necessary are not available and almost noncollectible. In answer to informal questioning, the pulpwood operators indicated that they were unwilling to supply pulpwood at the lower prices and willing to supply "all I can get" at the higher prices with no intervening volumes. The change came at or just below the existing prices. While this, in itself, would be indicative of a perfectly elastic supply curve, the fact that prices are determined by the buyers and the flow controlled by contracts indicates that the completely free interaction of supply and demand is not possible. This lack of freedom makes the existence of a normal supply curve for pulpwood somewhat questionable.

Supply is defined by Duerr (1960, p. 194) as the amounts of a product, per unit of time, that would be offered to a given market at various prices. This definition automatically assumes that the quantities offered vary with the price, and if carried to a logical conclusion "the quantities . . . offered for sale vary directly with the prices" and price is the controlling factor (Thomsen and Foote, 1952, pp. 57-58).

Although this definition pertains to the development of supply schedules and curves, it may well be assumed that it also applies to the relationship between pulpwood procurement and pulpwood prices. Data are available to test this assumption.

In the analysis of pulpwood production and pulpwood prices presented here (see Appendix for data and calculated results), Wisconsin prices and production were used as Wisconsin is the only state of the three Lake States which provides any type of price reporting. The prices,

reported in the Lake States Timber Digest, were those paid for pulpwood at the pulp mills while the quantities were the total annual Wisconsin production of pulpwood from 1947 through 1957. It was not possible to segregate that part of the Wisconsin production which was sold on the railcar, but the inclusion of this small quantity of rail delivered wood should not have any marked effect upon the results.

Following the procedures described by Zivnуска (1955, p. 550), the reported prices were divided by the Bureau of Labor Statistics indices for all-commodity prices for the years involved to obtain prices in "constant" or "real" dollars, eliminating changes in the general price levels, and making the prices comparable over time. Then, lines of reaction were fitted to the adjusted data by taking quantity as the dependent variable and price as the independent variable for a correlation analysis. However, the results are presented graphically by plotting price on the vertical axis and volume on the horizontal axis in accordance with the conventional price theory models rather than the reverse as is usual in accordance with statistical conventions.

Although the relationships were developed from Wisconsin price and production figures, there is no reason to assume that conditions in Michigan were not similar. The prices used were quite close to those paid by Michigan pulp mills, especially in the Upper Peninsula where Wisconsin and Michigan pulp mills are competing for the same species of pulpwood. The differences in pulpwood volumes should not be significant as the same supply situation and market structure exist in both states, and as supply responses to price changes are based on human reactions they should be the same in both states. Pulpwood producers in both states are affected by the same stimuli under, basically, the same

conditions, so their reactions should be quite similar. Thus, the logical assumption is that Michigan pulpwood price and production relationships should exhibit the same characteristics as those developed and for the same reasons.

While no absolute inferences may be drawn from the developed curves, they do give a rather interesting picture of supply reactions to price changes in pulpwood marketing and permit theorizing as to the reasons for these reactions.

Of the four species analyzed, aspen shows the greatest response to price changes (Fig. 10). This is to be expected. Aspen is the most widely found and the most extensively used of all the pulpwood species. It is easily operable, being found where access is a minor problem, and can be produced with a minimum of investment. The excess of allowable cut over the actual cut throughout the Lake States indicates the availability of large stocks. The known presence and wide distribution of these large stocks permit numerous small, part-time producers and farmers to enter and withdraw from the market with great rapidity, and as aspen operators work on a very small margin of profit, a small decrease in price will force some producers out of the market while small increases in price will attract new producers.

Balsam fir production (Fig. 11) responds only slightly to price changes. A relatively large price increase does not cause a large increase in production. This lack of response is primarily due to the investment required to enter production and the interaction of other species. The site requirements of the species tend to limit operations to the larger producers who have the equipment necessary to establish access, and as balsam fir does not occur in pure stands (Rudolph et al.,



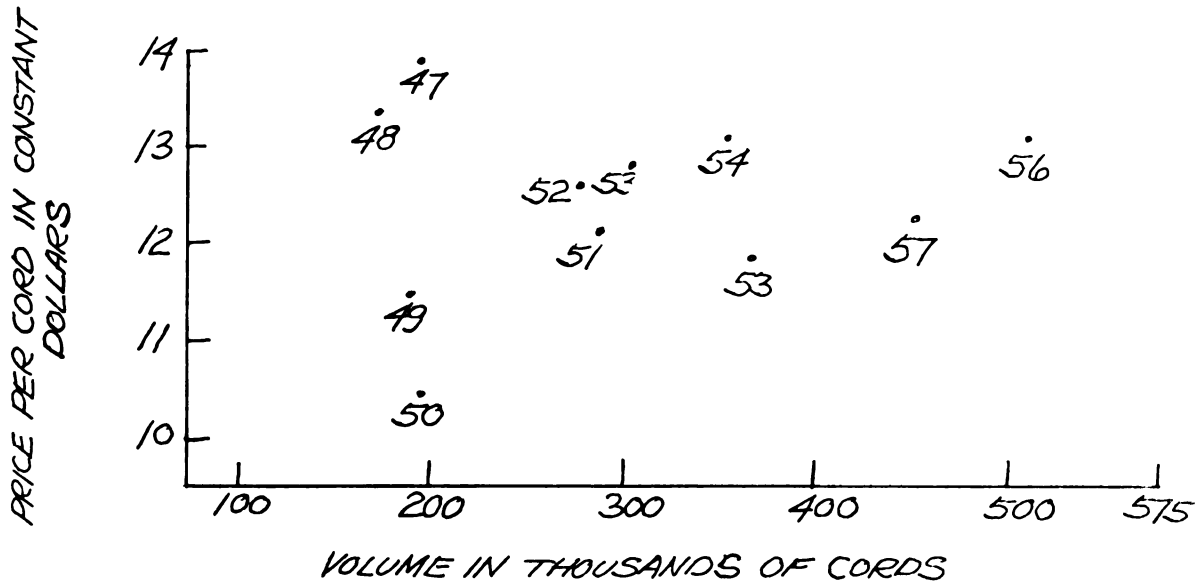


Fig. 10. - Aspen pulpwood price-quantity relationships

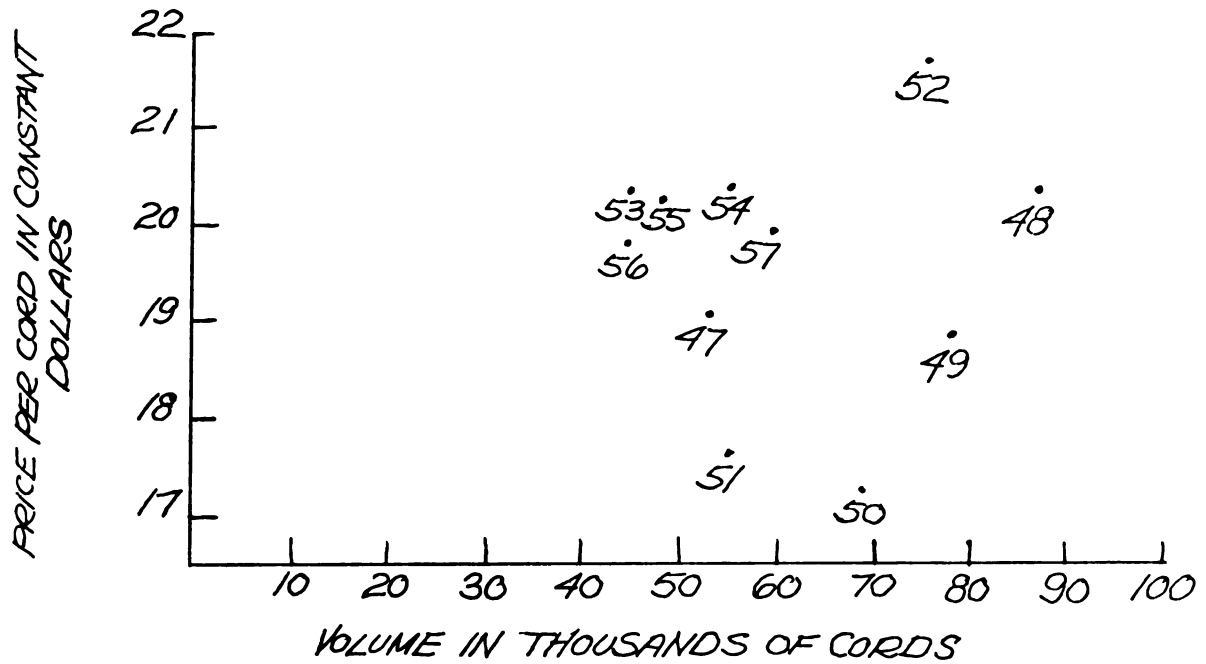


Fig. 11. - Balsam fir pulpwood price-quantity relationships

1959, p. 32), producers will cut the other species available on the area before opening a new area to produce additional balsam fir pulpwood.

Spruce production has a very poor response to price change. This may be due to a number of factors. Spruce production is a highly specialized operation requiring a large investment. In Michigan, most of the spruce stands are located in areas where access is limited and difficult to create. As much of the timber is found in swamps, requiring that production be carried on in winter (Rudolph et al., p. 33), a seasonal production aspect is created. This seasonal aspect may discourage the better operators who desire full-time work. As a higher price for spruce pulpwood is indicative of a better overall economic condition, the spruce operator, being the superior businessman among the pulpwood producers, is encouraged to apply his talents in other fields that will provide a full-time occupation (Pikl, 1960, p. 278). The reverse would be true in times of declining prices. Thus, changes in spruce pulpwood production do not always appear to be directly linked to changes in spruce pulpwood prices.

Pine pulpwood production has a direct relationship to price movements, but to a very limited degree. For this species in Michigan, the general overcutting and the large amounts of pine timber in public ownership tend to prevent any great increase in production. The increasing importance of pine as a pulping species over time and government control of the greater part of the supply have tended to cause this relationship rather than any inherent economic condition. It is doubtful that an increase in price would bring forth larger quantities. The physical limitations of quantity cannot permit expansion within the present sustained-yield objectives. A general stabilization of production regardless of price changes may be expected.

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While these curves indicate the possible relationship between price and supply, examination of the annual price-volume intersects and the correlation coefficients yield the fact that the price changes that have occurred have not been the controlling factor in pulpwood production. Annual price-quantity relationships show years in which price increases while production decreases, price decreases while production increases, and prices and production move in the same direction for all species. Statistical comparisons of the correlation coefficients show that the calculated coefficients are not significant (Dixon and Massey, 1957, p. 468).

Several factors tend to limit better correlation between pulpwood prices and production. Almost all pulp companies procure pulpwood on contract, with contract periods of six months to a year. This would eliminate any possibility of producers taking advantage of price changes as they occur, and would prevent the development of a supply response under conditions of free interaction of supply and demand. For example, a pulp company may contract for a good part of its pulpwood requirements at a given price. To fill the remainder of its needs, the price may have to be increased and a second series of contracts let. As the second contracts are let for only the required amount, the increased production may actually be much less than the amount that would have been offered for sale at the new price had the market not been controlled.

The interaction of pulpwood production by species may have an important relation to the lack of correlation. Operations will normally not respond to a price change in one species if the production of that species means abandoning other pulpwood species on an accessible area. All merchantable species in a sale area will be removed before a producer will

proceed to another area. Depending upon contract availability, usually the pulpwood species are removed in descending order of price. This would cause a lack of response between a price change and production for a higher-priced species so long as the price change is not great enough to cause a great variation in the total number of producers.

Of course, there is always the effect of monopsonistic practices which may tend to prevent a better correlation between price and production. The Canadian Restrictive Trade Practices Commission (1958) found definite evidence of price control in Canada while there is enough evidence of such practices in the United States to warrant recommending investigation (Stoddard, 1959, p. 60).

The overall timber resource base for the Michigan pulp and paper industry is quite adequate for the existing mills and is capable of permitting an expansion of production to more than three times that of the present on a sustained basis. However, expansion in the procurement of the softwood species is limited to much less than this by the lack of volume. Aspen and the other hardwoods offer the best potential for expansion of production without a large increase in the price offered, but spruce and balsam fir production have a relatively limited expansion potential and react only slightly to price changes. Expansion in pine pulpwood production is not possible on a sustained-yield basis under the present allowable cut concepts.

The encouragement of expansion of production cannot be brought about by small price increases alone. Such factors as cost of entry into pulpwood production, stand accessibility, alternative employment opportunities, availability of suitable labor, and general economic conditions apparently influence production to a greater extent than price.

## CHAPTER VII

### THE PULP MILLS

In 1958, there were thirteen Michigan and twenty-three Wisconsin pulp mills in operation which depended upon Michigan pulpwood production to supply part or all of their needs. The thirty-six mills were owned by twenty-five pulp and paper companies with four companies owning a total of eleven mills located in both states.

The thirteen Michigan mills, with two exceptions, were drawing on Michigan forests for their entire pulpwood supply. One of the exceptions drew 21 percent of its supply from Michigan pulpwood producers while the other drew 90 percent. These thirteen mills consumed 51 percent of the total Michigan production with the remaining 49 percent being taken by the Wisconsin mills.

The Michigan pulp mills show a definite pattern in location with regard to water supply, raw material, and transportation facilities. Figure 12 shows the location of all Michigan mills in production in 1958. Seven mills were located in the Lower Peninsula; four on the western side, two on the northeastern edge, and one in the southeastern section. The six Upper Peninsula mills were more or less concentrated in the middle of the Peninsula except for two on opposite sides of the base of the Keweenaw Peninsula. As shown in Figure 13, the Wisconsin mills were mainly concentrated in two areas: the Green Bay area and the Midstate area, with several mills along the Michigan-Wisconsin boundary. The location of the

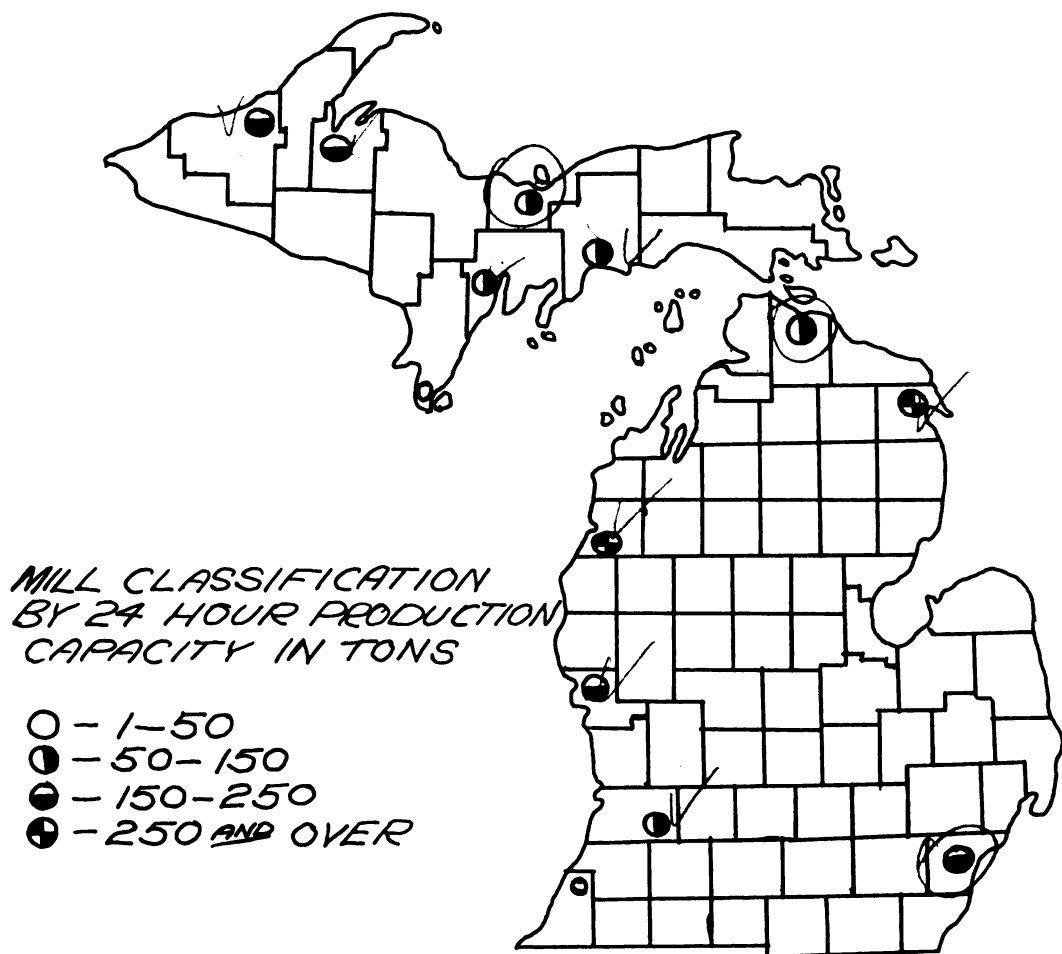


Fig. 12. - Location and capacity of Michigan pulp mills in operation in 1958 (Source: U. S. Forest Service, Division of Forest Economics Research, Woodpulp Mills in the United States, Washington, D. C., 1959)

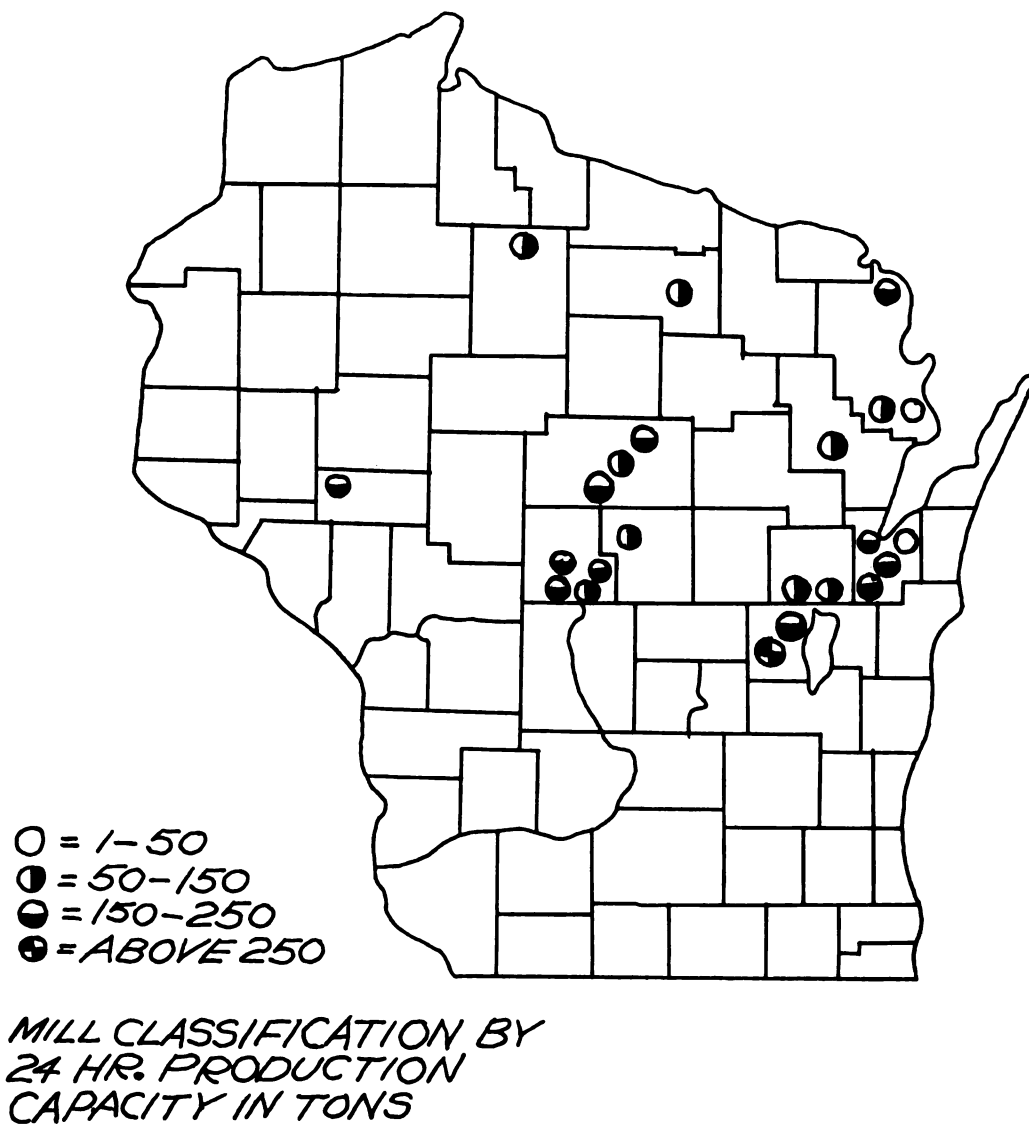


Fig. 13. - Location and capacity of Wisconsin pulp mills in operation in 1958 (Source: U. S. Forest Service, Division of Forest Economics Research, Woodpulp Mills in the United States, Washington, D. C., 1959)



Wisconsin mills is due more to historical development of the industry than to present production factors.

As might be expected, the pulp mills drew their pulpwood from many of the same areas. Table 7 shows the geographical sources of pulpwood consumed by the pulp mills of both states. The Lower Peninsula mills tended to draw their entire supply from the Lower Peninsula except for the one mill which, due to favorable transportation conditions and other considerations, drew wood from both Michigan peninsulas and from Canada. The Upper Peninsula mills drew their supply from the Upper Peninsula plus a small amount from Canada and Minnesota; the imports going primarily to one mill. The Wisconsin mills drew upon all surrounding states, some of the Western states, and Canada. The greater part of the Michigan produced pulpwood consumed in Wisconsin was taken from the Upper Peninsula.

Although there is much overlapping of procurement areas of the various pulp mills (Fig. 14), price competition for pulpwood is relatively limited. In the Lower Peninsula, seven pulp mills drew almost all their supply of wood from the forests of the northern half of Lower Michigan, yet prices paid for pulpwood are quite constant with little variation over time and between mills. This lack of price competition may be due to the fact that the different mills did not depend upon the same species for the bulk of their raw material. It is said that a pulpwood seller knows the buyer and the price by the species he sells. For example, from the 1958 production of aspen in the Lower Peninsula 195,800 cords were taken by the Lower Peninsula mills (Table 8). Some 56 percent of this was taken by one mill with two others taking about 13 percent each. The remaining 18 percent was unequally divided among the four other mills. The same situation exists in regard to the other species. Some 57 percent of



TABLE 7.- Geographic source of pulpwood consumed by Michigan and Wisconsin pulp mills: 1958

Geographic Source	Michigan		Wisconsin Mills	All Mills
	Lower Peninsula Mills	Upper Peninsula Mills		
- - Standard Cords - -				
Michigan Upper Peninsula Lower Peninsula	3,400 325,000	129,800 0	419,900 21,600	553,100 346,600
	0	0	811,300	811,300
Minnesota	0	7,200	267,500	274,700
Western U. S.	0	0	54,700	54,700
Canada	75,900	8,000	290,700	374,600
Total	404,300	145,000	1,865,700	2,415,000

Source: Lake States Forest Experiment Station, U. S. Forest Service, St. Paul, Minnesota, and mill questionnaires.

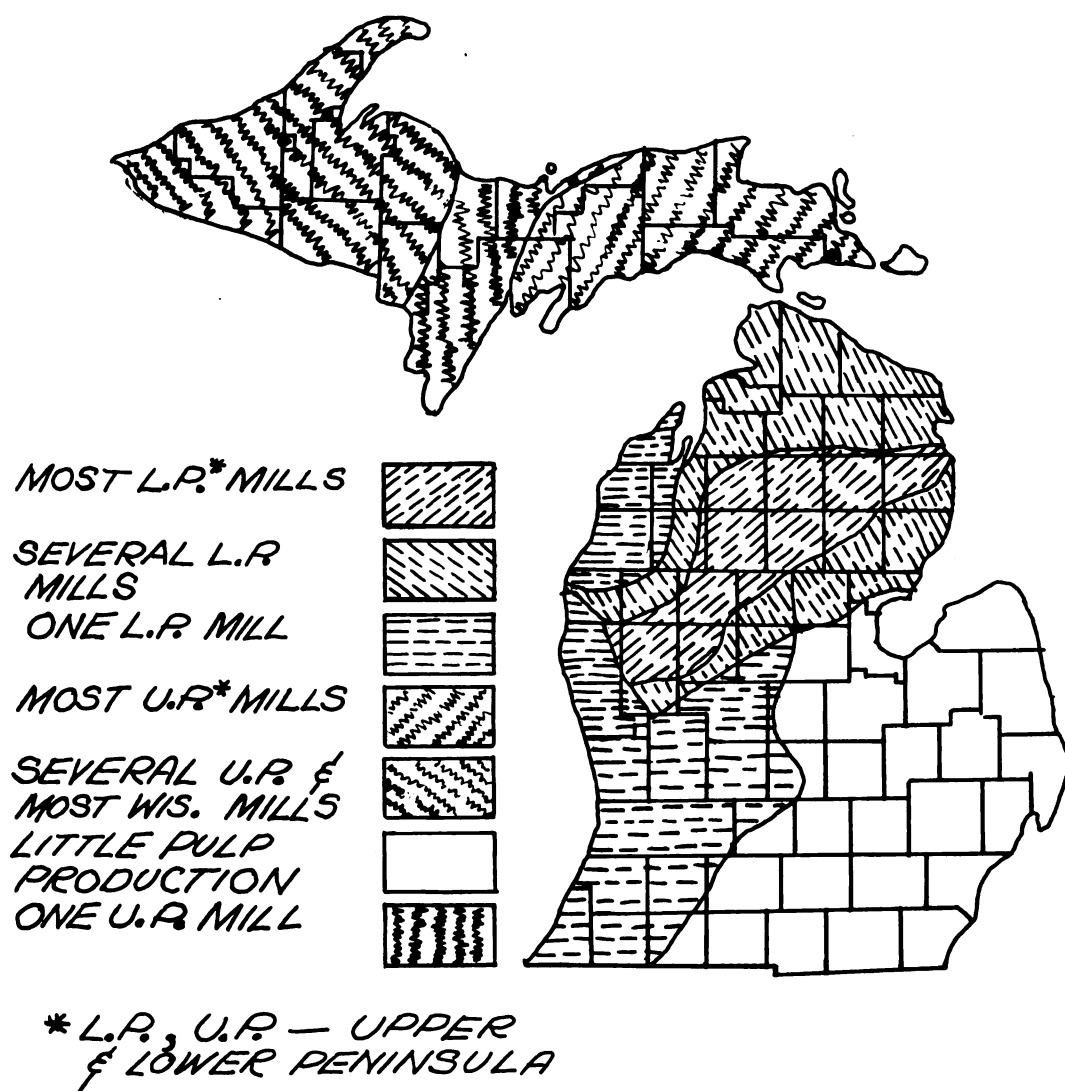


Fig. 14. - Pulpwood procurement areas in Michigan for Michigan and Wisconsin pulp mills (Source: Lee M. James, Marketing Pulpwood in Michigan, Special Bulletin 411, Agricultural Experiment Station, Michigan State University, East Lansing, Mich., 1957)

TABLE 8.- Michigan produced pulpwood consumed by Michigan and Wisconsin pulp mills by species: 1958

Species	Michigan		Wisconsin Mills	All Mills
	Lower Peninsula Mills	Upper Peninsula Mills		
- - Standard Cords - -				
Aspen and White Birch	195,800	25,400	213,400	434,600
Spruce	3,800	23,800	58,700	86,300
Balsam Fir	5,300	31,600	78,500	115,400
Pine	100,200	7,200	41,300	148,700
Tamarack	0	0	800	800
Hemlock	100	0	35,100	35,200
Miscellaneous Hardwoods	23,200	41,800	13,600	78,600
Total	328,400	129,800	441,400	899,600

Source: Lake States Forest Experiment Station, U. S. Forest Service, St. Paul, Minn., Forestry Division, Michigan Department of Conservation, Lansing, Mich., and mill questionnaires.

the annual pine consumption was taken by one mill and more than 56 per-cent of the miscellaneous hardwood pulpwood was taken by another. Thus, the presence of one large buyer of a given species apparently holds price competition to a minimum.

In the Upper Peninsula, competition is somewhat more intense as both Michigan and Wisconsin mills are drawing on the same areas for the same species. But as Michigan pulpwood has to compete with wood from other states and from Canada for the Wisconsin markets, the eastern half of the Upper Peninsula is more or less isolated by transportation costs from the Wisconsin mills and supplies only the Upper Michigan mills. As these mills tend to use different species for the greater part of their pulp production, competition is again limited, but not to the extent that exists in Lower Michigan. Thus, it is only in the western half of the Upper Peninsula that competition in the procurement of Michigan pulpwood exists.

#### Methods of Procurement

The methods of obtaining title to pulpwood differ between pulp mills procuring Michigan-produced pulpwood. Few mills limit themselves to only one method while several have as many as three.

Truck transported pulpwood is purchased upon delivery at the pulp mills. Normally a single price is offered for this pulpwood as the greater part is obtained from cutting areas near the mills. However, in Lower Michigan, a policy of making additions to the base price by distance for the longer truck hauls has been adopted by all except one of the mills. One company, in addition to the price increases for truck delivered pulpwood, will purchase pulpwood at roadside beyond a 45-mile

radius of the mill, and assume the truck transportation costs. Of course, a price reduction accompanies the change of method. As yet, the Wisconsin and Upper Michigan pulp mills have not seen fit to use any type of sliding price scale; they pay only the basic delivered-at-the-mill price.

All Michigan-produced pulpwood transported to the pulp mills by rail is purchased on the railcar at the railroad siding where it was loaded. This type of procurement permits the pulp companies to obtain pulpwood from a distance while eliminating locational advantages between suppliers. Although the price paid is lower than that for truck delivered pulpwood, the avoidance of the excessive hauling distance that would be involved in attempting to truck the wood to the mill encourages pulpwood production in those areas served by the rail loading points.

The use of rail transportation does not eliminate the location advantages of the pulp mills; while tempered by rail rates, it tends to accentuate the advantage. Prices within a given timbershed supplying several mills tend to be equal; possibly a result of competition during a period of high demand. The general reluctance of the pulp companies to engage in direct price competition prevents a change so equalization is maintained. As rail rates do increase with distance, the pulp mills more distant from the pulpwood sources may be at a very decided disadvantage in terms of procurement costs.

No Michigan-produced pulpwood moves by water, although one pulp mill imports a good part of its out-of-state supply by barge. Water delivery accounts for 72 percent of this mill's total receipts, but only 12 percent of the receipts for all Michigan mills. The difference is due to the fact that the single mill is procuring foreign pulpwood from distances up to fifteen hundred miles. Because of existing marketing arrangements and

a technological preference for the imported species (spruce and balsam fir), the company prefers this wood, and water transportation is the only economic means of hauling a low-value product this distance. In most cases, the pulpwood is paid for when delivered at the mill, but some is purchased at the loading point.

Usually pulpwood delivered at the mill is the cheaper pulpwood in terms of procurement costs. Although the price offered is higher than in any other method of procurement, the average freight bill paid for the other delivery methods by the pulp companies exceeds the price differential by a significant amount. However, the location of the desired species, the desired mill inventory, the woodyard space and unloading facilities, the number of contracts required, and the economics of maintaining the longer supply channels may prevent the use of truck delivery alone.

The flow of pulpwood into a pulp mill woodyard must be correlated with mill consumption and must be controlled so as to keep the inventory as low as possible within the limits of seasonal fluctuations. Most mills attempt to keep a maximum of six-months supply on their woodyards and let it decline during the periods of slow pulpwood receipts. However, it is seldom that the inventory is permitted to fall below a three-months supply.<sup>1</sup>

The use of rail delivery gives the pulp company better control over pulpwood delivery. In order to maintain the desired inflow of truck delivered pulpwood, both over time to keep a stable inventory and at any one time to expedite proper usage of unloading equipment and the

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<sup>1</sup>The storage time is more dependent upon area and rate of delivery rather than upon deterioration of pulpwood or insect attack.



movements of the delivering trucks, it would be necessary to have very definite delivery dates in the contracts. This would be impractical from the producer's viewpoint and extremely difficult to administer so rail procurement is almost essential.

Rail delivery cannot be initiated until the pulp company accepts the pulpwood on the railcar. Prior to this time, the producer can concentrate his efforts in felling, bucking and skidding the logs to roadside. Then, when pulpwood is desired, the pulp company notifies its procurement agent (a pulpwood middleman or a company employee) who, in turn, notifies the producers. The railcar is then placed on the proper rail siding and loaded. The pulp company has excellent control over the quantity and the timing of delivery, both at the rail loading point and at the pulp mill, thereby being able to maintain a relatively smooth flow of pulpwood into the wood yard.

One Lower Michigan pulp mill had maintained a concentration yard for the purpose of controlling the flow of wood to the mill and to reduce shipping costs.<sup>1</sup> Pulpwood produced within a thirty-mile radius was purchased delivered at the concentration yard at \$0.50 less per cord than the prevailing price for pulpwood purchased on railcars. The pulpwood was then peeled and stored until required by the mill. The peeled pulpwood was later shipped to the pulp mill 207 miles away. Although the \$0.50 reduction in price did not cover the loading costs completely, the pulp company was able to effect a \$1.90 per cord saving in shipping costs by peeling. However, the increasing use of small debarkers in the woods by the producers has permitted the abandonment of the debarking

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<sup>1</sup>Concentration yards are not used extensively in the Lake States, but are quite common in the South.

operation at the concentration yard. Apparently, the increase in control over the flow of pulpwood to the mill gained by use of the concentration yard is considered to have value enough to cover the cost of operating the yard.

Three Wisconsin pulp companies engage in logging operations in the Upper Peninsula, but the other Wisconsin and the Michigan pulp mills prefer to obtain their wood from independent operators. On company-owned lands in Michigan, pulpwood production is carried on by contract loggers or by stumpage buying producers. As producers are able to provide the necessary pulpwood, actually there is little need for the pulp companies to produce their own pulpwood, and the companies are relieved of the responsibility of the necessary labor administration and financial investment.

On the other hand, approximately half of the pulp companies procuring pulpwood in Michigan have to aid their suppliers in obtaining stumpage. This is usually done when there is no other way for one of a company's more reliable producers to obtain the necessary timber. The main place where the pulp companies find it necessary to enter into stumpage procurement is in the large state and Federal timber sales. The average supplier does not have the funds available to make the necessary investment to obtain such large tracts of timber.

This aid for stumpage may be granted in two ways. The pulp companies may purchase the stumpage directly and resell it to their producers with payment being deducted from the price of the pulpwood or they may grant the funds directly to the supplier, allowing him to purchase the stumpage in his own name. Repayment is again deducted from payment for the delivered pulpwood. In any case, the pulp companies

enter stumpage purchase transactions reluctantly.

All pulp companies do not like to grant financial aid of any type to their suppliers, but with the exception of several companies with small operations all do grant aid to the reliable suppliers. In all cases except stumpage purchases, financial aid is based on the quantity of pulpwood cut and ready for delivery. Primarily, the aid is advance partial payment on undelivered pulpwood, paid in order that the supplier be able to complete the marketing transactions. These advances are usually made to provide working capital. Few pulp companies will advance funds for capital investment.

The granting of financial aid has opened the producer-middleman question as to which should receive the aid. Only three pulp companies grant aid to both. Among the other mills, one group grants aid only to producers as they feel that the dealer fee should eliminate the need for additional funds while the second group feels that aiding the middleman gives the pulp company better control over the funds while recognizing that the middleman may have a very large investment in the pre-delivery stages of the operation. While both groups have valid reasons for their actions, the majority of the pulp companies feel that only the producers should be aided. Several mills have eliminated the dealer fee entirely as they consider financial aid a substitute for the fee.

### Contracts

The policy concerning contracts between the pulp companies and their suppliers is different among the companies and for the various groups of suppliers. Some mills use a very informal contract (a letter request or an oral agreement) while others use a much more formal type. Some use

a series of short-term contracts (six-month time periods) to provide flexibility while always having the required quantity of pulpwood under contract. Others use contracts with longer time periods (seven to ten months) and depend on informal contract or non-contracted pulpwood deliveries to provide wood for the remainder of the year. One company uses a formal contract which calls for a given weekly quantity to be delivered without placing a time limit or a total volume level on the overall contract. In most cases, the smaller the pulpwood operator contracted with, the less formal and less exacting the contract.

The pulpwood contract is designed to serve one basic function; to insure the delivery of a given quantity of pulpwood while granting the pulp company some flexibility in adjusting procurement to the mill requirements. The shorter term and the more informal contracts permit the adjustment in requirements to be made more rapidly, with greater ease, and less drastically than in the case of the longer term, more formal contracts.

Informal contracts.--The informal contracts range from oral agreements between the pulp company's local procurement agent and the supplier to letter requests from the company's procurement division to a specific supplier. The basic agreement is usually a statement of the quantity of wood desired by species and specifications, the price that will be paid, and, usually, the overall time period of contract life. The smaller details as to time and place of actual delivery and the minimum acceptable quantities of partial deliveries are usually worked out and agreed upon after cutting has begun and the need for such agreements has arisen.

Formal contracts.--The formal contract differs from the informal in that it carries the signatures of both parties. Quite often, the

stipulations are the same as in the informal contracts with many details left to later oral agreement. The contract usually states the volume and price per cord for each species, method and time of payment, specifications for acceptable wood, and loading directions, especially if the pulpwood is going to be shipped by rail. Various other requirements may be stated pertaining to clear title to the pulpwood and to compliance with government labor regulations in the production of the wood. Due to the almost standardized nature of pulpwood procurement, many details are not stated unless an exception to the standard procedure is desired.

The time of deliveries is usually not specified for any particular date. The pulp companies would very much like to be able to specify exact dates and times of delivery in order to reduce excessive inventory and still have enough pulpwood coming in to operate. At the same time, the companies would like to prevent a congestion of suppliers in the woodyard and at the loading points, but the problems faced by the suppliers prevent this. Weather conditions, labor availability, transportation difficulties, and the like do not permit the supplier to have constant day-by-day control over the production and movement of pulpwood. Thus, a contract will often stipulate that the amount of pulpwood required by the contract will be delivered within the time period of the contract. Most of the pulp companies use a six-months contract so that the entire amount will be delivered within six months, placing a six-months maximum on the amount of pulpwood that has to be maintained in the woodyard. One company tries to maintain better control by stipulating that a given part of the total contract must be delivered within a three-months period while another requires a given quantity every month. The difference between these two methods and the standard procedure is not particularly

significant.

One procurement policy upon which all pulp companies receiving Michigan-produced pulpwood are in agreement is the refusal to hold suppliers to exclusive contracts and to grant exclusive territories. The absence of exclusive contracts is a two-edged policy. It permits any given individual producer or middleman to act as supplier for as many mills as will grant him contracts; thereby, increasing the flexibility of his operation and offering a more certain market. If one pulp mill modifies its contract to call for less pulpwood, the supplier may shift his excess wood to the fulfilling of another contract. However, it also weakens the supplier's position in regard to bargaining. The pulp company is not compelled to offer either large contracts or to pay higher prices as the supplier is not dependent upon a single pulp company for his market, nor is it dependent upon him for a large share of its pulpwood receipts. This policy tends to require the pulp company to grant a larger number of relatively small contracts to prevent the development of exclusive contracts by custom.

The refusal to establish exclusive territories appears to have arisen out of the avoidance of exclusive contracts. The pulp companies maintain that since they do not attempt to control the marketing of a supplier's pulpwood by exclusive contract, they are in no position to attempt to control or limit the territory in which he operates. Occasionally, a pulp company will attempt to select its suppliers in such a way that their normal sources of timber will not overlap, but the practice is not widespread nor is it followed strongly. As a result, Michigan suppliers often find themselves competing for stumpage--and bidding up the price--in order to produce pulpwood for the same pulp

mill. Many suppliers feel that the practice is an example of the pulp industry attitude toward supplier welfare in general.

### Delivery and Storage

Pulpwood deliveries are quite eccentric, but tend to follow a vague seasonal pattern. Usually the high point in receipts occurs in the early spring with a seasonal low in the early fall. These variations are due primarily to weather conditions, the seasonability of the farm labor usually employed in pulpwood production, and demands for certain types of pulpwood. Although truck and rail delivery may continue all through the year, truck transportation is slowed during certain seasons when the woods roads are nearly impassible and loading is possible only where the pulp sticks can be skidded to a well-surfaced road.

The movement of woods workers to agricultural pursuits in the spring and early fall causes some reduction in output, but often it is too sporadic to develop a definite pattern. It is most evident during the autumn when the producer has no backlog of cut wood to continue delivery as he has in the spring. During the spring breakup, pulpwood production may be carried on while transportation is restricted. Thus, during the planting season, the cut wood is delivered as loading requires less labor than the other production functions. In the fall when the labor force turns to harvesting agricultural crops, pulpwood output is slowed and there is no backlog of cut wood. In the summer months, as in the winter, pulpwood logging is a "hot" logging operation in that the wood is cut and hauled to the mill in an almost continuous operation.

The supplying of peeled pulpwood was, at one time, a very seasonal occupation in that the peeling had to be done in the spring or early

summer when bark removal was easiest. The delivery of peeled pulpwood occurred after the peeling season and was usually completed in a relatively short time, seldom longer than three months. However, the increasing use of portable, mechanical debarkers in the woods is gradually eliminating that variation in delivery due to the peeling season.

In general, while there are seasonal characteristics in pulpwood delivery, the seasons of maximum and minimum delivery may vary between the pulp mills and even from year to year for a given mill. There are no completely acceptable explanations for the lack of delivery patterns. It is highly possible that variations in the delivery pattern may come as a result of company buying policies (Stoddard, 1959, p. 26). On the other hand, it would be to the companies' advantage to regularize the flow to the mills.

All pulp companies stockpile pulpwood. In the face of the irregularities of receipts, it is necessary to do so, but it does raise questions as to the effect of prolonged storage on the pulping qualities. In the Southeast where deterioration due to insect attack is quite prevalent, pulpwood stockpiles are limited to a maximum of a three-months supply with six weeks being preferred. Procurement is often on a weight basis to insure delivery of fresh cut pulpwood. However, in the Lake States, only with aspen is it considered necessary to rotate stock so rapidly. Several of the spruce and fir consumers prefer to hold the wood longer, and build up correspondingly larger stockpiles. They feel that storage for at least a year improves the quality of the pulpwood. However, long storage does reduce the fiber quality somewhat in all species.

Although small stockpiles are desirable to reduce the raw material



investment requirement, forecasts are not carefully made. There is little reason for poor forecasting as most pulp mills operate at between 85 and 100 percent capacity, but generally there is a tendency to have very irregular purchasing. The pulp company which is forced to maintain a small stockpile due to space limitations has to initiate short-term purchases quite rapidly and to refrain from purchasing abruptly in order to adjust the stockpile to changes in mill demand. This does work a hardship upon a supplier in that he cannot regulate his production in a proper manner. The accelerator effect operates to cause an even greater fluctuation in his operation than in the pulp company's.

It would seem possible for the producer to reduce the effects of irregular purchases by supplying a number of pulp mills and shifting the flow of pulpwood between them, but as many pulp mills are supplying the same market, they all may adjust their procurement in the same direction at the same time.

## CHAPTER VIII

### MARKET AGENTS

Pulp mills obtain pulpwood from four sources: (1) from pulpwood middlemen, (2) from pulpwood or timber-products producers, (3) from landowners, and (4) from pulp company owned timber lands or from integrated wood processing plants. If company-owned lands are considered from the viewpoint that the company is a landowner, the sources may be limited to the first three categories as very little pulpwood comes from integrated plants, especially in the Lake States, although mill and logging waste are becoming of greater importance.

The complete pulpwood marketing chain would then consist of the landowners who grow the trees, the producers who convert the standing timber to delivered pulpwood, and the middlemen who handle the financial and business arrangements. However, the pulpwood marketing system is not that regular. A single individual or organization may carry out the functions of any one or of all the categories while the policies of the pulp companies may eliminate or require the existence of certain of them.

The landowner role in pulpwood marketing is often an indirect one and is carried out by a very diversified group with motives other than simple pulpwood production. Although it is the first stage in pulpwood marketing, discussion will be deferred to a later section in order that this group may be examined from a viewpoint other than that concerned only with the problems of pulpwood production and marketing.

### Pulpwood Middlemen

In the pulp and paper industry, the middleman in the raw-material supply system developed at a relatively early stage. While pulp and paper manufacture is a relatively raw-material oriented industry, its location is greatly influenced by other factors, and, historically, land ownership and raw material production have never been of primary importance. However, the high costs of establishment, the great fixed costs, and the large quantity of pulpwood consumed does require that a source of constant supply be maintained. As long as the mill size remains small and a lack of competition permits the use of local pulpwood sources, producer contracts supply the mill requirements. With the introduction of competition for pulpwood and expansion of mill capacity, the area of procurement must expand, and in expanding the pulp company must arrange some method of controlling procurement from a distance. This control is attained by either hiring or contracting with an individual to supervise procurement in the more distant areas. The economics of the situation determines the method to be employed, but normally contacts are used; first with the large producers, but finally with the middlemen in a given area as the demand increases. Thus, the middleman development in the pulpwood marketing field is a direct result of competition between pulp mills and increases with the distance of procurement.

Variations in the use of the pulpwood middlemen are due to company policy in regard to the amount and type of aid the company wishes to offer and the existing procurement procedures of the firm. Maintaining a large number of producer contracts can become quite complicated due to the sellers' need for aid. This requires that a company dealing directly

with pulpwood producers be prepared to shoulder the direct and indirect costs of making and administering numerous small advances, and sometimes procuring stumpage. A company which feels that these costs are less than the middleman's fee will automatically reject the middleman's service, but the middleman will also be rejected if the company feels that the intangible returns from dealing directly with producers outweigh the savings resulting from the proposed use of the middleman.

If the pulp company has operated for some time with producer contracts and has developed a procurement organization of some size, there is a decided tendency to retain and expand the organization rather than develop a middleman system of procurement, especially if there is a large fixed cost involved. In the Lake States, all pulp companies have retained that part of the procurement branch which deals with producers directly, even when they have accepted a middleman system, as they will not depend on a middleman system entirely. In one case, where no middleman is used, the procurement organization has been expanded to the point where it even provides product transportation from the woods to the mill for its producers.

Thus, the development of the middleman in pulpwood marketing is by no means an automatic thing, but it is determined by the needs and wishes of the firms of the industry. Economic advantages are the primary cause of a company's acceptance of the middleman, but in many cases the existing procurement structure and the desirability of certain intangible benefits may cause rejection in spite of economic considerations. The variation in the use of the middleman system is due primarily to differences in company policy rather than to inequalities in cost structures between the companies.

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The advantages of the middleman system in pulpwood procurement are numerous, but utilization of these advantages is dependent upon pulp company policy and the middleman himself. In his study of the contractor system in the South, Duerr (1949) found that the use of the middleman could relieve the pulp companies of a great number of social responsibilities as well as eliminate many of the more expensive aspects of direct procurement from the producers. The majority of the Southern pulp mills use the middlemen as their only source of pulpwood and insist that all producers deal through their local middleman.

To the producer, the middleman is a known pulpwood market. The local middleman is usually more accessible to the small or part-time producer than a visiting company representative while within the small, sometimes exclusive, area served by the local middleman, the procurement agent who lives within the area is in a much better position to contact all known and potential producers.

Middleman procurement of pulpwood has forced the development of certain practices which are highly advantageous to the pulpwood producer. In order to meet contract requirements, the middleman must not only procure pulpwood, but must also take the necessary steps to insure the availability of wood to procure. Quite often, it is necessary for the pulpwood middleman to provide the producers in the procurement area with credit and with stumpage.

The lack of credit availability is one of the limiting factors in pulpwood production. While equipment can be obtained through credit purchases, it is almost impossible for a producer to obtain credit for working capital or for stumpage procurement through normal credit sources (Stoddard, 1959, p. 49). Funds for these purposes come from the

producer's resources or from the pulpwood buyer. As the pulp mills hesitate to make such loans except to the larger, more reliable producers, the small producer turns to the pulpwood middleman.

This credit is seldom provided as cash unless it is provided as advance payment for pulpwood cut but not yet delivered to the normal point of acceptance. The actual form of credit depends upon the use the producer will make of it and the business enterprises of the middleman. If the credit is needed to procure stumpage, normally the middleman will make the actual purchase and deduct payment from the returns due the producer upon delivery of the wood. Where the funds are needed to meet current expenses, the middleman will make cash loans more often, but if the middleman is operating some type of mercantile establishment or if the funds are required for living expenses, the middleman will provide the producer with a credit account in the store. This is relatively common among the smaller middlemen whose pulpwood activities are carried on in connection with the operation of a grocery store or gasoline service station (Stoddard, 1959, p. 226).

The pulpwood middleman is often a prominent figure in the stumpage market. Rather than depend on the local producers to procure their own stumpage, it is often more advisable for the middleman to obtain title to standing timber and to negotiate with the producers to harvest it. This is almost a standard procedure when large tracts of timber are sold. After purchase, the middleman then either contracts with one or more producers to harvest the timber for him, or he resells the stumpage to a number of producers outright or on the basis of payment for the stumpage, plus a handling fee, at the time of the sale of the delivered pulpwood.

The entrance of the middleman into the stumpage market is necessary

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due to the inability of the producer to invest his limited funds for the time period between timber purchase and pulpwood sale. This is a very decided factor in preventing the entrance of the producer in large timber sales and public timber sales. Any stumpage sales which require a deposit are usually closed to the small producer. Only the presence of the middleman permits the producer to obtain any of this stumpage. It was just such a condition that caused the U. S. Forest Service to bring a middleman into existence in Michigan (Franson, 1949, p. 309).

The acceptance of credit and stumpage, however, places the producer at a disadvantage in that it obligates him to deal with the middleman who supplied the needs. Thus, the producer is again faced with a limited market for his pulpwood.

Although this, in itself, would work no more hardship on the producer than if he were selling directly to a single mill, the ethics and methods employed by the middlemen may work to the disadvantage of the producers. It was charged by the president of the Wisconsin Pulpmen's Union that "the pulp mills have paid the same price for the last 10 years, but the dealers have set prices according to conditions and supply." It was further alleged that middlemen who advanced credit in the form of supplies would not purchase enough pulpwood to permit the repayment of the entire debt (Stoddard, 1959, pp. 25-26).

The extent of such practices has not been determined, but they do point up the fact that producers may be faced with difficulties which would not be encountered in direct marketing. If, as in many cases in the South, there is only one middleman serving the only pulp mill procuring pulpwood in a given area, the producers of the area are completely at the mercy of the dealer. In the Lake States, extensive cross-hauling

of pulpwood may eliminate this.

The major advantage of utilization of the middleman system of pulpwood procurement is the reduction of administrative costs and better control of the flow of pulpwood to the mill. It has been suggested that the system permits the shifting and avoidance of certain social responsibilities and the elimination of labor problems (Duerr, 1949). However, in the light of recent developments, these problems and responsibilities may never have been, legally, a part of pulp-company procurement requirements.

The relationship between the pulp company and the producer has often been considered as employer-employee on the basis of size. It has been advocated that the producer, when under contract, is a part of the pulp company, and the pulp company then becomes responsible for the producer's actions. Under this concept, it is felt that it is the duty of the company to see that all labor and social security regulations are met and that the company is responsible for insuring clear legal title to the pulpwood. However, in a recent court decision, it was stated that a pulpwood producer is an independent operator, and, as such, has no direct connection with the pulp company. In no sense is a contract producer to be considered an employee of the company (American Pulpwood Association, 1959). Therefore, the pulp company is relieved of all concern as to labor laws and legal title, and is not, legally, responsible for the illegal actions of its producer-suppliers.

In regard to social responsibility, it is generally found that the middleman does not relieve the pulp company of any social obligations. In the South, where the middleman system is the strongest, the pulp companies have accepted as their duty to society--and themselves--to

encourage the maintenance of pulpwood production and to provide the technical aids necessary to place individual forest lands on sustained-yield management (Malsberger, 1956, p. 642).

In Michigan, this type of public relations work is almost nonexistent. Relief from social responsibility is not primarily determined by the procurement system, but by company policy.

#### The Pulpwood Middleman in Michigan

The operation of the middleman or dealer system in the marketing of pulpwood in Michigan has received a mixed reaction. Although a number of mills use the dealer system to obtain part of their pulpwood requirements, no mill is completely dependent on dealers. Moreover, there are eight Michigan mills which do not use the dealer system at all. Of these eight, four own forest lands and three are obtaining a small part of their pulpwood needs from such lands.

Table 9 shows the quantities of pulpwood, by type of procurement, supplied to Michigan and Wisconsin mills in 1958. In the Lower Peninsula, dealers supplied only 14 percent of the total Michigan produced pulpwood consumed by Michigan mills. This figure is somewhat misleading as one pulp mill, which accounts for almost half of the entire pulpwood consumption in Lower Michigan, depended entirely on producer sources and provided all the benefits to the producers that the dealer would normally be called on to provide, plus maintaining its own trucking organization. The five Lower Peninsula mills which avoided the use of the dealer system more or less limited their sphere of procurement operations to within 200 miles of the mill and depended mainly on truck delivery. They received some 94 percent of their supply by truck at a maximum distance of 190

**TABLE 9.- Contracts issued and volume received by type of procurement for reporting mills: 1958**

Mill Location	Middleman			Producer		
	Number of Contracts	Volume in Cords	Average in Cords	Number of Contracts	Volume in Cords	Average in Cords
<b>Michigan</b>						
Lower Peninsula (7) <sup>a</sup>	15	39,600	2,640	809	279,805	346
Upper Peninsula (3) <sup>a</sup>	26	16,537	636	198	42,171	213
Wisconsin (15) <sup>a</sup>	153	192,074	1,255	350	157,241	449
<b>All Mills (25)<sup>a</sup></b>	194	248,211	1,280	1,357	479,217	353

<sup>a</sup>Numbers in parentheses are the number of reporting mills

miles while the remaining 6 percent came by rail from distances not exceeding 200 miles.

On the other side of the picture, the two mills using the dealer system in combination with producer contracts procured wood at distances up to 400 miles when delivered by rail and 250 miles when delivered by truck. Truck deliveries accounted for 41 percent of the total volume of wood procured.

In the Upper Peninsula, a similar situation existed. For the three reporting mills, 72 percent of the pulpwood consumed was obtained from producers with trucking distances limited to 50 miles and rail distances not exceeding 135 miles. The only mill of the three to use the dealer system was also the only mill to procure pulpwood at distances greater than 100 miles.

A combination of dealers and producer-suppliers was generally depended upon to furnish the 15 reporting Wisconsin mills with Michigan-produced pulpwood. Four Wisconsin mills depended entirely upon dealer sources while one drew its supply from producer sources only. One mill drew upon company owned lands in Michigan for its Michigan-produced pulpwood, doing all harvesting with its own logging crews.

In Michigan, the pulp companies procured more pulpwood from producers than from dealers. In the Lower Peninsula, producers provided almost nine times as much wood as did the dealers while in the Upper Peninsula the ratio was 2-1/2 to 1. However, in terms of cords per contract, the picture reversed itself. In Lower Michigan, the average dealer contract called for some eight times as much pulpwood as the average producer contract while in the Upper Peninsula the dealer contract was approximately three times as great as that of the average



producer.

The actual size of dealer operations is quite variable. Some dealers may handle as little as 300 cords per year, while at the other end of the scale of operation, one dealer may handle more than 60,000 cords (James, 1957, p. 33). This size variation is due to many factors with the major ones being distance from the mill or mills being supplied and the ability of the dealer to obtain contracts. The greater the distance between the supplied mill and the supplying dealer, the greater the size of the contract will be. Thus, as there is a limit beyond which a mill will turn to pulpwood dealers to maintain better control over wood procurement, the greater the distance beyond this limit, the more the mill will reduce the number of contracts. This reduction is carried out by increasing the size of the contract. For example, in Upper Michigan where the distance for dealer usage is just over 100 miles, there are numerous dealer contracts of relatively small size. The Wisconsin mills reach out further for wood and, on the average, grant larger contracts while the Lower Michigan mills procure wood at even greater distances and grant dealer contracts of even larger size. This shows up quite well in Lower Michigan where only two mills use dealer-suppliers. The mill at the greatest distance from the timber stands of northern Lower Michigan uses slightly fewer dealers while receiving almost twice the amount of dealer-produced pulpwood.

Pulpwood dealers in Michigan are not granted exclusive territories nor are they required to deal with only one mill. Michigan dealers can, and often do, have contracts with more than one pulp company. James (1957) found that the majority of the dealers have, at least, three contracts. Only the smaller dealers content themselves with one contract

and many have two. The large dealers may hold more contracts; the greatest number for a single dealer being twelve.

Thus, the ability of dealers in Michigan to expand the size of their operations depends more on their ability to obtain contracts from a greater number of mills than to obtain larger contracts. Also, the mills prefer using a number of dealers. Only three Wisconsin mills depend on a single dealer to supply them with Michigan-produced pulpwood. Two mills depended on one dealer to supply them with almost 24,000 cords while the third mill received less than 3,000 cords from its dealer. In Lower Michigan, the pulp mills using the dealer system apparently use a number of dealers for two reasons: few dealers are able to obtain the quantities of pulpwood necessary to meet mill requirements, and the companies wish to prevent possible monopolization of the dealer market. In Upper Michigan, the dealers are able to supply a greater number of mills. Upper Peninsula dealers are able to obtain contracts with both Upper Peninsula and Wisconsin pulp mills.

Pulpwood dealers in Michigan seldom attempt to operate over a large area. Normally, operations are limited to a 50-mile radius. This permits a dealer to obtain, and maintain, close contact with pulpwood producers and landowners and to become known as the pulpwood agent in the area.

Michigan dealers usually provide those services granted to pulpwood producers by dealers. The larger dealers provide stumpage, either directly or indirectly, for their producers. Normally, funds for stumpage purchase come from the dealer's own resources, but in most cases the pulp companies will advance funds against cut pulpwood for this purchase. The pulp companies will never purchase stumpage directly for the dealers.



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All dealers make advance payments to producers. As these payments are made on the basis of pulpwood cut, but not delivered, these grants are considered as advance payments for the wood rather than loans so interest may not be charged. However, James (1957, p. 35) found that 10 percent of the Michigan dealers do charge interest when using their own funds to make the advances while Stoddard (1959, p. 45) maintains that, while no interest may be charged as such, dealers do require payment of a service charge which covers interest and managerial expenses.

In addition to providing funds and stumpage, Michigan dealers often provide transportation. Producer wood is purchased by the dealers at roadside where the dealer takes title and provides the means of transporting the wood to the point where the title is transferred to the pulp companies. In few cases is the transportation provided by the dealer's own vehicles. Normally, the dealer will contract with a local trucking concern or an individual to do the actual hauling.<sup>1</sup>

Nearly 60 percent of the pulpwood dealers in Michigan are part-time dealers. They handle pulpwood in combination with other occupations. About one-half of these part-time dealers are grocers--cooperative stores and independent operators--while farmers represent less than 10 percent. Wood-using industries make up about a fourth of the part-time dealer population (Table 10).

Grocers represent the largest group of the part-time dealers for a number of reasons. The grocers are in a central location in a given area and are in a position to contact the local producers and landowners easily; they are able to provide aid in the form of merchandise with

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<sup>1</sup>James (1957, p. 39) designates as contractors those people who provide services in pulpwood marketing without taking title to the wood.

TABLE 10.- Distribution by occupation of Michigan pulpwood dealers

Type of Dealership and Alternative Oc- cupations	Number in Sample	Percentage of Total	Percentage of Dealer- ship Type
<b>Full-time Dealers</b>			
Regular	7	35	88
Cooperative	1	5	12
Total	8	40	100
<b>Part-time Dealers</b>			
Grocer	4	20	33
Wood Using Industry	3	15	25
Cooperative <sup>a</sup>	2	10	17
Farmer	1	5	8
Other	2	10	17
Total	12	60	100

Source: James, Lee M. (1957) Marketing Pulpwood in Michigan, Bulletin 411, Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, p. 34.

<sup>a</sup>The cooperatives are also grocery stores but are listed separately due to the difference in organization.

little or no additional capital outlay; and they are in a position to benefit both from the dealer fee and from the additional purchasing power of the producer. In the smaller communities, the local grocer-dealer has an advantage in being able to make known his pulpwood requirements to the local producers and contractors with little effort. The store is usually a point of congregation for the landowners and workers so the grocer-dealer can make contact, either directly or indirectly, without leaving his establishment. He is also in excellent position

to learn of stumpage sales by local landowners and is often able to make the first and only bid on such stumpage.

The ability of the grocer-dealer to offer aid to local producers in the form of merchandise permits him to operate at great efficiency. Often he is able to obtain any needed additional merchandise from wholesalers in liberal credit terms (Lebow, 1958, p. 347). Thus, he does not necessarily have to completely deplete his stocks. If such wholesale credit is necessary, the additional wholesaler charge is passed on to the producer. This type of aid, plus some stumpage, permits the local producer to operate within the limits of his own resources while involving no actual money credit. Of course, this type of aid binds a producer to the dealer quite strongly. If the grocer-dealer is the only pulpwood buyer in the area, this type of aid may lead to conditions which led to the charge made before a Senate committee that " . . . unless you bought . . . supplies from the contractor (dealer) you could not obtain any tickets (producer contracts)" (Stoddard, 1959, p. 30). There is little evidence of this in Michigan.

The smallness of the number of farmer-dealers is quite understandable in view of the services demanded of dealers. First of all, the farmer-dealer is in a position where contact with the producers and landowners must compete with his normal occupation for time, and this requires additional effort on his part. Time spent in procurement must yield a return great enough to repay the costs of that procurement plus a larger amount than would have been received from the alternative work upon which the time would have been spent. By having two sources of income competing for the available time, pulpwood procurement costs may be somewhat higher for the farmer-dealer than for other part-time dealers.

Secondly, the farmer-dealer must provide all the necessary aids and benefits to the producers from his own cash resources. On the average, Michigan farmers do not have the capital necessary to finance pulpwood operations. Although, as a farmer, the dealer may have extra sources of credit available, such as the various government agencies, the standard practice of not charging producers interest discourages the use of interest charging sources of capital. The farmer-dealer's ability to provide credit is almost directly tied to his ability to obtain interest-free advances from the pulp companies. In general, Michigan farmers do not have the constant flow of available capital to permit them to offer the necessary aid.

Dealers who operate some type of wood using plant are not in as good position as grocers to provide non-monetary aid to producers, but they are in a better position than farmers to create the necessary contacts to obtain the needed wood. Depending upon their method of operation, this type of part-time dealer is in a position to generate much of his own pulpwood or to procure pulpwood generated by others in connection with procuring the raw material for his own wood-using mill. A pulpwood dealership provides an opportunity to expand the existing operation, to provide integration to offset economic fluctuations, and to dispose of a waste product of normal operations.

The last main group of part-time dealers is a highly varied one, consisting for the most part of local businessmen. These dealers enter the field of pulpwood marketing because of some attribute of their alternative occupation. The ability to contact producers and the existence of a source of credit are the main factors which, when properly correlated with the major occupation, permit entry into the pulpwood-marketing field.

The full-time pulpwood dealers are those market agents who limit their operations to purely pulpwood marketing or to the marketing of general forest products. This group accounts for 40 percent of the pulpwood dealers in Michigan. These dealers operate as any business organization and provide all the necessary funds for their producers. However, all operate primarily on advance payments from the pulp companies.

### Pulpwood Producers

Pulpwood production consists of the actual conversion of standing timber into pulp sticks. It is usually an independent logging operation<sup>1</sup> carried out by a relatively large number of small production units. In 1959, the American Pulpwood Association estimated there were 14,700 full-time pulpwood producers cutting more than 1,000 cords per year per producer, and 35,000 producers cutting less per year on a part-time or seasonal basis. These 49,700 producers supplied, directly or indirectly, more than three-fourths of the pulpwood procured by the pulp mills of the nation.

The existence of large numbers of producers supplying the major part of the raw material for an industry indicates the presence of a highly competitive sellers market. The fact that there are more than twice as many part-time producers as full-time producers show that entry into and exit from the pulpwood production field is quite easy and inexpensive. The figures do not show the seasonal nature of pulpwood production.

Pulpwood production is, in itself, not a seasonal operation. With

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<sup>1</sup>An independent logging operation is a logging operation carried out by a small, normally unincorporated concern which has no direct affiliation with a buyer other than a supply contract (Stoddard, 1959, p. 15).

the exception of ease of peeling and transportation difficulties in certain seasons, pulpwood may be cut and sold at any time of the year. However, the presence of large numbers of part-time producers, affected by the seasonal aspects of the alternative occupations, gives rise to seasonality in pulpwood production. This is particularly true where farming is a major, but marginal enterprise, and pulpwood production provides the only source of additional incomes.

The farmer, however, is not the only part-time producer. In many cases, pulpwood is a variable by-product of another woods operation. The small sawmill operator produces pulpwood to maximize the returns from a timber purchase. The availability of pulpwood-size timber depends entirely on the type of sale, and the quantity of pulpwood produced depends upon the existing market price for low-grade lumber and other forest products.

Lastly, there is the miscellaneous group of part-time producers consisting of small businessmen, workers in non-agricultural occupations, and landowners possessing small quantities of timber and wishing to produce pulpwood. Pulpwood production by this group constitutes a very small part of the total output. By its very nature, such production is extremely small in terms of output per producer. The number of producers in this group tends to vary with local economic conditions rather than by season. Many workers and small landowners go into pulpwood production during periods of economic decline to bolster incomes. The actions of this group tend to obscure the seasonal fluctuations of pulpwood production.

James (1957, p. 37) found that the ratio of full-time producers to Part-time producers in Michigan was similar to the national ratio.

Approximately 66 percent of the part-time producers were farmers who produced less than one-third of the pulpwood harvested by part-time producers. Part-time producers supplied 46 percent of the producer-supplied pulpwood taken by Michigan and Wisconsin pulp mills.

In 1958, 76 percent of the Michigan-produced pulpwood procured by Michigan and Wisconsin pulp mills came directly from producers. While there was a tremendous variation in the actual production of the individual producers, the average production for all producers was 353 cords. In terms of market area production, producers supplying Lower Michigan mills averaged 346 cords per producer while those supplying the Upper Peninsula mills averaged 213 cords. Apparently those producers contracting with Wisconsin mills were the larger producers of the Upper Peninsula; they averaged 449 cords per producer.

Contract.--The producer may have a contract with the pulp mills or with a pulpwood middleman. The method of contracting is largely a matter of company or local policy. In the South, all producers contract with pulpwood middlemen as the pulp companies refuse to grant contract directly to the producers. In the Northeast and the Lake States, contracts between the pulp mills and the producers are much more common.

Producers contracting directly with the pulp mills usually have some type of written contract. The contract is the standard form used by a given pulp mill with all its suppliers. It states the requirements as to species, quantity, method of delivery, point of acceptance, time and methods of payment, and conditions as to credit and advance payments. The restrictions are usually limited to specifications about the quality of the wood and deductions for crook, fire scar, and rot. The actual formality of the contract wording depends upon company policy, but there



is a general tendency for the formality to decrease with the quantity to be supplied. In several cases, extremely small producers are permitted to sell wood with no written contract. James (1957, p. 32) cites the instance in which one mill, when requiring pulpwood, places notices in front of its woodyard that it will accept pulpwood from anyone who brings it. While this system worked for this particular mill, the practice is by no means common.

Stumpage.--Pulpwood producers in Michigan procure stumpage from their own lands and from other timber landowners in the immediate area. Normally, this stumpage is purchased by the producer, but some producers do work only with "free" stumpage; that is, stumpage from their own lands or stumpage provided by pulp companies or pulpwood middlemen. The freeness of this stumpage lies in the agreement between the producer and the provider of the stumpage. The producer may purchase the stumpage from the Provider and have the price deducted from the payments for the delivered wood, or the producer may act as a logging contractor and receive payments only for the harvesting and delivery services.<sup>1</sup> The procedures used and the monetary returns to the producer are approximately the same in either case; the difference lies in possession of title to the stumpage. Where the producer works as a logging contractor, title remains with the provider of the stumpage, but where the price of the stumpage is deducted the producer is thought to receive title to the timber, although it may be considered as being encumbered with a mortgage or lien (Barlowe, 1953, p. 119).

Credit.--Producer credit is connected with producer purchase of

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<sup>1</sup>James (1957, p. 39) considers the latter type of producer a pulpwood contractor rather than a producer.

stumpage. The average pulpwood producer has too small an operation to have a sizable backlog of funds for stumpage purchase. Stoddard (1959) found that the only source of credit were the buyers. Banks were willing to make small, short-term loans on the basis of equipment collateral but would not accept timber or timber products as collateral and would make no long-term loans of any kind. Any producer who requires credit must turn to the buyers.

The pulp mills will offer the more reliable producers advance payments upon request, but mostly base such advance payments on the quantity of cut, undelivered wood held by the producer requesting the advance. The pulp companies seldom offer loans or advance funds to producers for stumpage purchases, but they will, on occasion, purchase stumpage directly or provide stumpage from company lands in order to keep certain producers in operation. Pulpwood middleman advances of funds or purchases of stumpage vary directly with the ease with which the middlemen can obtain advances from the mills supplied. In all cases, such advances are available only to the more reliable producers with repayment being based on deductions from the final pulpwood sale.

#### Pulpwood Producers in Michigan

In 1958, there were almost 1,400 producers selling pulpwood directly to Michigan and Wisconsin pulp mills and supplying nearly 500,000 cords. These producers were unequally divided, both in number and production, between the Upper and Lower Peninsulas. The Lower Michigan producers, accounting for 60 percent of the number of producers, supplied 58 percent of the producer-supplied pulpwood in Michigan and 88 percent of all the pulpwood procured in Lower Michigan.

The greater number of producers in the Lower Peninsula was due to the greater number of pulp mills, the policies of the pulp companies, and the landownership pattern. Only two of the seven pulp mills in the Lower Peninsula used the services of pulpwood middlemen in their procurement and these two mills used a combination of middlemen and producer-suppliers. The other Lower Michigan mills drew their entire pulpwood supply directly from producer sources.

Land ownership in Lower Michigan is somewhat more diversified than in the Upper Peninsula, with fewer large blocks in single ownership. This would indicate that there are a greater number of part-time producers cutting on their own or other, small woodlots. In general, the producer in Lower Michigan is in a much better position for direct marketing than the producers in the Upper Peninsula. The ownership pattern of Lower Michigan timber lands is more conducive to small operations with limited capital backing. The proximity of the pulp mills to the timber sources apparently has a lesser effect on the situation than the size of the timber tracts offered for sale. Individual producers are in a better position to purchase small volumes of stumpage than large volumes since stumpage on small tracts is cheaper on a per unit volume basis and the total investment is smaller.

The policy of the Lower Michigan pulp mills of granting producer contracts and granting aid in the form of advance payments and, occasionally, stumpage purchases and allotments tend to favor direct marketing. The purchasing procedure of buying producer pulpwood at rail loading points, and even at roadside, permits small producers to supply pulpwood at great distances from the mill.

In Upper Michigan, producers supplying the Upper Peninsula mills

were fewer in number, only about one-fourth as many as in the Lower Peninsula, and supplied much less wood. Less than half of the six Upper Michigan mills depended entirely on producer-suppliers for their pulpwood. In terms of competition with pulpwood middlemen, the ratio of middleman supplied pulpwood to producer pulpwood in the Upper Peninsula was 1 cord to 2-1/2 cords as compared to a 1 to 9 ratio in Lower Michigan. The decrease in dependence on producers in the Upper Peninsula was due primarily to the presence of large areas of timber lands under single ownership which reduces the number of small timber sales available to the producer. As the Upper Peninsula pulp mills will not advance funds for stumpage procurement, limiting advances to cut wood alone, the small producer in the Upper Peninsula must seek credit from pulpwood middlemen in order to obtain stumpage.

The Upper Michigan producers supplying Wisconsin mills were fewer than half the number that supplied the Lower Michigan mills and produced a little more than half as much wood. These producers supplied almost four times as much wood to Wisconsin mills as to the local mills. Examination of the average production of these Michigan producers supplying Wisconsin mills shows that the average production of this group is well above the Michigan average. Thus, it may be assumed that the Wisconsin mills offer direct marketing contracts only to the larger, better financed producers in the Upper Peninsula.

Examination of the average output per producer gives some indication of the average size of operation carried out by a producer dealing directly with a pulp mill. As mentioned before, the actual variation in output among these producers is quite great, ranging from 10 cords for a part-time producer to 10,000 cords for a large, full-time operator; it

is strongly influenced by the species supplied and the mill procurement policy. Now, assuming that the basic function of the pulpwood middleman is to secure and to concentrate pulpwood from the small producers, those producers supplying the middlemen must be very small. Figures from one Lower Peninsula middleman indicate that the average producer supplying him delivers approximately 50 cords. Comparing this to a Lower Peninsula average of 346 cords for a producer marketing direct to the mill, and Upper Peninsula averages of 213 and 499 cords for producers selling to Upper Peninsula and Wisconsin mills respectively, it may be said that, on a statewide basis, the size of producer output indicates the method of marketing; the transition between direct and indirect marketing is approximately 125 cords. Actually, the transition between marketing through a middleman and marketing direct to the mill would not be a definite quantity, but rather a range of volumes whose extent depends upon the pulp mill procurement policies and procedures and the producer's knowledge of pulpwood marketing.

## CHAPTER IX

### COOPERATIVES IN MARKETING FOREST PRODUCTS

The smallness of pulpwood operations is often pointed to as the cause of the poor pulpwood market conditions. The small operator is in no position to have any effect upon the pulpwood market, even the local market; he must either accept what is offered or not sell his wood. This condition provides a potential source of unfair business practices for the pulpwood buyer and discourages entry into the market of a better type of small producer. In turn, the lack of better producers tends to leave the small landowner without a method of harvesting his woodlot timber in a manner which will encourage future production. Efforts to encourage the landowner to harvest his own timber have failed because of the small total return and conflicts with other interests. The small producer operation is the only way to harvest timber on these small, scattered tracts which are the "key to adequate timber supplies in the future." (U. S. Forest Service, 1958, p. 107.)

In order to overcome the difficulties faced by the small producer and to insure him better marketing conditions, the establishment of cooperative marketing organizations have often been advocated. Basically, the cooperative would be a middleman, but with certain advantages to the producer which the ordinary middleman cannot offer. The cooperative would be controlled by the producers themselves, and thus would be more sympathetic to their problems. The cooperative would be willing to

accept smaller quantities of pulpwood from individual producer-members and would be able to provide more services at lower cost than some other type of middleman. The major advantage, however, would be the ability of the cooperative to pay the "middleman profits" to the producer in patronage dividends; thereby granting him a higher price for his pulpwood than he would receive if he sold directly to the pulp mill or through a middleman. Even if these profits were retained by the cooperative, the producer-member, having control of the cooperative, could insure their use to provide expansion of and additional benefits from his future operations.

In addition, the banding together of a large number of producers in a cooperative would permit the cooperative to control quantities of pulpwood great enough to obtain a favorable bargaining position with the buyers. While a cooperative would not grant the producers a monopoly position, it would certainly reduce the present inequities in the marketing of forest products.

The handling of forest products under cooperative systems has not had the success that is found in the agricultural cooperatives. In a study by the U. S. Forest Service, records of 57 cooperatives handling forest products from 1935 through 1944 were examined (Cunningham, 1947). The results were not at all promising as to the future use of cooperatives for forest products without special assistance from public agencies.

In three cases of general cooperative marketing and purchasing organizations (cooperative stores) which were marketing forest products as an additional service to their patrons, the value of the forest products handled declined continually during the period studied. In the

case of forest-products marketing associations which were formed for collective marketing of forest products only, mortality was almost two-thirds, with survival predominant among those cooperatives handling timber from public land. The only processing cooperative studied was showing some success, but it had been maintained prior to 1947 through government aid.

General cooperative marketing and purchasing organizations try to handle forest products in order to give the member an additional source of income. In theory, the greater income would cause the landowning member to take more interest in his forest lands and practice some sort of sustained-yield management to encourage the continuation of this income. Such is not the case. In almost all cases studied, landowners marketing their forest products through such outlets "mined" their woodlots to obtain immediate income and, over time, exhausted the supply of timber available for sale. In one cooperative of this type in Michigan, forest-products sales outranked all other products for the first 20 years of the cooperative's existence but has declined to the point where it is, at present, a very minor product.

Of the 30 forest-products marketing cooperatives whose records from 1930 through 1944 were studied by Cunningham (1947), only 11 were still in existence in 1944. The major cause of the failures was World War II and the resulting sellers' market. In spite of by-laws stating aims of practicing forest management and offering assistance to members to implement these aims, members were quick to withdraw from using the cooperative's facilities when approached by the buyers while the war-time loss of personnel prevented the organizations from giving the needed technical assistance if requested. The result was that many of these cooperatives



failed either because of a lack of membership or the overcutting of the woodlots of the members with the latter being suspected as the major cause. Those cooperatives with the best record of sustained operations were those which received their timber from public lands. It would appear that the members of the cooperatives are primarily interested in immediate revenue, and practice sustained-yield cutting only when required to obtain the necessary stumpage.

In the only case of a forest-products processing cooperative, the results appear better than in the other forms of cooperatives. This particular association was formed primarily "to promote, foster, and encourage the better care and increased productivity of woodlands." (Rettie and Ineson, 1950, p. 6.) Members were required to sign contracts with the cooperative promising that their woodlands would be managed in accordance with association prescribed regulations. In return, the association offered aid in planning; it cruised and marked timber to be cut, manufactured the logs, and marketed the product.

The organization was rather heavily capitalized through government loans in its early history and experienced financial difficulties until quite recently. The establishment of the sawmill was more expensive than had been anticipated; the government insisted that the association follow a depression relief program; and management plans required light cutting for setting up the sustained-yield program. These situations added to the cost of going into operation and limited the early timber receipts and sales. During the war when the demand for wood was high, the cooperative was unable to take advantage of the market situation due to the labor shortage. It was not until after refinancing in 1947 that the cooperative became profitably productive.

One of the major factors working for the success of this association was the fact that the majority of the members were owners of fair-sized woodlands and were not being forced toward timber liquidation by the need for immediate income. A fair percentage of the membership could be classified as absentee owners who were quite willing to let the cooperative take over complete management of their forest lands.

In 1959, there were four cooperative organizations marketing forest products in Michigan. Three of these were cooperative stores which were handling forest products more as a service to their patrons than as an actual revenue producing effort. The fourth cooperative marketed only forest products, and although it handled almost all types of timber products --pulpwood, posts, sawlogs, lumber and railroad ties--it depended upon pulpwood for 90 percent of the total revenue.

#### Cooperative Stores in Michigan

The cooperative stores interviewed in this study were incorporated under Michigan law as nonprofit cooperative corporations whose primary purpose was the retailing of food, gasoline, and other consumer products to member and non-member consumer in the areas served. The oldest was established in 1913 and began to market forest products in 1925. In the beginning, such marketing was highly successful for all the cooperatives, and pulpwood became the largest value product handled by the cooperatives. In 1930, one cooperative marketed some \$265,000 worth of logs and pulpwood, with the pulpwood accounting for the greater part. After 1930, the quantity and value of pulpwood handled began to decline (Barton, 1949, p. 183). By 1943, the value of forest products marketed was \$20,000, and in 1959 the value of pulpwood was \$7,000. This last

value represents less than 1 percent of the total value of the cooperative's business.

Prior to 1950, there had been four cooperative stores marketing Upper Peninsula pulpwood to the pulp mills in Upper Michigan and Wisconsin. In 1954, only three were found to be still handling pulpwood (James, 1957, p. 34). Only two marketed pulpwood in 1959; the third having sold no wood since 1957. The latter cooperative still stood ready to market pulpwood if mill orders could be obtained.

Only one cooperative was attempting to maintain itself in the forest-products field by marketing something other than pulpwood. It had developed a market for chemical wood, and in 1959 sold some 1,000 cords of hardwood logs valued at \$13,000. Hope was expressed that this market would take more wood in the future.

Membership in the cooperative is not a requirement for patronage. The cooperative stores will accept pulpwood from member and non-member producers alike provided a mill contract is available. As a pulpwood producer would not become a member for the purpose of marketing pulpwood alone, but for reasons pertaining more to the retail activities of the organization, and as all members are not pulpwood producers, comparisons of cooperative membership and of value of pulpwood handled are of little value.

The pulpwood marketing procedures of the cooperative store are relatively simple. When orders for pulpwood are received from a pulp company, the cooperatives notify the local producers either by personal contact or by posting notices in the stores. As all pulpwood is procured within a 20-mile radius of the stores, the local producers are known and

easily notified.<sup>1</sup> Whenever possible, the mill orders are equally divided among all producers who have pulpwood to sell and have notified the co-operatives of the fact. One cooperative attempts to base the division on past output to favor those producers who have shown superior ability.

The selected producers then deliver their allotted portions to designated rail sidings where the pulpwood is scaled and payment made. One cooperative pays its producers on the basis of a cooperative scaler's measurement while the other pays on the scale by a mill representative. Both cooperatives pay the producer the same unit price he would receive had he sold the wood directly to the pulp company. Normally the wood is transferred directly from the producer's truck to a railcar, but on occasion the cooperatives will purchase wood stacked at the rail siding if a railcar is not available. This, however, is an expensive operation as the cost of each handling is estimated to be between \$0.50 and \$1.00 per cord.

The cooperatives then sell the pulpwood to the mill on the railcar at the loading point for the contract price. This contract price is the dealer price and is from \$0.50 to \$1.00 per cord more than that paid the producers. Title to the pulpwood passes to the pulp company at this point, and the company pays the transportation costs for shipment to the mill.

The cooperatives deduct any expenses incurred and place the remainder of the mill payment in the patronage account for later distribution to the members. The distribution is made annually on the basis of patronage throughout the year. None of the receipts from pulpwood are

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<sup>1</sup>As producers are constantly offering pulpwood, the cooperatives often obtain the necessary pulpwood without notification.

withheld to develop a working capital reserve for future pulpwood operations.

Working capital is not needed as the cooperative stores offer no aid to the pulpwood producers of any type. In the past, all the cooperatives had purchased stumpage and allocated the harvesting to their producers, but now the cooperatives find that they can obtain sufficient pulpwood from producers cutting on their own lands or purchasing their own stumpage, so the cooperatives do not provide stumpage or advance payments on undelivered pulpwood. One of the cooperatives had provided pulpwood handling equipment, but lack of use forced it to discard the equipment lending part of its operation. Presently, the cooperative stores only provide the means by which the producers may come into contact with the buyers in the pulpwood market.

The relationship between the cooperative stores and the pulp mills is one of almost complete disinterest. The cooperatives maintain a passive attitude toward pulpwood marketing. In all cases, contract negotiations are initiated by the pulp companies. There is no effort on the part of the cooperatives to gain contracts or to offer the pulp companies additional services. This attitude is due, in part, to the lack of returns from pulpwood marketing in comparison to the other cooperative activities. Pulpwood marketing represents less than 1 percent of the activities of the cooperatives and is considered too small a part of the overall activities to be given any great amount of time or effort. Little or no effort is made to initiate negotiations, either with the pulp companies or with the producers. Normally, everything depends upon the cooperative being approached by both the supplier and the buyer, although the cooperative will initiate negotiations with the producers if

necessary.

The cooperative stores receive no aid from the pulp companies. At one time, the pulp mills made advances on the basis of cut wood, but they have not done so for a number of years. As long as the time between cooperative purchase of the pulpwood from the producer and receipt of mill payments remains short (about two weeks), and the cooperative does not purchase stumpage, make large advance payments to the producers, or make other investments in pulpwood procurement, there is no need for such advances. In addition, the pulp companies supplied feel that advances to dealers should not be made.

In general, the cooperative stores still maintain a dealer relationship with the pulp companies, but the title is slowly becoming an honorary one as there is little actual "dealing" between the cooperative stores and the pulp companies.

The cooperative stores face little competition from other dealers. There are few pulpwood dealers in the cooperatives' areas of operation and they, for the most part, are facing the same difficulties as the cooperatives. The greatest advantage the cooperatives offer the pulpwood producers is the annual patronage dividend which acts as a delayed higher payment for their pulpwood. The lack of mill orders prevents full play of this factor. The possibility of patronage dividends attracts many small producers to the cooperatives, but the inability of the cooperative stores to market the wood forces the producer to turn to any other dealer in the area who will take the wood. An almost constant over-production of pulpwood and a shortage of mill orders prevents excessive competition between the cooperatives and other Upper Michigan pulpwood dealers.

The managements of the cooperatives interviewed expressed a great

interest in the activities of the pulpwood market, but for the most part they had little knowledge of the field and its problems. Their training was limited to the procedures of operating a cooperative retail store and maintaining the necessary accounts. In only one case did a cooperative store manager show any extensive knowledge of the problems of pulpwood marketing. This individual had been with the cooperative for some time and had been active in pulpwood marketing when the cooperative was handling pulpwood in quantity.

The cooperative stores offer pulpwood marketing facilities as a service within the framework of their other activities. As it represents, at present, less than 1 percent of the total value of all cooperative activities, no effort is being made to expand or stabilize it. All funds, less expenses, received from marketing of pulpwood are dispersed to the patrons in the annual dividends.

The cooperative stores, at one time, were quite important in pulpwood marketing in the Upper Peninsula, but the volume of pulpwood handled has declined until, at present, the cooperative stores are very minor suppliers of pulpwood in Michigan.

#### Forest-Products Cooperative in Michigan

The one cooperative in Michigan that deals with forest products only was incorporated under Michigan law as a nonprofit timber marketing organization in 1940 under the auspices of the U. S. Forest Service to provide a system by which plantation thinnings on the neighboring national forest could be harvested. It was originally financed by a \$3,000 unsecured, five-year, 3 percent loan from the Farm Security Administration of the U. S. Department of Agriculture. This loan permitted the

cooperative to make advance payments to members without "binding itself to any one purchaser" (Cunningham, 1947). By 1945, the loan had been reduced to \$1,800 and a \$5,000 working fund had been built up. In 1946, a full-time secretary-treasurer was employed to replace the Forest Service employee who had provided this service on a part-time basis. By 1949, the cooperative was doing an annual business of \$100,000, had developed a working capital of \$20,000, and was free of all large debts (Franson, 1949).

For the past ten years, the cooperative has shown a steady increase in its total sales value. From a low of \$26,000 in 1946, its business rose to \$372,000 in 1957 while its membership rose from 72 to 221. In 1959, the annual business was \$300,000 and the membership was 162 (Fig. 15).

Membership in the cooperative is based on two requirements: payment of a \$2.00 annual membership fee and residence on or near the Tawas Working Circle of the Lower Peninsula National Forest. The board of directors makes some effort to insure that the new member has some "roots" in the community. The membership agreement is quite simple. The member is required to abide by the by-laws and the decisions of the board of directors in matters pertaining to the operation of the organization. There are no stipulations requiring the member to accept the cooperative as his only dealer or not to sell pulpwood directly to any pulp company. The cooperative regulates cutting only to the extent of specifying wood quality requirements. No attempt is made to proscribe any type of cutting or timber management practices.

The present procedure on procurement is for the pulp companies to come to the cooperative with contracts. The cooperative then contacts



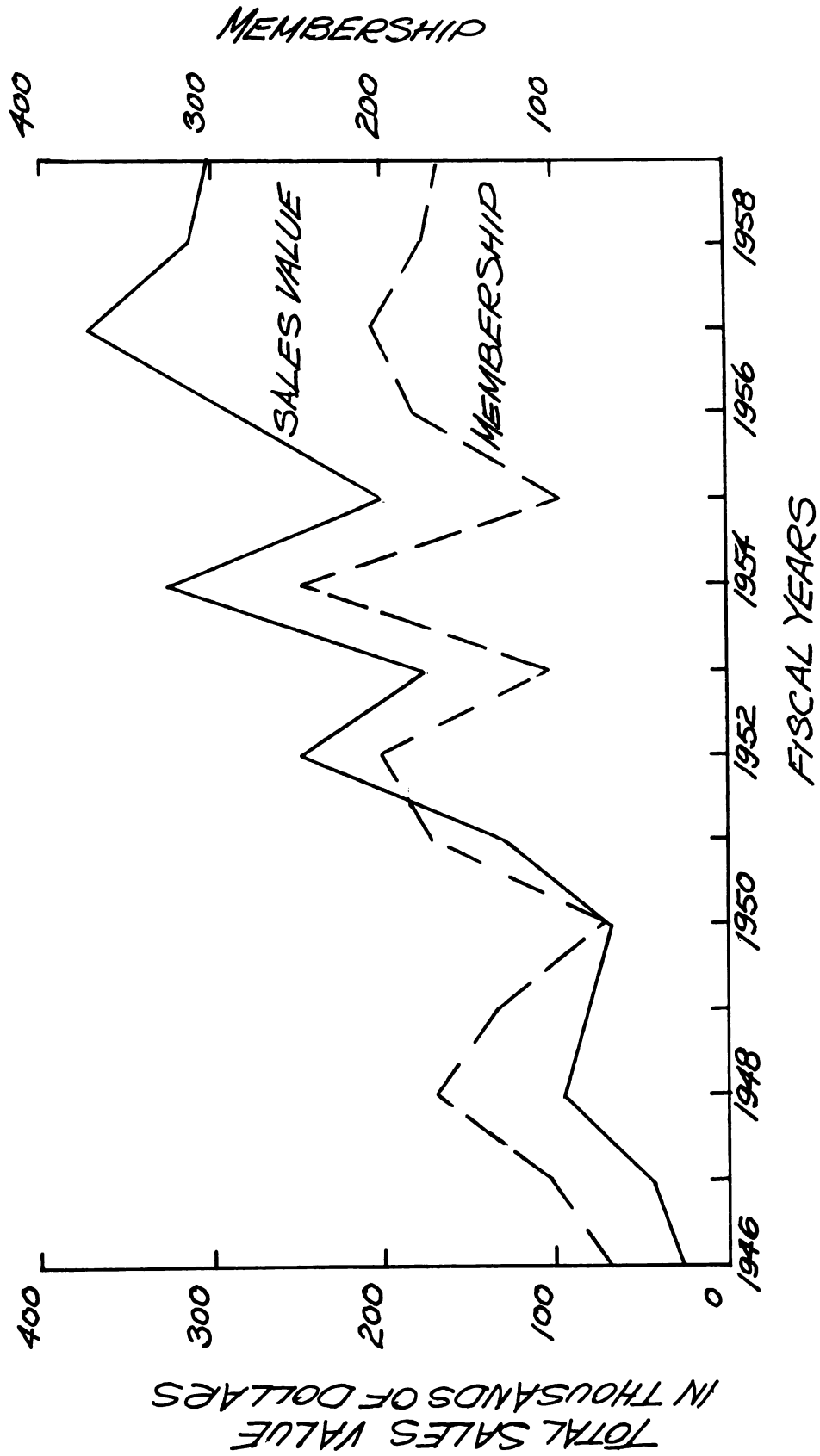


Fig. 15. - Trends in annual membership and total sales value of the forest-products cooperative in Michigan: 1946-1959

its "hard core" of producers for allocation of the contract quantities. If these producers are unable to fill the contracts, other members are contacted and, if necessary, new members are attracted to the cooperative. The last is seldom necessary as the cooperative is often approached by independent producers.

Once production has started, the cooperative scales and accepts pulpwood at roadside every two weeks. If the wood is from private lands, the cooperative scale alone is accepted while wood from public lands is scaled jointly by the cooperative scaler and a representative of the public organization.

Although the cooperative by-laws provide that payment need not be made until receipt of the proceeds from the final sale of the product, payment to the producers is usually made within 48 hours after scaling. This payment, made for pulpwood at roadside, is equal to the estimated costs of production, less any advances.

The cooperative arranges transportation of the pulpwood from roadside to the railcar. If the producer wishes to deliver his wood to the rail loading point, he receives an additional \$4.25 per cord. Only some 3 percent of the pulpwood is procured in this manner.

Transportation from roadside to rail siding is accomplished in two ways: (1) The cooperative contracts with a local trucking company at a rate of \$4.25 per cord for all hauls up to 30 miles. Although there is no direct connection between the trucking company and the cooperative, operations have been mutually advantageous and the cooperative uses this company entirely for the larger operations. (2) Where the quantity of pulpwood is small or scattered, the cooperative rents a truck-loader combination from one of its employees on a mileage basis. The cooperative

was instrumental in obtaining this piece of equipment, but title was passed to the individual.

The cooperative sells the pulpwood to the pulp companies on the railcar. The cooperative is responsible for obtaining and loading the cars, in accordance with its contract, but there is some agreement with the company procurement division as to when such loading will be done in order that the company may plan receipts and maintain a constant flow. The payment from the pulp companies is placed in the Working Capital Account and credit is noted to the proper producer.

In addition to making payment before receipt of payment from the pulp companies, the cooperative provides several other aids to the producer members. Small interest-free loans are granted to individual members to meet current expenses. These loans are limited to the book credit of previous allocations of the borrower and are deducted from the payments for pulpwood produced.

While the cooperative provides no equipment as such, it will take the necessary steps to see that certain equipment is made available to the members. If the board of directors decides that a piece of specialized pulpwood equipment is necessary and desirable, the cooperative will purchase the equipment, and immediately resell it to a member on a long-term repayment basis. While the legal title is passed to the individual, the cooperative maintains some control of the use and the rate charged.

The repayment is usually made by the cooperative receiving a part of the usage charge. Two pulpwood debarkers and a truck-and-loader combination have been purchased under this arrangement. The former were sold to two member producers while the latter is owned by an employee of the cooperative.

The cooperative also buys and resells at cost such minor items as gloves, axes, and saw chains. It had once attempted to handle larger items such as power saws, but maintenance problems prevented economical operation so the sideline was discarded.

The major aid granted the producers by the cooperative is stumpage purchases. The cooperative is a major bidder on national forest pulpwood sales, and it does purchase stumpage on private tracts. This cooperative-purchased stumpage is immediately resold in smaller portions to the various members on the basis of their production in the past three years. This resale is a paper transaction until the pulpwood is actually purchased by the cooperative. Then, the stumpage price is deducted before payment for the wood is made.

The cooperative has been supplying pulpwood to its present customers since its establishment. The cooperative had supplied another mill which has now developed the use of truck delivery for the greater part of its wood. This mill now does not use any dealers, but purchases wood at roadside and provides truck transportation through a wholly-owned trucking subsidiary. The cooperative has had little success in dealing with mills which prefer truck-delivered wood.

The two Lower Peninsula mills which use the dealer system and purchase rail-delivered wood accept the cooperative as a dealer and pay a \$0.50 per cord increase in price. Both mills purchase pulpwood from the cooperative on an f. o. b. railcar basis at specified rail loading points and make payment on the basis of mill scale of the wood. The mills have found that the cooperative is a dependable supplier and that it can adjust readily to changes in mill requirements and contract specifications. Normally, the contract between the mill and the cooperative is a formal,

written agreement, but the cooperative will fill mill needs on the basis of a verbal or letter request.

Recently, there has been an interesting development in the relations between the cooperative and one mill which depends on truck-delivered producer wood. In the past, this mill has refused to use the dealer system. However, the mill is now offering to purchase pulpwood from the cooperative at prices which exceed those paid to its producers. The price increase is still less than the usual dealer fee, and it is estimated to be approximately half of the unit cost to the pulp mill of procuring its own wood.<sup>1</sup>

Although it is much too soon to look upon this as a trend, it may be an indication that the pulp companies are finding that procuring pulpwood directly from producers is an expensive operation.

The pulp companies being supplied offer the cooperative advance payments when needed. These payments are considered payments for future delivery of cut pulpwood, and not loans, so no interest is charged. They are based on the volume of wood either on the railcar or stacked at roadside. No advances are made on the basis of standing timber.

These advances are necessary for the cooperative's operations. Without them, the cooperative would be constantly short of working capital, especially when cutting on national forest lands where downpayments are required prior to cutting. The cooperative has received advances totaling as much as \$65,000.

The forest-products cooperative is organized as a nonprofit corporation. Under the Clapper-Volstead Act, such cooperatives are required to

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<sup>1</sup>Personal conversation with Mr. V. B. Schultz, Manager, The AuSable Forest Products Association, East Tawas, Michigan, 1959.

distribute earnings to member and non-member patrons on an equal patronage basis or to allocate them on the accounts to the patrons upon whose business they were realized. The by-laws of the cooperative state that "ten per cent of the net earnings shall be set aside . . . for working capital purposes." This reserve must be maintained at a level not less than the paid-in membership. In reality, the cooperative has been setting aside 10 percent of the net earnings each year regardless of the monetary value of the paid-in membership.

All pulpwood income received by the cooperative is placed in a general fund (the Reserve for Working Capital) and credited on the books to the various members transacting business in proportion to the amount of business transacted. At the end of the fiscal year, the earnings in excess of the reserve requirements are distributed among the member patrons in proportion to their annual business if distribution is deemed desirable by the board of directors. If such distribution is not called for, the cooperative may retain the earnings to build up working capital so long as the records show the proper allocations. In this manner, the cooperative has been able to build up a sizable working capital reserve. All other income is placed in a Capital Surplus fund. This income is derived from the cancellation of membership for failure to abide by the regulations and by-laws of the cooperative, for having transacted no business for one year, or for moving out of the territory served by the cooperative, and it consists of membership fees and patronage refunds. The Capital Surplus is not distributed among the members but is retained by the cooperative for its own use.

The cooperative, like any other business organization, has to maintain certain relationships. The cooperative is vitally concerned with

markets, its sources of raw material, and its competition.

The markets for the cooperative's pulpwood are two Lower Michigan pulp mills which make use of the dealer system, but as they do not demand the same species of pulpwood there is very little competition between them for the wood offered by the cooperative. In 1959, one mill took the cooperative's entire output of pine (1,700 cords) while the other limited its purchases to aspen (3,100 cords), balsam fir (1,400 cords), and spruce (1,900 cords).

The cooperative draws on the nearby national forest and on privately owned timber lands equally for its stumpage. However, the cooperative does not maintain a constant search for stumpage. The pulpwood procured from privately owned lands may be the result of the landowner requesting the cooperative to purchase the standing timber, a request from a member to aid in the purchase of timber for which he has bargained, or a member bringing in wood which he has purchased with his own funds or has cut from his own land. The cooperative will not accept pulpwood from non-members. They must either become members or deal through a member.

In general, the cooperative has few direct negotiations with private landowners. Most of the bargaining and actual stumpage purchasing is carried out by individual producer-members, although the source of funds may be the cooperative. As most of the private timber sales are rather small, the cooperative feels that it is better to make a non-interest bearing loan to an individual member living in the area than to purchase the timber itself. The attempt to make an equitable distribution of such a small quantity of stumpage to all members on a three-year patronage basis is detrimental rather than helpful to the members receiving the allocation.

On the other hand, all timber from public agencies is purchased directly by the cooperative. Seldom do the individual members negotiate for or bid on public stumpage. In its area of operations, the cooperative is one of the larger dealers so that it is often a successful bidder for public stumpage. It is financially able to bid on sales which are too large for an individual producer to meet the bonding and advance payments requirements but which are too small to encourage the larger non-resident timber concerns to bid upon. The cooperative is still carrying out the functions for which it was created.

A peculiar situation is beginning to develop between the cooperative and the Forest Service. The cooperative was formed to harvest pulpwood on the national forest, but there has been a slow trend to private stumpage as the cooperative expanded. The Forest Service management plans did not permit the providing of enough stumpage to allow the expansion on the basis of national forest thinnings alone.

The original plantations which had required thinning are now approaching sawtimber size. In accordance with Forest Service regulations these tracts will be sold to the highest bidder for the combination of all products that are present. The cooperative feels that the presence of the sawtimber will encourage the entry of "big" lumber operators into the sales. These operators would purchase and harvest both sawtimber and pulpwood on a single sale. The sawtimber would be used by the lumbermen and the pulpwood would be sold to any pulp company interested. The cooperative does not have the financial backing or the sawlog market to bid on the sawtimber sales. The opinion is that the Forest Service developed the cooperative to fill a definite need, and now as the need no longer exists, the Forest Service is withdrawing its support.



The Forest Service feels somewhat differently. It maintains that the cooperative has never received any undue aid from the Forest Service, but it is providing a definite service, both to the national forest and to the local community. The cooperative could expand to sawlog marketing with very little investment or it could remain almost entirely dependent on pulpwood and still remain in operation. National forest production of pulpwood is expected to remain stable in the future and there will always be a demand for the thinning of the younger stands. However, this does not necessarily mean that the species will remain the same so there may be definite problems of adjustment.

In general, the cooperative is in the same position in relation to its raw material supply as the independent dealers, but it would appear that due to the peculiar relationship of the cooperative to its suppliers, the cooperative has a much better system of finding private stumpage than its competitors. The ability of the cooperative to accumulate working capital places it in an advantageous position in bidding on stumpage on public forest lands.

The cooperative faces competition from two directions. In the cooperative's sphere of operations, there are other dealers operating in essentially the same manner and supplying the same mills. However, each is limited to the quantity requested by the mills and, normally, there are more producers offering more pulpwood than is needed. In periods of high pulpwood demand when dealers must aid the producers in obtaining stumpage, the cooperative has a slight advantage. Due to its superior ability to obtain credit and working capital by withholding part of the annual dividend, it can afford to pay for stumpage at time of purchase.

The second source of competition is from those pulp mills which do

not use the dealer system. Several of these procure wood from the same sources as does the cooperative, but usually these companies purchase the pulpwood from producers at the rail loading points. However, there is one pulp company which actually extends its purchases, through a subsidiary organization, into the woods. It purchases stumpage on the large public sales, contracts with producers to cut it, and arranges its own truck transportation. In addition, it will purchase producer pulpwood at roadside. This particular company purchases large quantities of two of the four species handled by the cooperative.

Apparently, all marketing groups are getting all the pulpwood they need to meet mill requirements. The cooperative is too small to compete directly with the pulp mill procurement divisions while the individual producer is too small to compete with the cooperative for public stumpage. Competition for markets occurs to some extent between the cooperative and other dealers, but only on the basis of reputation for past service. In the East Tawas area, the cooperative appears to have the advantage as it has been in business longer than the other dealers in the area. The consistency with which it receives contracts would indicate that the pulp companies with which it deals are satisfied with the services of the cooperative.

## CHAPTER X

### FOREST LANDOWNERS

There are some 19.3 million acres of forest lands in Michigan, of which 18.8 million acres are classified as commercial forest lands.<sup>1</sup> While this commercial forest land is divided almost equally between the Upper and Lower Peninsulas (47 and 53 percent respectively), it is quite unequally distributed among types of ownership and sizes of ownership. Approximately one-third of the forest lands in Michigan are in public ownership. The privately owned lands are mainly in the hands of industry or non-farmer individuals (43 percent) and in farm woodlots (20 percent) with only 3 percent belonging to the pulp companies.

#### Public Ownership

Public (national and state) forests contain some 6,371,000 acres of commercial forest lands, and produce 43.2 percent of the state's pulpwood crop. These forest lands are, on a regional basis, considered to have the greatest productivity, with at least 80 percent being classed in the highest grouping in the Forest Resource Report No. 14 (U. S. Forest Service, 1958, p. 605).

Most of this publicly owned land is found in the Upper Peninsula

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<sup>1</sup>Commercial forest land is defined as forest land which is (a) producing or is capable of producing usable wood, (b) economically available, and (c) not withdrawn from utilization (U. S. Forest Service, 1958, pp. 504 and 630).

with almost none in the southern half of the Lower Peninsula. This is not surprising when the methods of acquisition are considered. The greater part of the state lands was acquired through reversion for tax delinquency while the bulk of the Federal lands was obtained through purchase and land exchange with the state (Barlowe, 1948, p. 15).

#### State Forests

In 1958, the state forests of Michigan produced 20 percent (188,000 cords) of the total pulpwood output of the state. The ratio of pulpwood production to the total area was relatively low (4.9 cords per 100 acres), but the potential productivity is quite high. The low ratio is not indicative of poor management, but merely of the small quantity of removals per 100 acres. The state forests are capable of yielding larger quantities of pulpwood, and in the past five years removals per 100 acres have increased 40 percent. While these removals are still well below the estimated allowable cut, they are an indication that the Michigan Department of Conservation is expanding its harvesting program.

The basic cause of undercutting on state forest lands is the lack of markets. James (1957, p. 41) found that, in 1954, 80 percent of the allowable cut of aspen on the state forests was offered for sale, but only about 33 percent was purchased. The pulp-mill demand at present is not great enough to consume all the pulpwood offered, and mill representatives state that producers are offering much more pulpwood from all sources than can be taken.

Timber sales on state forests are of two types: the public sale and the small sale. The public sale consists of all sales of more than \$300

in value in the Lower Peninsula and \$500 in the Upper Peninsula, while the small sale consists of the sale of all timber valued at less than these regional limits.

In the public sales, the Forestry Division of the Department of Conservation determines a base or tract stumpage price per unit volume for each species to be sold. This price determination is based upon the present market prices with adjustments for timber quality, logging difficulties, distance of haul, and special cutting restrictions (Michigan Department of Conservation, 1958). The sale, with all the particulars and specifications, is then advertised for two weeks in the local newspapers and opened to competitive bidding.

The bidding is carried on in one of two ways: by sealed bids or by public auction. In the past, the public auction was the more common, but there is a trend toward sealed bids. It is maintained that while the auction brings in the greatest revenue, it tends to be a tool by which the larger operator may eliminate the small producer at a minimum of expense. The sealed bid permits each bidder to state the amount he is willing to pay for the timber. As this is calculated on the basis of the costs of operation for the individual bidder, the bids are on a more equitable basis.

There are three methods of completing the sale: (1) the bidder makes the required bid per unit of volume plus a lump-sum cash bonus, (2) the bidder makes a lump-sum cash bid, and (3) the bidder makes the bid on a purely per-unit-of-volume basis. In the first method, the cash bonus is offered at the time of the sale, and the sale goes to the acceptable timber operator offering the greatest bonus. In the second method, the bidding is based entirely on the lump-sum bid, while in the

third, the cash bonus is eliminated entirely. The first method is the more common.

It is understandable why the last two methods are not used too frequently. The lump-sum cash bid, while yielding cash in advance and reducing administrative costs to the state, demands that an extremely accurate inventory be taken prior to the sale in order that the state place a proper value on the timber. The cash-advance requirement for the entire amount of the sale tends to eliminate the small producer entirely.

The method of bidding on a unit volume basis is the more equitable and permits the small bidder to actively participate, but due to the Conservation Department's methods of sale, it is very difficult to administer except in pure stands of a single species. The bidder is required to bid on all species in the sale area, and not just on the desired species. Thus, a bidder may be high on one species, but low on another.

The combination of the cash bonus and a per-unit-of-volume bid is apparently the most equitable to all concerned. The cash bonus is much smaller than the lump-sum payment, but still yields a direct source of revenue to the state. As the base payment does not have to be made until the operator is ready to remove the cut products from the forest, the only investment the small producer has to make is the cash bonus, and possibly a cash compliance bond. Often, the pulpwood buyer will make advance payments on the cut pulpwood which will permit the producer to pay the Conservation Department the per-unit-of-volume bid, and then deliver the pulpwood.

The small sales which are valued at less than \$300 or \$500 are negotiated between the district forester and the buyer. No bidding is

involved and payments are made on a per-unit-of-volume basis at the time of removal of the cut product from the forest. This type of sale, being more adapted to local needs, accounted for 93 percent of the stumpage sales but for only 52 percent of the revenue in 1958.

TABLE 11.- Receipts from timber sales on state forests in Michigan by number and type of sale: 1958

Type of Sale	Number of Sales	Total Receipts	Average per Sale
Public Sale	126	\$311,671	\$2,474
Bonus	---	27,518	218
Small Sale	1,649	370,572	255
Total	1,775	\$709,761	\$ 399

Source: Forestry Division, Michigan Department of Conservation, Lansing, Michigan.

The sales policy of the Department of Conservation is to offer timber for sale by tract rather than by product. All species above a minimum diameter are put on bid and a buyer must bid on all in order to obtain the desired species. For sales of pure stands, the buyer must be able to find markets for the different products that may exist. On the more diverse sales, the buyer is faced with the problem of finding markets for the different species as well. The small operator who generally markets one product limited to one or two species is at a very decided disadvantage. The operator must either find markets outside his normal sphere of operations or limit his procurement to the smaller

sales.

Sale contracts awarded by the Department of Conservation are usually limited to one year's duration, but in 1958, 40 were for two years, 10 for three years, 3 for four years, and 1 for five years. As the Department may, by law, grant contracts for periods not exceeding ten years, there have been requests for larger sales of the longer periods. It is felt that the long-term, large-area sales would increase the total volume of timber sold on state lands, but there is much question as to the effect of such sales on the small operators. There is general agreement that, in Michigan, the political climate is such as to favor the maintenance of the short-term, smaller sales. However, there is one sale covering 6,000 acres containing 34,950 cords of pulpwood under a single five-year permit.

The Department of Conservation bases its stumpage prices on the "going" market price for similar private stands and then makes adjustments. It does not attempt to determine stumpage prices as residuals of the prices of the products less the costs of conversion.

The Department does not want to dictate prices or to compete with private landowners. It feels that the state forest holdings are large enough to exert a very strong influence upon the stumpage market, but if public sales are priced according to local private prices, the impact will be held to a minimum. On the other hand, the buyers may tend to bid low for private stumpage in order to be able to obtain public stumpage at relatively low prices. The entire Department of Conservation pricing policy is open to question on the grounds that any seller as large as the state will have a direct influence on the smaller sellers of the same product regardless of the pricing method. The small sellers usually look to the large sellers for price leadership, but in this case the large



seller is looking to the smaller ones for the leadership. This tends to create some confusion in the market. Under these conditions, state forest stumpage prices may be somewhat lower than would be normal in a perfectly competitive market or in a price-led market.

### National Forests

The Federal government is the second largest single forest landowner in Michigan. It owns some 2.7 million acres, of which 2.6 million acres are in national forests. The national forests (13.5 percent of the commercial forest lands in Michigan) produced, in 1958, 22 percent of the state's pulpwood, making the U. S. Forest Service the second largest single pulpwood grower in Michigan.

The national forests are presently the most productive pulpwood producing forests in Michigan, yielding almost 8 cords per 100 acres. This is considerably below the allowable cut of pulpwood for these lands. Forest Service figures show that the maximum allowable cut is about 14 cords per 100 acres. On the basis of individual species, the actual cut is below the allowable cut for all species with only spruce and hemlock approaching the limit of the allowable cut. The excess growth is building up a surplus of timber.<sup>1</sup> This could have an adverse effect on the management plans and a depressing effect on the market.

The sale policy of the Forest Service is basically one of granting contracts to the highest bidder. All sales over \$2,000 estimated value are required to be advertised for a period of at least 30 days in local newspapers, giving information as to the location of the stand or tract to

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<sup>1</sup>James (1957, p. 43) found the allowable cut to be 8.5 cords per 100 acres in 1954. The increase of 5.5 cords is due primarily to the inclusion of hardwoods and past uncut pulp stands.

be sold, the estimated volumes of the various species on the tract, and the base price acceptable by the Forest Service. In addition, notices of the sale are sent directly to the known timber buyers of the area. The sales are made, either by auction or by sealed bids, on the basis of unit volumes for each species and each product with the highest total bid for all species being accepted.

The Forest Service requires that a cash deposit be made at the time of the bid. This deposit is then either refunded if the bid is unsuccessful or accepted as part payment of the successful bid. In no sense is it considered a bonus. The remainder of the bid must be paid before the timber can be cut. However, the stumpage payment may be paid in installments, with each installment being paid prior to the cutting of the timber for which payment is made. After felling, the products are scaled in the woods by the Forest Service to insure the accuracy of estimation of the volume sold. Pulpwood, being measured in standard cords, must be stacked and scaled in the woods after felling and bucking but before being transported from the tract.

The sale is made much like the ones on state lands in that it includes all merchantable products and species on the timber tract. The trees to be removed are either marked by Forest Service personnel or described in the contract by setting a minimum diameter and length above which everything must be removed. Thus, the successful bidder must be prepared to find markets for several products from a number of species.

The Forest Service contract is more restrictive than the average private sales contract. The normal restrictions usually pertain to logging procedures necessary to minimize damage to the residual stand or to encourage reestablishment, utilization requirements, slash disposal and

penalties for noncompliance with the contract requirements. In addition, special restrictions and clauses may be included that pertain to such things as road locations and construction specifications, rights-of-way, and any practices not considered as normal in a standard sale contract. These special requirements are included in the advertisement and other advance information pertaining to the sale. The bidder knows that he is faced with an increase in his production costs prior to making the bid.

The Forest Service, like the Michigan Department of Conservation, is authorized to make noncompetitive sales of timber with an estimated value of less than \$2,000. These small sales are negotiated directly by the forest officer in charge and the buyer. In 1958, the small sales were about seven times greater in number than the larger sales, but they accounted for slightly less than half the volume. On the average, a single large sale produced 8 times as much pulpwood as a small one (Table 12.)

Table 12.- Sales of pulpwood on national forests in Michigan by size and number: 1958

Size of Sale	Number of Sales	Total Volume	Average Volume
		Cords	Cords
\$1,999 or less	581	97,000	167
\$2,000 and over	83	105,000	1,265
Total	664	202,000	304

Source: Supervisors of the national forests in Michigan.

Forest Service sales tend to discriminate against the small independent pulpwood producer much more than private sales and somewhat more than state sales. The payment-before-cutting and the bonding requirements tend to require the small operator to invest capital for some time before he receives a return upon it. The greater number of restrictions are not particularly discriminatory in that they constitute an increase in the cost of production which is reflected in a lower bid. However, in certain special cases, they may require additional equipment not normally used in pulpwood operations.

Forest Service sales contracts are usually let for one year, but they vary between six months and four years depending on the size of sale. A generalized formula for contract periods is that if the value of the sale is less than \$300, the period will be about six months to one year; if between \$300 and \$2,000, one to one and one-half years; and if greater than \$2,000, two or more years. Four years is the longest contract period in Michigan at present.

#### Pulp Company Ownership

Commercial forest lands in Michigan owned by pulp companies constitute 3 percent of the state's forest land. Only four of the thirteen pulp mills in Michigan have forest holdings (a total of 381,000 acres), with 96 percent being owned by two mills. Another 182,000 acres are owned by five Wisconsin mills, with one mill owning some 150,000 acres.

Pulp companies do not depend to any great extent on their forest lands. At present, Michigan and Wisconsin pulp mills draw 3 percent of their total consumption from company lands. Assuming that with ideal management the pulp companies could attain an annual allowable cut of

14 cords per 100 acres (the estimated allowable cut on Forest Service lands), the company lands would be able to supply only 9 percent (207,000 cords) of the present consumption.

For pulp company lands in Michigan alone, pulpwood production is about 4 percent of the state total. Again, assuming an annual allowable cut of 14 cords per 100 acres, the potential production is 80,000 cords or 9 percent of the 1958 Michigan production. However, in terms of consumption, the Michigan pulp company lands alone are yielding 1 percent and have the potential of supplying only 3 percent of the present consumption.

Thus, it is apparent that pulp company land holdings are more of an historical vestige than an attempt to provide mill security or to become self-sufficient. The fact that only one-third of the Michigan pulp mills own forest lands and only half of those owning land cut more than 5,000 cords in 1958 is indicative of the company attitude toward landownership and toward the lands owned. Of the five Wisconsin mills owning land in Michigan, only two had harvested pulpwood in 1958. The dependence of the companies upon these woodlands is almost nil, and pulpwood is harvested only to the extent that it is available and that such cutting is beneficial to the stands.

The fact that little pulpwood is being taken from company lands should not be construed as a lack of interest in these lands by the companies concerned. The majority of these lands are under the management of trained foresters, but the management objectives are not purely pulpwood production. Cutting practices are primarily aimed at sawtimber production in the long run. The timber is usually cut as sawtimber and pulpwood combined with restrictions--usually minimum diameter limits--

to insure the proper stocking and regeneration of the tract as potential sawtimber stands. Sawtimber trees are usually marked by company foresters for sale and cutting as sawtimber while the pulpwood is usually designated by contract as such by species and diameter limits.

Sales of pulp timber on pulp-company lands are usually made directly to a buyer without competitive bidding and with little negotiation. The pulp company will approach a known buyer and offer the timber at a given price and certain contract requirements. The buyer may accept or reject the offer, but seldom is the offer changed to meet buyer requirements. Actually, the offer is seldom rejected as the stumpage price is usually slightly lower than the existing market price. Payment for the stumpage is deducted from the price of the delivered pulpwood so the buyer need not make an actual cash payment. However, he is expected to sell the resulting pulpwood to the mill owning the land. The sale of stumpage on pulp-company lands is done entirely by formal contract stating price, conditions of sale, and harvest requirements and regulations. Payment is made on the basis of the volume actually taken. The scale is usually mill scale unless the wood is accepted at a point other than the mill.

The use of company logging crews to harvest company timber was limited to three Wisconsin mills. As a general rule, the harvesting of timber on company lands is done through stumpage sales in order that the pulp company be relieved of all labor problems and regulations and to permit the company to provide stumpage for its producers and dealers when they are unable to provide it for themselves. This type of contract cutting is also found in the South where pulp company land ownership is much more extensive than in Michigan (Mayer, 1960, p. 183).

Company-owned forest lands act as a small reserve for emergencies

and as a source of aid to the mill suppliers. Forest land ownership is not an absolute requirement for pulp-mill operation.

#### Other Industrial Forest Landowners

Michigan industries other than the pulp industry own some 3,000,000 acres of commercial forest lands. These lands, while being owned by a diversified group, are primarily in the hands of mining companies, wood-using industries, and public utility organizations. In general, these lands are among the best managed of the private lands, and individual ownerships may be very intensively managed. However, in terms of pulpwood production, output is relatively low. James (1957, p. 48) found that pulpwood production per 100 acres was 2.2 cords.

The industrial land owners are primarily interested in their forest lands for sawtimber production, and pulpwood is a by-product. The timber sales may be made on an "all products" basis or on an individual product basis. About half the land owners make pulpwood stumpage sales without selling other products while half insist that all the products on a given stand be sold at the same time.

This policy toward the type of sale may vary slightly to meet the conditions presented by any given stand, but when the products are sold individually, the sawtimber is sold first, and the pulpwood later. This provides the pulpwood producer with an indirect benefit as he is able to utilize improvements, such as roads, made by the sawtimber buyer without additional expense. In the case of selling all the products at once, the buyer must bear these improvement costs.

The sales policies of industrial owners are very similar among the different landowners. All sales are usually on a per-unit-of-volume

basis, formally contracted with minimum diameter limits of cutting and other harvesting provisions. The per-unit-of-volume payment is insisted upon so that the seller may reap income tax benefits through the use of capital gains, and advance payments are normally required to prevent a time lag between cutting and payment.

The sales are usually negotiated, but with a minimum of bargaining. The landowner states the price and stipulates the contract requirements. Potential buyers are contacted individually and offered the stumpage on a "yes or no" basis. Bids will be accepted if offered, but are unsolicited with the exception of one firm which sells on a lump-sum bid basis.

In general, industrial forest landownerships are a constant source of relatively small quantities of pulpwood with little possibility of increased output. Under present management objectives, pulpwood production is limited in absolute quantity and limited to those producers who are known to the seller. The "all products" type of sale presents the same obstacles to the small pulpwood producers or to the pulpwood specialists as the state sales while the advance payments in both types of sale tend to discriminate against the producers with little capital.

#### Farm Forest Landowners

In Michigan, there are 127,000 farmers owning 3,877,000 acres of commercial forest lands. These lands produced, in 1958, 82,000 cords of pulpwood or 2.1 cords per 100 acres. In overall terms, this means that 20 percent of the commercial forest lands in Michigan are producing 9 percent of the annual pulpwood output. This lack of production by the third largest ownership group is due primarily to three factors: the size of individual woodlots, the condition of the stands, and the



location of the timber in relation to the pulp mills.

The average size of woodlots in Michigan is 31 acres. If one assumes that production is 2.1 cords per 100 acres, an average woodlot would produce less than 0.65 cords. However, for any given farm woodlot, the production is much greater due to the method of cutting. In order to make an economical cut, it is often necessary to take all timber that can yield pulpwood. This frequently amounts to clear cutting, especially on the smaller woodlots. In many cases, the landowner does his own cutting and hauling. Of the Michigan farmers selling pulpwood, about one-fourth sell pulpwood stumpage while one-fourth cut their own pulpwood and sell at roadside. The remaining 50 percent cut and sell their wood on board railcars or delivered at the mill. If the farm woodlot is taken as a part of a complete entity--the farm--a pattern begins to emerge. The woodlot appears as a crop producing area whose crop may be harvested at will, and in as large or as small a quantity as is desired. Thus, the harvesting of pulpwood on the farm woodlot may be considered on a time-involved, rate-of-return basis. During the slack season, the farmer may harvest the small quantity of pulpwood available in order to gain some return. This is especially true if there is no alternative occupation available at the time.

In the southern half of Lower Michigan, production is low. Farm woodlots in this area account for 1.4 million acres which produce almost no pulpwood. This means that the 82,000 cords produced on farm woodlots came from 2.5 million acres; an output of 3.3 cords per 100 acres, somewhat lower than found in prior years in spite of a greater overall production (James, 1957, p. 40). The decline may be indicative of a general trend toward greater usage of public lands where the larger volumes and

acreages provide a more economical operation. The Census of Agriculture for 1954 indicates that only about 2 percent of the total farms sell pulpwood in any one year (U. S. Bureau of the Census, 1956). Farm woodlots are left after cutting in such poor condition that the regeneration of the stand is slow and incomplete. Yoho and others (1957) found that farmers, in general, had a very low concept of timber management. The usual cutting limits on harvesting farm pulpwood are the minimum size acceptable to the pulp companies with no restrictions on the methods of harvest or slash disposal. Three-fourths of the sales are made on the basis of the farmers' need for money or the attractiveness of the offer. In many cases, farmers feel that any price they can get for their timber is acceptable, and they will not cloud the offer with contract restrictions. However, as many farmers do their own logging, they are responsible in many cases for the poor condition of their woodlots.

Why farmers permit their woodlots to deteriorate has often been the object of much learned discussion. The basic reasons usually accepted are ignorance, slowness of returns, and length of tenure. In the first case, farmers are specialists in agricultural crops and not in forest management. Many farmers have no knowledge of the aid programs offered by Federal and state forestry organizations, but they have complete knowledge of the agricultural programs (Yoho et al., 1957). To these farmers, any income from their forest lands is accepted as a windfall gain which occurs only once. Thus, they are willing to sell everything possible to maximize the immediate returns.

Closely related to the acceptance of the windfall gain concept is the slowness of returns for investments of time and labor in the farm woodlot. Farmers are accustomed to receiving a monetary return on their

investments within one year or one growing season. Even orchard operators or Christmas-tree growers think in terms of only five to ten years. Many farmers view the possible losses too large and consider the likely returns much too small to be worth the investment.

Tenure length is always a lasting problem in farm woodlot management. Unless a farmer remains on his farm for a relatively long period of time, there is little to encourage him to practice good forestry on his woodlot. Changes in ownership of farm lands in Michigan occur quite frequently. As farm prices seldom reflect the condition of the woodlands, there is little incentive to leave the stand in good condition. Rather, the reverse is true; there is a tendency to remove everything merchantable from the stand prior to the ownership transfer. This leaves the stand in a very poor condition. If several ownership transfers are made in a short time, the stand deteriorates to the point where it is valueless.

Thus, it would appear that unless Michigan farmers develop an interest in pulpwood as a long-term crop blended into the overall production pattern of their farms with impact enough to cause the retention of the farm or to demand a woodlot value in transference, the outlook for pulpwood production is poor, and continuing decline in woodlot output may be expected.

The Michigan farmer is more of a pulpwood producer than a pulpwood grower. James (1960) found that the farmers cutting pulpwood on their own lands were also cutting an equal amount elsewhere. Realizing that the woodlot will not sustain the rate of cutting very long, it is probable that in the following pulpwood cutting season--the slack farm period--the farmer cuts pulpwood for another landowner or ceases to be a producer. Because of the poor condition of most farm woodlots, the second-season

cutting must be done on other woodlands, indicating that the farmer-producer is highly dependent on other forest ownerships for the source of his livelihood.

The farmer's sales policies are quite flexible. In the case of stumpage sales, the farmer is approached by a buyer and a bid is made on his tract. Usually, this is the only bid. If the farmer has knowledge of the going prices, the bid is accepted or rejected on its own merits. If the farmer is unsure of the market price, the bid is often accepted. While this may be a dangerous practice, the buyer is usually a local producer or dealer whose reputation must be maintained so, in all probability, the offer is quite close to the present market price.

Where the bid is on a per-unit-of-volume basis, the farmer is usually paid on pulp mill scale so no estimate of the stand volume is made. Most pulp mills will scale the wood into their yards by source and inform the farmer of the volume delivered. Thus, the farmer knows the amount of income he may expect. Although partial payments may be made as the buyer receives payment from the pulp mill, the farmer must wait until the final delivery is made to receive the final stumpage payment. Thus, in this segment of the pulpwood market, the timber grower often furnishes credit to the pulpwood producer; the seller aids the buyer. This is a complete reversal of the normal credit flow.

In the case of the farmer harvesting and hauling his own pulpwood, the usual one price offer and acceptance is also used as the individual farmer-producer is usually limited to a single market by the weight-value ratio and by the credit need, especially if he is cutting on other lands.

### Other Forest Landowners

Slightly more than one-fourth of the commercial forest lands of Michigan is owned by an extremely diversified group of people: housewives, wage earners, business and professional people, speculators, recreational groups, retired people and many more. This classification can be divided into three general groups based on the reasons for obtaining or retaining the ownership. In the first are those who obtained the land as a home site or to satisfy a desire to own land, and those who received the land through inheritance. To these people, the timber stand represents a symbol of ownership and is either reasonably well managed or let entirely alone. As these people are occupationally oriented away from the timber lands, their concepts of forest management may be classed rather low. Yoho (1957) found that cutting practices on these lands were satisfactory on 58 percent and poor on 42 percent of the lands used for residences, but were uniformly poor on the remainder.

The second subdivision consists of those people who look upon the forest landownership as an investment. The business and professional people and some recreational groups comprise this class. The object of ownership is to provide a definite periodic return from the land. The concept of forest management is above average. The landowners are usually well informed as to the general forest-products market conditions and are the ones most often requesting information and assistance from public foresters. Timber sales by this group are usually under formal contract with specifications as to cutting practices, slash disposal, etc. However, the majority of the people in this group are absentee landowners and fail to provide supervision of the actual cutting. As a result, the

condition of the forest land is often quite poor.

The last subdivision is landownership for speculative purposes with the landowners consisting of real estate dealers and some business or professional people. These people are holding the land in expectation of an increase in value due, primarily, to a change in land use. They have no concept of sound forest management and tend to look upon the forest only as source of income to defray the ripening costs of holding the land for a short period. They will actively seek a timber buyer and encourage heavy cutting where such action will reduce the general property tax upon the land. The extent of this, of course, depends upon the expected future use of the land. The complete lack of interest in the future of the timber resource and the desire to minimize the holding costs precludes any attempt to enter pulpwood production except as a one-time move.

The sale policies of these non-industrial, non-farmer private landowners tend to be quite similar to those of the farm woodlot owner with the exception that more of the sales are stumpage sales. Only an occasional resident landowner will harvest his own timber and only a small number attempt to supervise the cutting. The sale is usually made on a single lump-sum bid. Some effort is made to determine the volume of timber on the tract, but usually distance from the area and the pressure of the primary occupation prevents more accurate cruises and a study of the market. However, in cases where the sale represents an important proportion of the landowner's income, the landowner does obtain accurate volume estimates and seeks additional bids.

Here again, as in the case of the farmer, payment is normally made after delivery to the pulp mill although partial payments may be made

from time to time. In some cases, the stumpage price will be paid before cutting, but this is rare. The small size of the tract of timber prevents entry of producers with enough capital to make advance payments for stumpage. The landowner, with the exception of owners of large tracts, may advance the producer stumpage on credit until the pulpwood is delivered to the pulp company or to the middleman and payment received.

## CHAPTER XI

### COSTS OF PRODUCTION

The Michigan pulpwood producer has three basic, but extremely variable costs. The logging costs and the hauling costs are directly related to the operations and react to changes in the operations in a normal manner. The stumpage costs are residuals based upon the differences between the logging and hauling costs and the prices received for the resulting pulpwood. The first two costs vary directly with changes in physical conditions while the third varies inversely with the other two.

Actual costs tend to vary widely as the different operators have different cost concepts. The producer doing the logging often uses family labor and counts only a nominal labor cost. Hauling is usually done under negotiated contracts so the rates will vary greatly depending on the quantity of wood to be trucked, the distance of haul, the availability of other sources of truck employment, and general bargaining ability. Few operators have any idea of machine rates and depreciation for power equipment or of the value of supervision or costs of overhead.

No pulpwood producer operates on a fixed minimum level of return, and often the stated margin for profit and risk is the difference between the price received and the out-of-pocket costs. As long as this remains positive, the producer will market pulpwood. However, the out-of-pocket costs may be computed on an erroneous basis. The producer's own



services may be valued at less than the actual market price, and part of the stumpage may be taken from the producer's own land at no cost. Thus, with no concept of the actual costs, the producer may be satisfied with a smaller margin than he realizes.

### Stumpage

Stumpage pricing is residual pricing with little or no attention being given to the costs of timber growing. In the historical development of the nation, the timber was there for the taking and its removal was counted as a benefit to an expanding agriculture. The trees were grown by a bountiful nature so there were no timber production costs and profit margins to be considered. In later years, the same cut-over areas grew trees again through the intercession of the same bountiful nature. On private lands, the only production costs incurred were the annual tax payments.

Stumpage which is produced by deliberate effort and monetary expense must compete on the stumpage market with that which is received as a free gift of nature. As the stumpage market is competitive from a seller's position, the presence of the free-gift timber requires the timber grower to concede that his costs of production are sunk costs and accept the best offer.



Pricing stumpage is a combination of a simple mathematical formula and a purely subjective desire for return. The mathematical calculation of the conversion return is (Davis, 1954, p. 385):

$$\text{Conversion Return} = \frac{\text{Selling Value of the Product} - \text{Costs of Logging and Hauling}}{\text{Selling Value of the Product}}$$

The margin for profit and loss is automatically combined with the stumpage price in the conversion return as these two represent the major variables in price determination. Both depend upon the desires and the negotiating abilities of the parties involved. Under pulpwood-producing conditions of a short-time period, a small investment, and risk lying largely in the production costs, it is possible to set the margin for profit and loss at a given percentage of the logging and hauling costs. However, if used by the buyer, it yields the maximum stumpage price he is willing to pay if he considers the percentage as minimum while if used by the seller, it will set his minimum acceptable price if he considers the percentage as maximum. And as there is little likelihood that the two would agree on a proper percentage margin for profit and loss, the only use of this method is to determine an objective basis from which to begin negotiations.

The seller of pulpwood stumpage, with the exception of the large landowners, has very little information upon which to develop a stumpage price. The average landowner has no knowledge of timber production costs, and without the production costs, the landowner can determine only the price of the delivered pulpwood. The seller is forced to depend upon recent pulpwood sales in the adjacent areas and upon the pulpwood producers trying to buy his timber for an estimate of the proper price.

The only procedure open to the seller is to bargain on the theory that the producer's offer is the minimum price for the timber.

Actually, the buyer is in almost as bad a position. With the exception of the full-time producers, the average pulpwood operator has little knowledge of the costs involved. Quite often, he is seeking stumpage to complete a contract which was partially filled by timber from his own woodlot or he is attempting to make his slack time more productive. In any case, he does not have the background to determine his full costs. This is especially true for the small aspen producer who is using family labor at minimum or no cost and farm equipment and trucks to keep them from being idle. The stumpage offer, perhaps tempered by a rough cost estimate, is based on other recent stumpage prices. In the final analysis, small private stumpage prices are determined for each individual sale by negotiations between two rather ill-informed parties.

Federal and large private stumpage prices are usually quite carefully calculated by the landowners on the basis of complete knowledge of the factors involved, including a definite rate of return for the stumpage buyer. For state stumpage sales, the price is based on "going" market prices for stumpage in recent sales in neighboring areas.

The stumpage prices demanded by the U. S. Forest Service are well conceived, assuming that the allowance for profit and loss is acceptable. The allowances for logging costs are based on studies involving hundreds of cords cut on the various national forests and surrounding areas. These costs are established by area and species or species group, and are applied by the forest officers in the areas concerned. Hauling costs are determined for the various types of roads that are traveled

in transporting the pulpwood from the forest to the point of title transfer. The fact that the hauling costs vary with the type of road can make this a very critical point in cost calculations.

The result of so many different methods of stumpage price determination is widely varying prices. Differences between the highest and lowest accepted prices for stumpage on state forests were \$2.00 per cord for aspen, \$2.50 for pine, \$4.00 for balsam fir, \$6.75 for spruce, \$2.50 for hemlock, and \$2.15 for the miscellaneous hardwoods in the Upper Peninsula (Table 13). In the Lower Peninsula, the variations were not as great, but were \$0.65 for aspen, \$3.00 for pine, \$2.50 for balsam fir, \$3.25 for spruce, and \$1.00 for the miscellaneous hardwoods. Prices paid by reporting pulp companies show a much smaller spread, but tended to be higher than the median indicated by state forest prices. The smaller variations in Lower Michigan prices are due to differences in hauling distances tempered by sliding price scales. The wide differences

TABLE 13.- Range of stumpage prices on state forests in Michigan by species: 1958

Species	Upper Peninsula Prices in Dollars per Cord	Lower Peninsula Prices in Dollars per Cord
Aspen	1.00 - 3.00	0.75 - 1.40
Pine	1.50 - 4.00	1.00 - 4.00
Balsam Fir	1.00 - 5.00	1.50 - 4.00
Spruce	2.00 - 8.75	1.75 - 5.00
Hemlock	1.50 - 3.00	-----
Miscellaneous Hardwoods	0.35 - 2.50	0.50 - 1.50

Source: Forestry Division, Michigan Department of Conservation, Lansing, Michigan

between the maximum and minimum prices accepted in the Upper Peninsula are caused by accessibility difficulties and development expenses.

The effects of competition between buyers and the negotiating abilities of the buyers and sellers is shown in the comparison of the average stumpage prices received by state, Federal, and private landowners (Table 14). With the exception of aspen and pine, the private landowners receive higher stumpage prices than the public agencies, with the difference becoming quite substantial in the Lower Peninsula. Prices in the Upper Peninsula are from \$0.50 to \$1.00 higher than in the Lower Peninsula if pine and the miscellaneous hardwoods are excepted.

The higher private prices are not at all surprising when the methods of pricing on public lands and the differences in location are considered. The average private sale is based on prices received from other recent sales. As the best sources of this information are the public agencies, it is quite natural that the sellers accept their prices, but as minimum. The private lands are usually better located in regard to transportation facilities, and have fewer cutting restrictions than the public lands, permitting the private landowners to demand an increase in price based on the decrease in the other production costs. The buyer, on the other hand, is willing to pay a higher stumpage price, not only because of the lower costs of production, but also because of the methods of payment. The ability to produce pulpwood without having to make large advance payments encourages the use of private lands at higher prices by the small producers.

#### Logging Costs

Logging costs, for the purposes of this study, are those costs

TABLE 14.- Average pulpwood stumpage prices received by public and private forest landowners in Michigan by species: 1958

Forest Landowner	- - Dollars per Cord - -					
	Aspen	Pine	Balsam Fir	Spruce	Hemlock	Miscellaneous Hardwoods
Upper Peninsula Federal State Private	2.35	2.75	4.39	7.63	2.70	0.50
	2.34	2.59	4.33	7.21	3.00	0.66
	1.37	-----	4.50	7.75	----	2.50
Lower Peninsula Federal State Private	1.62	3.48	3.65	6.17	----	1.13
	1.23	2.62	3.16	4.07	----	0.82
	1.25	3.25	4.13	6.75	----	2.25

Source: Federal prices from the supervisors of the national forests, state prices from the Forestry Division, Michigan Department of Conservation, Lansing, Michigan, and private prices from pulpwood company, middleman, and producer questionnaires.

incurred between felling standing trees and depositing the pulp sticks at roadside for transportation. The logging operation may be divided into felling and bucking, peeling (if required), skidding, developmental costs and general overhead costs.

The felling and bucking operation is normally carried on by the same man or team. The tree is felled, usually with a power saw, limbs trimmed off to the minimum acceptable top diameter, the top cut off and the bare stem cut or bucked into pulpwood sticks (normally 100 inches in length) in one operation.<sup>1</sup> The operator is paid on the basis of the number of sticks or pieces produced. The price per piece varies between species and between operations, but normally falls between \$0.08 and \$0.12 per piece. For comparison purposes, however, all costs will be given on a per cord basis (Table 15).

The wide variation in felling and bucking costs is due primarily to the physical factors of the work. The differences in the number and size of the trees cut, the quality of the timber, the density and composition of the stand, and the total volume per acre cause changes in the piece rate as they affect the ease of logging. The rate increases as the amount of time and energy required to produce a cord of pulpwood increases. This may give rise to differences in the felling and bucking costs where the pulpwood stick is to be peeled or left rough. The Forest Service found that the felling and bucking costs for aspen were \$0.17 per cord more for the peeled pulpwood in the Upper Peninsula and \$0.15 more in Lower Michigan.

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<sup>1</sup>The procedure of skidding the trimmed and topped stems to the woods loading deck before bucking is not as common in the Lake States as it is in the South. Thus, felling and bucking is considered one operation for cost purposes.



TABLE 15.- Average logging costs incurred in producing pulpwood in Michigan: 1959

Costs	Spruce		Balsam Fir		Aspen		Pine	Miscel- laneous Hard- woods
	Peeled	Rough	Peeled	Rough	Peeled	Rough		
- - - Dollars per Cord - -								
Lower Peninsula Felling & Bucking Peeling Skidding Other Costs	5.32	6.36	6.35	6.42	3.50	3.35	4.45	3.00
	4.25	----	4.25	----	3.50	----	----	----
	6.18	5.13	5.15	5.08	1.80	1.72	2.32	1.50
	0.82	0.82	0.82	0.82	0.82	0.68	0.95	0.50
	16.57	12.31	16.57	12.32	9.62	5.75	7.72	5.00
Upper Peninsula Felling & Bucking Peeling Skidding Other Costs	5.47	6.52	6.41	6.52	3.64	3.47	4.98	3.00
	4.44	----	5.58	----	2.08	----	----	----
	2.76	4.48	2.76	4.48	3.28	2.42	2.76	1.50
	1.30	2.75	1.30	2.75	2.37	2.45	2.22	0.50
	13.97	13.75	16.05	13.75	11.37	8.34	9.96	5.00

Source: U. S. Forest Service "Timber Appraisal," Forest Service Handbook, Temporary Directive, Forest Management Division, Milwaukee, Wisconsin, 1959.

Peeling costs are mainly incurred in aspen production although there is some demand for peeled pulpwood of other species. This cost is extremely variable both between species and within a given species depending upon the method of peeling and the season. On the average, peeling costs about \$2.79 per cord for aspen (with a range of \$2.00 to \$5.00) and \$4.63 per cord for spruce and balsam fir. Within a given species, the rate tends to vary greatly because of the methods used. One firm using a portable debarker on aspen charges \$4.00 per cord. As \$1.00 per cord goes for mortgage payments and the machine rate is \$1.00 per cord, the operator in this case is making a gross profit of \$2.00 per cord (Hensel, 1960). However, labor costs amounting to \$1.75 per cord reduce the apparent profit to \$0.25 per cord. Since most mills pay approximately \$5.00 per cord more for peeled pulpwood, a producer carrying out the entire operation could possibly increase this particular profit margin to \$1.25 per cord.

Skidding costs are a function of the type of equipment used, the distance of skid, size and spacing of timber cut, and the general topographic features of the area. An analysis by species would merely indicate the differences in location of the different species rather than any inherent characteristics of the species. Skidding costs range from \$1.50 to \$6.18 per cord in the Upper Peninsula and from \$1.50 to \$4.48 in the Lower Peninsula. They average \$3.05 in the Upper Peninsula and \$3.61 in Lower Michigan. These differences reflect, to some extent, the differences in terrain and in the woods road networks in the two peninsulas. The higher skidding costs for spruce and balsam fir in the Lower Peninsula indicate the limited access to these two species in this area.

The remaining costs of logging are primarily those connected with the

development of the area to be logged and the overhead costs incurred in any business operation. The development costs consist of road and camp construction; the latter occurring only occasionally in Upper Michigan. The Forest Service (1959<sup>c</sup>) lists camp costs at \$0.14 per cord on one national forest in Upper Michigan. Road construction is necessary on the larger operations; on the smaller operations, road construction is held to minimum by extending the skidding distance and by the use of drays. Roads represent a considerable expense, often exceeding \$1.00 per cord.

The overhead costs vary greatly and directly with the size of the operation. The smaller family operations have almost no overhead while the large, full-time operations have a constant, large overhead. Quite often, the overhead costs vary directly with the development costs as the overhead includes supervision, maintenance and the general operational expenses. As an indication of this, in the Upper Peninsula where the pulpwood logging chances are more difficult to operate, the overhead costs average \$1.79 per cord while ranging from \$1.16 to \$2.33. In Lower Michigan, these costs range from \$0.68 to \$0.90 and average \$0.81 per cord.

In all cases, supervision is the major overhead cost. On one national forest, insurance accounted for a large part, reaching \$1.30 in the case of spruce and balsam fir logging. However, this was due primarily to the size of operation on the forest. The remaining national forests reported insurance at \$0.04 or less per cord regardless of the species logged.

Pulp-company estimates of logging costs tend to be slightly less than those of the Forest Service. Reporting mills estimated total logging costs as \$6.50 per cord for rough aspen, \$10.25 for peeled aspen,



\$7.25 for pine, and \$12.00 for spruce and balsam fir in the Lower Peninsula. In the Upper Peninsula, pulp-company logging costs were \$7.50 per cord for rough aspen, \$11.00 for peeled aspen, and \$12.60 for spruce and balsam fir. The major cause of the differences was a lower development and general overhead cost. The felling and bucking costs were also estimated to be lower than the Forest Service figures. However, all pulp companies estimated peeling costs at \$5.00 per cord.

### Hauling Costs

Truck transportation of pulpwood, with the exception of pulpwood purchased at roadside, is the responsibility of the producer or the pulpwood middleman. The pulp companies will only accept wood on the railcar or at the mill yard. Thus, hauling is necessary to create the required place utility in order to complete the marketing transaction. In terms of cost, hauling presents one of the more variable and yet one of the more important costs of production.

In Michigan, the hauling costs vary between one-fifth and one-half of the total costs of pulpwood production and may be the determining factor in making the decision to produce pulpwood from a given area or a given stand. In this respect, the pulp company may place limits on the area of decision-making by designating acceptable rail loading points or by the use of hauling bonuses. However, the final decision rests with the pulpwood seller and his ability to obtain favorable transportation rates.

Although both dealers and producers transport small quantities of pulpwood when they have the necessary vehicles, pulpwood hauling is usually contracted out to independent hauling contractors on a per-unit-of-volume basis. The rates are quite variable and are a function of

distance, road conditions and the "going" rate patterns. For the small operations or for short distances of haul, the rates are negotiated, and bargaining abilities play an important part in rate making.

Truck hauling distances are greater in the Lower Peninsula, primarily because all but one of the Lower Michigan pulp mills purchase delivered pulpwood on the basis of a sliding price scale which increases price with distance while the Upper Peninsula or Wisconsin mills make no attempt to compensate the producer for the added costs incurred in delivery other than the average \$1.50 increase in price over wood delivered at the rail siding. This sliding price scale is, basically, an increase in prices paid in recognition of the costs of transporting the pulpwood a greater than normal distance, and tends to be, at present, a rather arbitrary increase rather than being actually based on the costs incurred.

Michigan pulp mills reported that hauling costs range from \$3.00 to \$7.50 per cord. In the Lower Peninsula, the hauling costs were \$4.50 per cord for rough aspen, \$4.00 for peeled aspen, \$7.50 for pine, and \$4.00 per cord for balsam fir and spruce. The cost of hauling balsam fir and spruce in the Upper Peninsula was also \$4.00 per cord, but peeled aspen cost only \$3.75 per cord to haul to the mill.

## CHAPTER XII

### PULPWOOD PRICES

Pulpwood prices are amazingly stable over time. A study of the prices for pulpwood paid by one Lower Michigan pulp mill found that price changes occur only after remaining at a constant level for periods of six months to more than two years, and this without government price controls (James, 1957, p. 53). But pulpwood prices do fluctuate over time.

Wisconsin price reports show that after the removal of the World War II price ceilings in 1947, pulpwood prices rose sharply, but after June 1948 they began to decline, except for pine which continued to rise and aspen, which remained constant for all of 1948 (Fig. 16). In 1949, all prices declined, reaching a point well below the 1947 ceiling by early 1950. From this low, prices rose again until the Korean War ceiling went into effect in 1951. During this period of ceiling prices, pulpwood prices declined slightly and then became stable. After the removal of the ceilings in March, 1953, pulpwood prices rose rapidly for six months for all species except balsam fir. Then in 1954, prices declined, the decrease being followed by a trend toward stabilization for all species except spruce, which started to increase in price. By 1957, prices for aspen and pine were below the high of 1951 and 1953, but they exceeded the World War II ceiling and equaled the Korean War prices. Balsam fir prices exceeded the wartime ceilings but were still below the 1951 high. Only





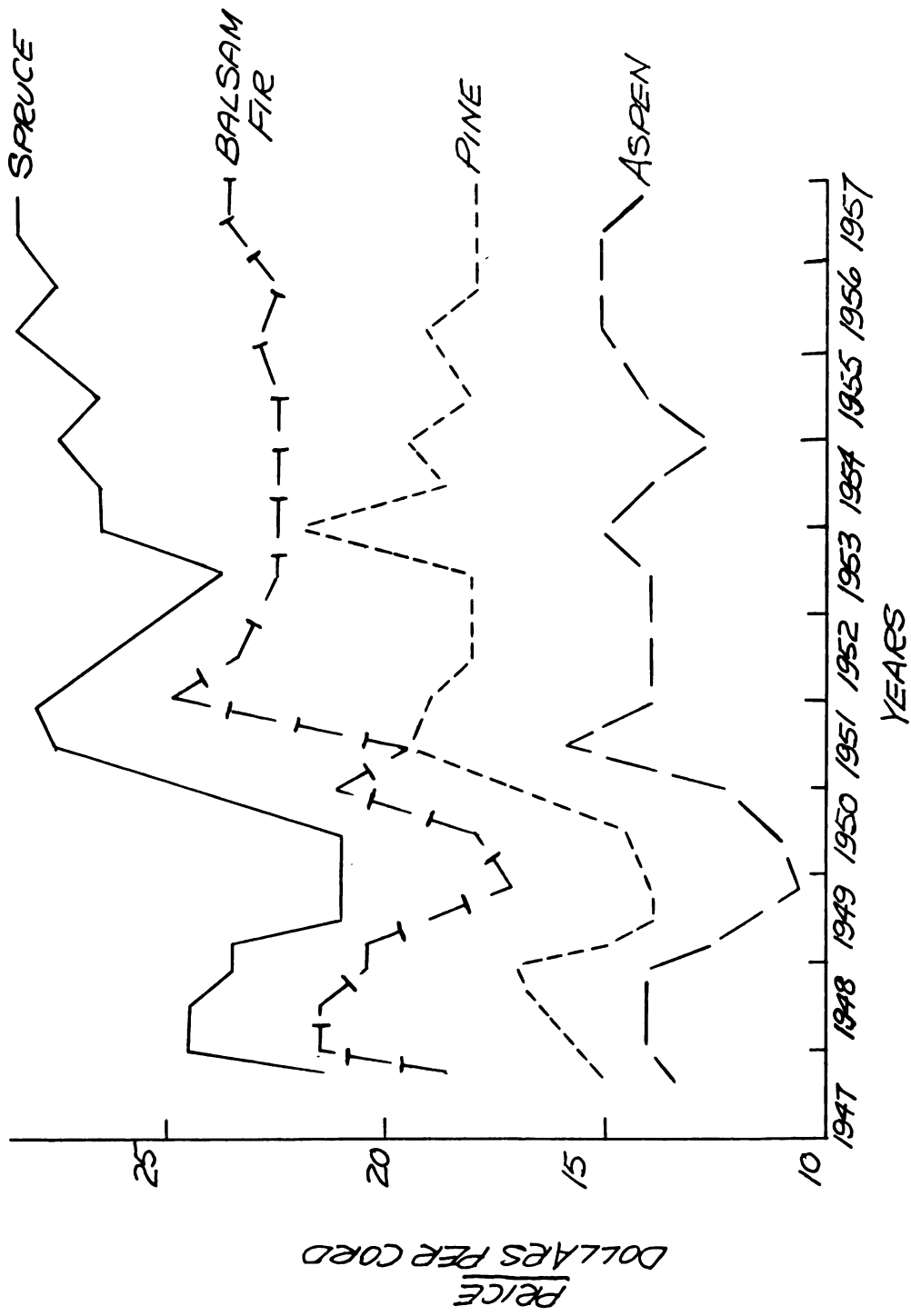


Fig. 16. - Maximum prices paid per cord of rough pulpwood for selected species delivered at Wisconsin mills: 1947-1957 (Source: Lake States Timber Digest)

the price for spruce exceeded the previous highs and showed an upward trend.

The lack of rapid change is due to the type of market. There exists a large number of sellers, each too small in operation for his actions to have any great effect upon his competitors, attempting to sell an undifferentiated product to one or more of a small number of buyers, each large enough in operation for his actions to have a very decided effect upon his competitors. Thus, the prices for pulpwood, being determined by the pulp companies, become stable. No company wishes to raise prices, which would cause an increase in its costs of production and would be immediately countered by a similar increase on the part of its rivals. An equal reluctance to lower prices is due to the fact that such a reduction, if not followed at once by the other mills, would cause a reduction in procurement and a curtailing of the pulpwood supply as the sellers turn to the mills offering the higher prices. Since almost all Michigan pulpwood is procured under contracts with periods of three to six months, price changes--particularly price reductions--are difficult to establish with the expectation that the other pulp mills will rapidly follow. The oligopsonistic market for pulpwood in Michigan automatically tends toward a stable price.

As an oligopsonistic market tends toward price stability and as the pulp companies set pulpwood prices, the question arises as to the "fairness" of these stable, buyer-determined prices. The actual determination of what constitutes a "fair" price for pulpwood is beyond the scope of this study, but certain comparisons can be made to indicate the differences in returns received by the pulpwood producer and the pulpwood buyer on the basis of the prices each receives for his final product, and an examination made of the prices offered by the various mills.

### Comparison of Pulpwood and Pulp and Paper Prices

Pulpwood prices have not maintained their relationship with pulp and paper prices over the last ten years. Since 1951, pulpwood costs have made up a steadily decreasing percentage of the cost of paper products. The pulp and paper industry has managed to keep its raw material costs well below the average costs for all wholesale commodities while, except in 1950, managing to keep paper prices above them (Fig. 17).

The removal of the World War II ceiling prices and the postwar boom caused paper prices to rise almost 45 index points by 1949, while Lake States pulpwood prices rose 80 points. After a slight recession in 1949, which lowered paper prices, but did not affect pulpwood prices, the Korean War increased the demand for paper products, and prices rose 25 points in 1950. The accelerator effect upon pulpwood increased its price almost 45 points over the 1949 level. However, by 1953 pulpwood prices had declined to an index of 130 while paper prices had risen to 170. Following a slight decline in 1953, paper prices rose in 1957, to an index of 194 while pulpwood prices rose to 134. It is interesting to note that the price index for Southern pine pulpwood has shown a similar trend, except that it has always risen and has always been higher than the Lake States pulpwood price index except from June 1950 to late 1951. The Southern pine pulpwood index increased in 1950, but then leveled out in 1951 rather than declining. The regularity of the index rise and the stability of the plateaus indicates a well controlled price, much more so than that of the Lake States pulpwood.

Thus, it appears that pulpwood prices are not following even the general pattern of paper prices so that the gap between the two is

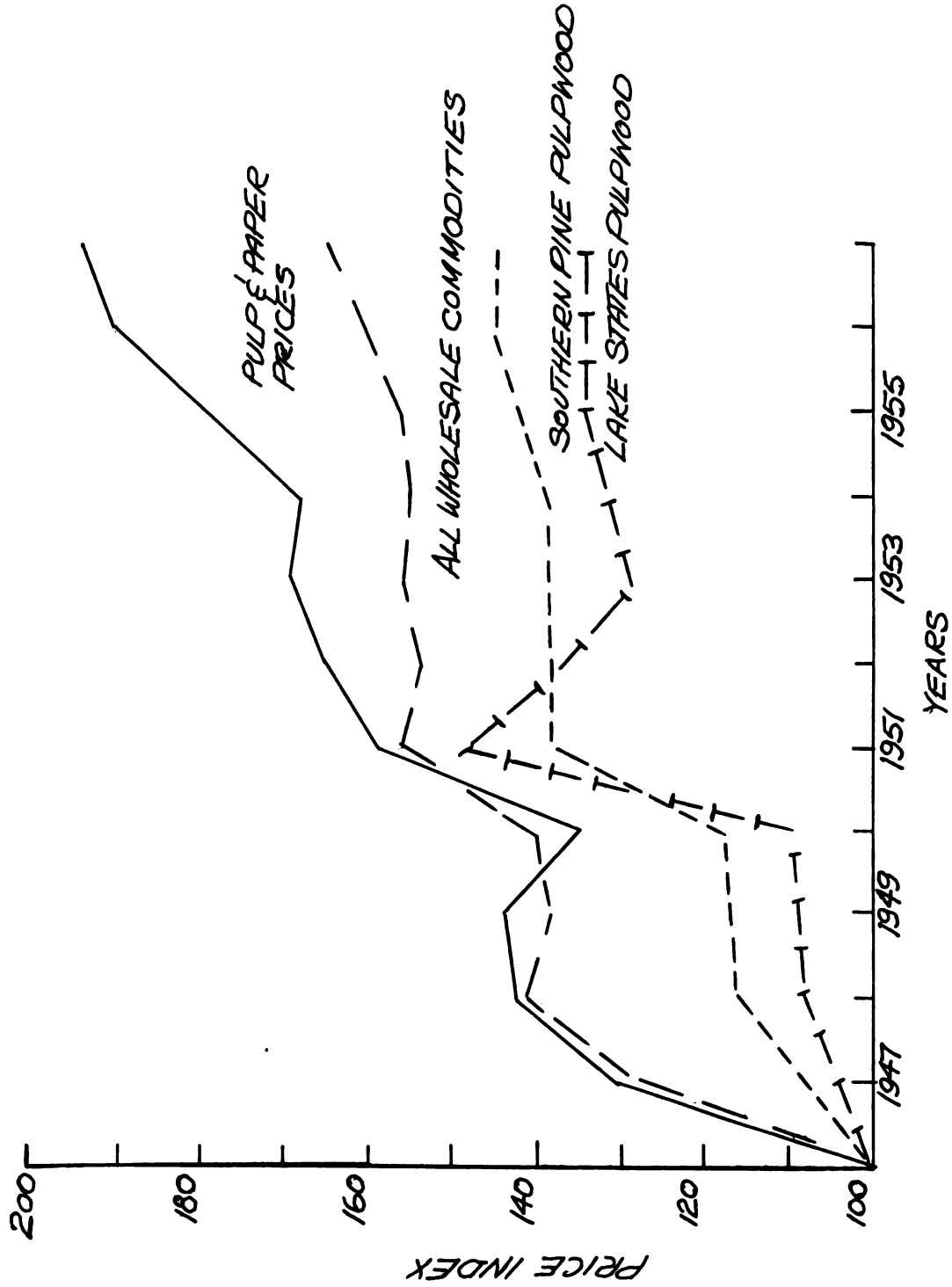


Fig. 17. - Pulpwood price and pulp and paper price indices where 1946 = 100: 1946-1957 (Source: Senate Report 240, U. S. Senate, Washington, D. C., 1959)

constantly increasing. In addition, it appears that pulpwood prices are failing to maintain their position in regard to the price of all wholesale commodities, and they are failing to increase with their own costs. In the ten-year period 1947-1956, labor costs rose 38 percent while paper prices rose 39 percent and the paper industry profits rose 70 percent even after taxes (Stoddard, 1959, p. 41). In the same period, pulpwood production in the Lake States increased 24 percent.

It is somewhat strange that production should increase while the costs of production are increasing faster than price. On the supply side, it may be said that as the costs are increasing faster than the price, the operator must sell more cords in order to maintain his income at the previous level. This automatically insures the pulp mills an increasing quantity so no further increases in price are necessary to bring forth the extra pulpwood supply needed to meet an increasing demand for paper products. Economically, this may be correct, but examination of a similar price situation in the Canadian pulp and paper industry found that such trends in prices and costs were due entirely to restrictive trade practices on the part of the industry (Canadian Restrictive Trade Practices Commission, 1958).

#### Pulpwood Prices in Michigan

Prices for Michigan-produced softwood pulpwood tend to be higher than elsewhere in the nation while hardwood pulpwood prices are approximately the same in all regions (U. S. Forest Service and Commodity Stabilization Service, 1958, p. 9). The difference in prices for the same species is due primarily to labor costs and accessibility of the timber, although the quality of the Lake States softwood pulpwood may be a factor.

In the Lake States, the price for any particular species varies very little, and the more limited the area the more uniform the price becomes. Michigan prices appear to vary considerably due to differences in procurement methods and the use of middlemen by the pulp mills involved (Table 16). The price paid for pulpwood delivered at the pulp mill is the base price paid, but middleman fees and graduated hauling bonuses may increase it. The price decreases as pulp mill buyers procure pulpwood at points other than the mill woodyard and the companies absorb the additional transportation expenses. Quoted prices may seem to differ remarkably as they may be given for pulpwood delivered at the pulp mill (plus varying distance-of-haul additions), delivered on board railcars at designated railroad sidings, or delivered at roadside. However, if the maximum f. o. b. railcar prices are used for study, most of the differences due to the various procurement methods are eliminated and a very definite pattern emerges. In most cases, variations between pulp company prices for a given species will fall within the \$0.50 to \$1.00 middleman fee, and will almost indicate if the company employs the services of a middleman, and, if so, the type of middleman employed. The use of the maximum f. o. b. railcar price also eliminates price variations for those mills which purchase pulpwood directly from the producers and employ both types of middlemen.

Peeled pulpwood brings a higher price than the rough wood of the same species and exhibits the greatest variation in the prices offered by the mills. Peeled hardwoods other than aspen and white birch have the greatest variation--showing a price difference of as much as \$8.00 per cord above the f. o. b. railcar price of the rough hardwood pulpwood. The price increase ranges from \$4.00 to \$6.00 for spruce, and \$5.00 to \$5.50 for balsam fir. The average price increases for peeled

TABLE 16.- Maximum prices offered for Michigan produced pulpwood by Michigan and Wisconsin pulp mills by species and method of delivery: 1958

Mill Number and Location	Aspen and White Birch				Spruce			
	Rough		Peeled		Rough		Peeled	
	Mill	Rail- car	Mill	Rail- car	Mill	Rail- car	Mill	Rail- car
	- - Dollars per Cord - -							
Lower Peninsula								
1	12.00				16.50			
2	12.50	11.00	18.00	16.00				
3			17.00					
4	12.00							
5			22.50	19.50	23.00	28.00		
6			21.00	16.50				
Upper Peninsula								
7	13.00							
8			21.50	20.00	29.50	28.00		
9			19.50		28.50	27.00		
10			20.50	19.00	29.50	28.00	34.50	33.00
Wisconsin								
11			22.00	20.50	30.00	28.50	35.00	33.50
12		13.00		19.00		27.00		32.00
13		13.00		19.00		27.00		32.00
14						27.00		32.00
15				19.00				
16								
17						27.00		
18				21.00		27.50		32.50
19		14.00		21.00		28.00		34.00
20		14.00		21.00		29.00		34.00
21			20.50	19.00	29.50	29.00	34.50	33.00
22			20.00		28.00			
23								

Source: Pulp mill questionnaires





pulpwood is approximately \$5.00 per cord.

This price increase for peeled pulpwood is an arbitrary recognition of the increase in the costs of production and of the increase in the volume of solid wood per cord resulting from the removal of the bark. It usually exceeds the costs of peeling by \$0.75 to \$1.50, and on a percentage basis is equal to or greater than the 15 percent increase in solid wood per cord.

Comparison of prices for the different species gives an excellent reason why the Lake States pulp mills are turning more and more to using greater quantities of aspen and the other hardwoods in place of increasing consumption of the old favorites, spruce and balsam fir. The development of a \$10 to \$15 difference in per-cord costs can represent a very large sum when considered in relation to the total consumption. However, the technological demands of the paper making industry still require the more expensive pulpwood to maintain paper quality.

Average Michigan pulpwood prices, f. o. b. railcar, are \$27.77 per rough cord for spruce, \$22.36 for balsam fir, \$18.71 for hemlock, \$17.00 for pine, and \$13.00 for aspen and the other hardwoods. Peeling will increase these prices by \$4.90 for spruce, \$4.44 for balsam fir, and \$6.27 for aspen. However, in terms of the two major divisions of the state, aspen, pine, and hemlock are from \$2.00 to \$3.00 per cord higher in the Upper Peninsula than in Lower Michigan while the other species are almost the same regardless of location.

The variations in price among the different species are due primarily to the quantity and location of the supply, although differences in production costs are slightly reflected. For example, spruce removal is reaching its maximum allowable cut on public lands and is being exceeded

on the easily accessible private lands. The remaining private stands are more difficult to enter due to the physical aspects of the site. The higher prices paid for spruce are necessary to encourage the entrepreneur to undertake production, and as pulpwood harvesting on the more difficult sites requires special equipment and ability, the price difference between spruce and the other species is not necessarily proportional to the actual differences in the costs of production. This is best shown when spruce is compared with another species such as aspen. Aspen stands are ubiquitous and the allowable cut far exceeds the actual cut. Because of its abundance and ease of access, aspen is the favorite of the unskilled, part-time producer, who has little equipment. As a result, the costs of production of spruce exceed those for aspen by \$9.03, but the price received for spruce exceeds that for aspen by \$14.77.

Although in pulpwood marketing, as in marketing most rough forest products, the price is determined by the buyer, the spruce and balsam fir buyer must offer a price which yields the producer a greater return on his managerial ability than is normally the case. Those species which require--if the term may be used--professional services yield a higher ratio of return when comparing costs and prices than those which can be harvested by--again a term--amateurs.

#### Competition

All pulp mills do not procure pulpwood in the same area, do not use the same rail sidings, and do not have the same distances of haul; yet the prices offered by the pulp mills for a given species are almost the same. Price competition between pulp mills for Michigan produced pulpwood is almost completely lacking. In most cases, the differences in quoted

maximum f. o. b. railcar prices may be explained as differences in procurement methods as they fall within the middleman fee range. The few instances where price differences exceed this may possibly be explained as a time lag in price following.

Price leadership may be present in the pricing of Michigan pulpwood. It is not possible in this study to determine to what extent it is being used and where the leadership lies, but the existing price structure and past movements indicate that some sort of pricing arrangement exists, and procurement agents for the smaller pulp mills do base their prices on those of the larger mills. Logically, in the Lower Peninsula, price leadership would be by species, with the leader for a given species being the pulp mill consuming the greatest quantity of that species, but in the Upper Peninsula where there are a greater number of mills competing for the same species, it is more difficult to place leadership. In fact, the existence of a single price leader is questionable. In all probability, the leadership role, if it occurs, passes from one to another of the larger mills in no prescribed manner. The consistent charge of collusion makes the data available subject to possible inadequacies.

The lack of price competition does not preclude the presence of all competition in pulpwood procurement. The pulp mill procurement agents vie in their efforts to provide the producers with stumpage and credit while the pulp companies grant hauling bonuses and roadside purchases to encourage producers to deal with them. The rapidity of payment is very important in this non-price competition.

The best measure of this type of competition is the total cost to the pulp company of the pulpwood delivered at the mill yard. Because of differences in freight rates and hauling distances, the pulp mills absorb

different transportation costs. Rail rates from a single loading point often differ for the pulp mills accepting pulpwood at this point, causing large differences in the total costs of the pulpwood. Because of this, the costs of pulpwood for one mill may be the price plus a few dollars per cord for transportation, while another mill, paying the same price, is paying almost half the price of the pulpwood for transportation. The total cost of the pulpwood for the second mill is almost half again as much as for the first. This difference in the costs of procurement indicates there is competition between the pulp companies for pulpwood, but the pulpwood producer does not necessarily benefit from it in terms of an increased price.

Although pulpwood prices in Michigan are more or less fixed by the pulp companies, they are affected to some extent by the costs of production. In Lower Michigan, where the differences in total procurement of a given species permits one mill to dominate the market for the species, prices tend to be the minimum which will induce a seller to market his pulpwood. However, as this price must cover at least what a producer considers to be his costs of production, it cannot fall below a certain level. As a result, prices for the more accessible pulpwood in the Lower Peninsula are from \$1.00 to \$2.00 per cord less than for the same species in the Upper Peninsula because of an almost equal reduction in the cost of production.

Competition for Michigan produced pulpwood is not reflected in the market price, but rather in the costs to the pulp mills. The attracting of the sellers is based upon the offering of aids rather than price increases. The prices offered, set by the pulp companies and maintained by

a reluctance to enter into price competition, are based upon minimum costs of production plus an allowance for skill and equipment for those species more difficult to harvest.

## CHAPTER XIII

### PULPWOOD TRANSPORTATION<sup>1</sup>

The transportation of pulpwood is a complex subject. It extends beyond being a simple cost of production in that the pulp companies often assume part of this cost. The use of sliding price scales for pulpwood delivered at the mill and purchases of pulpwood on railcars and at roadside shift the payment of transportation charges to the buyers as a cost of procurement. The reduction in price accompanying the transfer of the point of title exchange away from the pulp mill is seldom equal to the additional transportation cost. While the mills are not equidistant from the source of supply, the purchase price is the same for all mills. Thus, the assumption of the transportation costs acts as a major form of non-price competition between the pulp mills.

Michigan-produced pulpwood moved to market in 1958 almost equally by truck and rail, but there were great differences in the use of the

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<sup>1</sup>Much of the material in this chapter was published in the Michigan Quarterly under the title "Transportation Costs to Pulpwood Shippers in Lower Michigan." (James and Lewis, 1960<sup>b</sup>.)

two methods by the various markets (Table 17).<sup>1</sup> Trucks delivered directly

TABLE 17.- Receipts of Michigan-produced pulpwood at Michigan and Wisconsin pulp mills by method of delivery: 1958

Destination	Percentage of Receipts by Method of Delivery	
	Truck	Rail
Michigan Mills		
Lower Peninsula	82.4	17.6
Upper Peninsula	57.4	42.6
All Michigan Mills	73.2	26.8
All Wisconsin Mills	15.6	84.4
All Mills	53.8	46.2

to the mill some 82 percent of the Michigan-produced pulpwood consumed by Lower Michigan pulp mills, but they moved only 16 percent of the Michigan-produced pulpwood consumed by the Wisconsin mills. Such differences indicate variations in length of haul, payment procedures, competitive conditions, and carrier regulations and rates. In general, the Wisconsin mills, being further from the pulpwood production areas than the Michigan mills, have to procure more of their wood with longer hauls. As trucking costs are greater for the longer hauls than rail charges, plus the fact that delivery in Wisconsin is in the interstate commerce category, trucking tends to be relatively expensive. In addition, competition from the

<sup>1</sup>Pulpwood imported into the state by water transportation is a special case and will be omitted. Almost no Michigan-produced pulpwood is transported by water.

Upper Peninsula mills tends to force the Wisconsin mills to pay the same price and absorb the transportation costs or to pay higher prices. The present attitude of the pulp companies toward price competition makes the latter course unacceptable.

The Upper Michigan pulp mills had the shortest lengths of haul of all the areas studied: maximums of 100 miles by truck and 137 miles by rail. Nevertheless, only 57 percent of their pulpwood was delivered at the mill by truck. Competition from the Wisconsin mills causes them to buy pulpwood on the railcar, especially in the western half of the Peninsula. The shorter distance of haul and the absence of interstate commerce regulations tends to make the general trucking costs lower than for the Wisconsin mills. This permits much more use of truck delivery, primarily from the eastern part of the Upper Peninsula. As 100 miles is the maximum length of haul, not the average, the \$1.50 per cord addition to the railcar price for mill-delivered wood should cover much of the transportation costs of an average haul.

In the Lower Peninsula, the pulp companies received wood from a maximum of 250 miles by truck and 400 miles by rail, but rail-delivered pulpwood accounted for less than 20 percent of the total consumption. The prevalence of truck-delivered pulpwood is due primarily to the lack of competition, the presence of sliding price scales, and roadside purchase by one of the largest consumers of Michigan-produced pulpwood. In addition, two pulp mills, consuming 50 percent of the pulpwood produced in the Lower Peninsula, are located quite close to the sources of pulpwood (within 150 miles), and one restricts its entire procurement to truck delivered pulpwood.



### Truck Transportation

Truck transportation is normally the responsibility of the pulpwood seller and is considered a cost of production. However, the pulp companies have recognized this cost as one which they can help the producer to reduce. One Lower Michigan mill purchases Michigan-produced pulpwood at roadside and provides the necessary transportation at pulp company expense, six Lower Michigan pulp mills provide sliding price scales for pulpwood delivered at the mill to pay higher prices for longer distances of haul. With the exception of four Michigan mills, two of which are consuming less than 200 cords per year, all the pulp mills in Michigan and Wisconsin designate rail loading points at which they will purchase Michigan-produced pulpwood to eliminate long truck hauls by producers.

The use of roadside purchase of pulpwood is limited to one pulp company.<sup>1</sup> The pulpwood is purchased at a price of \$4.00 per cord less for aspen and \$5.50 per cord less for pine and hemlock than is paid for the same pulpwood f. o. b. railcar. Procurement by this method is limited to areas beyond a 75-mile radius of the mill. Transportation is contracted with a common carrier at a rate schedule as follows:

Distance of Haul (Miles)	Rate per Mile per Cord (Dollars)
Less than 100	0.065
100 - 150	0.055
More than 150	0.049

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<sup>1</sup>Two Wisconsin pulp mills also purchase at roadside, but they procure no Michigan-produced pulpwood in this manner.

Hauling costs for distances exceeding 75 miles for aspen and 85 miles for pine and hemlock are greater than the differences in the prices paid for the pulpwood while hauling costs incurred for distances exceeding 100 miles are greater than the maximum sliding scale price increase for pulpwood delivered directly to the mill by the producers.

Producer truck hauling of pulpwood may be divided into three classes: short hauls to rail sidings, long hauls to rail sidings, and hauls to the pulp mills. The short hauls to the rail sidings are usually from 5 to 10 miles while the long hauls rarely exceed 30 miles; the median distance is 15 miles. In order to determine the cost, the pulpwood seller negotiates a contract hauling rate with a local trucker. Usually, this rate also includes the cost of transferring pulpwood from the truck to the railcar. If the transfer cost is not included, an additional cost of approximately \$1.00 per cord may be incurred in loading the railcar.

The distance of haul to the pulp mills in Lower Michigan has a very wide spread, ranging from 10 to 250 miles depending on the mill receiving the pulpwood and the species delivered. In Lower Michigan, the median hauling distances are quite variable: 200 miles for rough spruce and balsam fir and 70 miles for peeled aspen going to one mill, 90 miles for rough aspen and pine and 65 miles for peeled aspen to another, 60 miles for all species to a third mill, and 100 miles for all species to other mills. All pulp companies pay a higher price for mill-delivered pulpwood and assume unloading costs in recognition of the increased hauling costs to the seller and the savings in procurement costs to the company. Some Michigan mills have gone further.

Six of the seven pulp mills in Lower Michigan use a sliding price scale or hauling bonus to encourage delivery of pulpwood at the mill by

the producers. The sliding scale is normally based on a \$0.50 per cord increase in hauling distance beyond the first 50 miles, but variations do exist (Table 18). In comparison with the \$0.065 per cord per mile

TABLE 18.- Sliding price scale additions to the base price for different distances of haul used by six Lower Michigan pulp mills for truck delivered pulpwood: 1958

Distance of Haul	Mills					
	A	B	C	D	E	F
Miles	Dollars per Cord					
0 - 25						
26 - 50	0.80				0.50	
51 - 75	1.20	0.50	0.50		1.00	0.50
76 - 100	1.60	1.00	1.00		1.00	0.50
101 - 125	2.00	1.50	1.50	1.00	1.50	1.00
126 - 150				1.00	2.00	1.00
151 - 175				1.50	2.50	1.50
176 - 200				1.50	3.00	1.50
Over 200				3.00	3.00	2.00

rate, it would appear that the price increase of \$0.01 per cord-mile does not cover the costs of transportation, but as the direct haul to the mill automatically increases the price approximately \$5.00 per cord above the roadside price and \$1.50 over the f. o. b. railcar price, while eliminating a \$1.00 per cord handling charge in the latter case, the

hauling bonus makes direct delivery even more attractive. However, the sliding scale price increase is more of an attempt to reduce the rate at which hauling costs make inroads upon the margin rather than an effort by the pulp companies to absorb all the hauling costs.

Truck-hauling rates for delivering pulpwood to the mill or to the rail sidings are a function of distance, road conditions, bargaining ability, and local rate patterns. For the longer hauls which exceed 75 miles, most pulpwood truckers in Lower Michigan follow the formula used by the common carrier transporting roadside purchases, but the rates for the shorter hauls are negotiated. As a result, the short-haul rates tend to be somewhat variable, but on the average they are \$3.00 for hauls of 10 miles or less, \$4.00 at 20 miles, \$5.00 at 40 miles, and \$6.00 at 90 miles (Table 19). Formula rates are calculated at \$4.87 per cord for 75 miles, \$6.50 for 100 miles, \$8.25 for 150 miles, \$9.80 for 200 miles, and \$12.25 for 250 miles.

These rates are the costs of transportation to the seller and do not necessarily reflect the costs to the truckers. Although no detailed study has been made, it was found that many truckers do not understand the nature of fixed costs, and sometimes underestimate their actual costs of operation. They find that, when their equipment needs replacing, the charges have not covered the total costs, and funds are not available to procure the needed replacement equipment.

#### Rail Transportation in Lower Michigan

When a pulp company purchases pulpwood f. o. b. railcar, the rail transportation charges become the responsibility of the pulp company. As the rates are not the same for all rail loading points, all pulp

TABLE 19.- Average contract truck-hauling charges for direct deliveries of pulpwood to Lower Michigan pulp mills by distances of haul: 1957

Distance	Average Charge per Cord	Distance	Average Charge per Cord
Miles	Dollars	Miles	Dollars
10	3.00	140	7.70
20	4.00	150	8.20
30	4.50	160	8.20
40	5.00	170	8.40
50	5.00	180	8.80
60	5.00	190	9.30
70	5.50	200	9.80
80	5.50	210	10.30
90	6.00	220	10.80
100	6.25	230	11.30
110	6.25	240	11.80
120	6.60	250	12.30
130	7.20		

companies reserve the right to select these loading points at which they will purchase pulpwood.

Pulpwood rail transportation rates are quite complex in structure, but the following generalizations can be made concerning them:

1. Pulpwood hauling rates may be quite different for different railroads for comparable and for non-comparable loading points.
2. Pulpwood hauling rates may be quite different for the same railroad for comparable hauls to different pulp mills.
3. Pulpwood hauling rates may be quite different for the same railroad for comparable hauls to the same pulp mill, but from

different loading points.

4. Pulpwood hauling rates tend to increase with distance, but in a very irregular manner.
5. Pulpwood hauling rates tend to increase as the number of railroads used for one haul increases.

These generalities are best explained in a comparison of distances of hauls, numbers of railroads involved, and the rates for shipment of pulpwood from those loading points presently being used by selected Lower Michigan pulp mills (Table 20). The rates are indicated in cents per 100 pounds, but can be converted into per cord costs in accordance with a railroad-accepted, standardized weight schedule listing peeled aspen at 3,000 pounds per cord, rough aspen at 4,000 pounds, rough pine at 4,100 pounds, rough spruce at 4,400 pounds, and rough balsam fir and the miscellaneous hardwoods at 4,700 pounds per cord.

The most notable thing about rail rates for loading points in use is the consistency with which they fall between 15 and 19 cents per 100 pounds while the distances of haul range from 60 to 354 miles. Only 5 of the 28 loading points have rates higher than 19 cents while one has a rate lower than 15 cents, but the shortest distance of haul has a rate of 25 cents while the longest has a rate of 17 cents per 100 pounds.<sup>1</sup>

Mill A receives nearly all of its rail wood over distances ranging from 105 to 306 miles at a flat 19 cents per 100 pounds of any species, but wood obtained from Loading Point 17 (60 miles) costs 25 cents and wood from Loading Point 4 (67 miles) costs 33 cents. Mill B pays 25 to

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<sup>1</sup>Railroads prefer to haul as far as possible on their own lines and capture a larger share of the total freight bill. The resulting distance of haul may be considerably more than the shortest route from loading point to mill. The charge, however, is based on the minimum-distance route.

TABLE 20.- Distances, number of railroad lines involved, and rates per 100 pounds for pulpwood shipments from loading points in use to Lower Michigan pulp mills: 1957

Loading Points	Mill A			Mill B		
	Distance	Lines	Rate	Distance	Lines	Rate
	Miles	Number	Cents	Miles	Number	Cents
1	235	2	19			
2				267	2	17
3	105	1	19			
4	67	1	33			
5	306	2	19			
6						
7						
8	246	2	19			
9				71	1	12
10				115	2	25
11						
12	228	1	19			
13	201	1	19	264	2	17
14	195	2	19			
15	201	2	19			
16				62	1	12
17	60	1	25			
18	257	1	19			
19				129	2	32
20	279	2	19	334	2	17
21				238	2	15
22				322	2	17
23	186	1	19	249	2	15
24						
25				121	2	25
26	169	2	19			
27						
28				224	2	15

Source: Lee M. James and Gordon D. Lewis, "Transportation Costs to Pulpwood Shippers in Lower Michigan," Quarterly Bulletin, Vol. 42,

TABLE 20.- Continued

Mill C			Mill D		
Distance	Lines	Rate	Distance	Lines	Rate
Miles	Number	Cents	Miles	Number	Cents
306	2	17	207	1	19
242	2	15			
163	1	37			
245	2	17			
236	2	17			
267	2	15			
272	2	17			
292	2	18			
177	1	37			
351	2	17			
255	2	15			
221	2	15			
208	2	15			
169	1	37			
241	2	15			
354	2	17			
197	2	15			

No. 3, Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, 1960, p. 52.



32 cents per 100 pounds for wood brought in from three loading points 115 to 129 miles distant, but all wood brought in from greater distances (up to 334 miles) comes in at substantially lower charges. Mill C pays 15 to 18 cents for all wood brought in from 208 miles to 354 distant on 1- or 2-line hauls, yet it pays 37 cents from three nearer loading points on 1-line hauls. Mill D has used only one loading point.

Irregularity in charges is most noticeable in the short rail hauls below 100 miles. Little volume is moved over these short hauls of 60 to 71 miles, and it is obvious that pulp companies may be willing to pay what appears to be an excessive hauling bill in some instances in order to round out their supplies of species in high demand, to tap wood resources of some localities of special interest to their wood procurement agencies, or to facilitate the operations of reliable pulpwood suppliers. Pulpwood is moved to Mill B at the lowest charge for these short hauls, but charges for short hauls to Mill A are not in line comparatively with charges for longer rail hauls.

In the distance zone from 115 to 177 miles, Mills B and C are faced with hauling rates which seem inconsistently high with rates for longer hauls. But again, it must be realized these are not prevailing charges. They apply to special cases in which small volumes of wood are involved.

The use of rail loading points is not entirely governed by rate alone. Examination of the rates and distances for 25 randomly selected loading points out of a total of 63 available but not being used by the pulp companies gives some indication of this (Table 21).

The structure of charges for those loading points not in use is more confusing than that for loading points in use. The effect of distance or number of lines on charges is obscure. Shorter hauls are

TABLE 21.- Distances, number of railroad lines involved, and rates per 100 pounds for pulpwood shipments from selected loading points not in use in Lower Michigan: 1957

Loading Points	Mill A			Mill B		
	Distance	Lines	Rate	Distance	Lines	Rate
	Miles	Number	Cents	Miles	Number	Cents
1	288	2	44	171	2	26
2	312	1	26	138	1	13
3	150	1	19	212	2	15
4	297	2	19	352	2	17
5	214	1	26	40	1	9.5
6	324	1	26	150	1	13
7	217	1	26	97	1	13
8	254	2	30	43	2	19
9	184	2	43	59	2	25
10	216	1	26	50	1	11
11	245	2	19	300	2	17
12	209	2	30	62	2	17
13	198	2	43	70	2	26
14	608	1	52	210	2	37
15	242	2	19	297	2	17
16	332	1	30	158	1	13
17	350	1	30	176	1	16
18	146	1	26	117	1	13
19	239	2	30	33	2	19
20	338	1	30	165	1	13
21	162	1	26	92	1	12
22	235	1	26	19	1	12
23	263	2	30	51	2	19
24	240	1	26	14	1	12
25	155	1	19	218	2	17

Source: Lee M. James and Gordon D. Lewis, "Transportation Costs to Pulpwood Shippers in Lower Michigan," Quarterly Bulletin, Vol. 42, No. 3, Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, 1960, p. 58.

TABLE 21.- Continued

Mill C			Mill D			Mill E		
Distance	Lines	Rate	Distance	Lines	Rate	Distance	Lines	Rate
Miles	Number	Cents	Miles	Number	Cents	Miles	Number	Cents
240	1	43	238	2	49	312	2	49
161	1	13	214	2	42	248	1	22
185	2	15	238	1	22	208	2	22
369	2	17	387	2	25	410	2	27
63	1	11	---	-	32	150	1	15
172	1	13	226	2	42	260	1	22
119	1	13	173	2	36	107	1	19
315	2	29	196	3	40	204	2	24
91	1	30	118	2	36	155	2	37
52	1	11	106	2	30	140	1	15
316	2	17	334	2	19	358	2	27
270	2	29	152	3	25	224	2	22
133	1	33	147	2	37	184	2	43
258	1	49	262	2	49	293	2	49
314	2	17	332	2	19	355	2	27
180	1	16	234	2	42	168	1	22
199	1	16	253	2	42	286	1	22
130	1	22	184	2	35	217	1	19
299	2	29	181	3	36	195	2	22
187	1	16	241	2	42	275	1	22
115	1	15	169	2	35	202	1	17
84	1	18	138	2	36	171	1	17
324	2	29	205	3	40	213	2	24
89	1	18	143	2	36	176	1	17
190	2	37	243	1	22	213	2	22

frequently more expensive than longer hauls, and 1-line hauls are frequently more expensive than 2-line hauls of comparable distance. Disproportionately high charges are linked, in some instances, to the likelihood of little pulpwood production in areas tributary to some loading points.

Generalizing about the reasons for nonuse of loading points is more difficult. One obvious factor is the prevalence of high freight rates. As most of the charges for loading points in use fall in the range of 15 to 19 cents per 100 pounds, it might be presumed that, in general, loading points are avoided by the pulp companies when charges exceed 19 cents per 100 pounds. About half the quoted rates in Table 21 exceed this amount.

Even among the charges at or below the 19-cent margin, many are undoubtedly ruled out by shippers on the basis of cost. This applies particularly to the short hauls of less than 100 miles where charges for rail haul are not usually competitive with those of truck haul.

Other reasons can be advanced for the rejection of numerous loading points. In any year, pulpwood operations do not occur equally everywhere. If rail haul is used, the loading points most easily reached will be sought; others will be avoided even though the charges from these points may not be an obstacle. Mill B, for example, obtains the bulk of its wood requirements within a short trucking radius; it does not need to obtain much rail wood from greater distances, and therefore not many loading points are needed. Mills A and C rely heavily on long rail deliveries, but two nonprice factors--preference for species of restricted occurrence and dealings with relatively few suppliers--limit the locations of loading points to be used. Mill E has used a concentration-yard system which

requires only one loading point.

The obtaining of specific species or the maintaining of reliable sources sometimes requires the use of high-rate loading points in spite of the additional cost. Thus, price is an important factor in selecting loading points, but is not necessarily the controlling factor.

Comparison of Truck and Rail Transportation  
Costs in Lower Michigan .

In comparing charges for rail and truck transportation, the points of view of buyer and seller must be differentiated since the costs assumed in each case are different.

Rail-delivered wood is purchased by Lower Michigan mills loaded on cars at railroad sidings. Prices paid by each mill for each species are standardized, usually the same at all points from which a mill will accept delivery. Truck deliveries are purchased at standard prices in the mill yard with price differentials paid on the basis of distance of haul. Where trucked wood is purchased decked in the woods, the woods price tends to be based on the difference between the standard price at the mill yard and the contract charge for hauling from woods to the mill. Unloading costs from railcars or trucks in the mill yard are similar. Thus, the difference in costs to the mill is determined essentially by a comparison of rail transportation charges with price differentials paid for truck deliveries of varying distances of haul.

Charges for railroad transportation from loading points in use are compared with price differentials paid by pulp mills for direct truck deliveries from the same points (Table 22). The striking fact which emerges in this comparison is the greater costs to the pulp mills of railroad transportation. In nearly all instances where rail loading points are

TABLE 22.- Comparison of charges for railroad transportation from loading points in use with differentials for direct truck deliveries from the same points to Lower Michigan pulp mills: 1957

Loading Points	Mill A			
	Rail Charges			Truck Differential <sup>a</sup>
	Peeled Aspen	Rough Spruce	Rough Balsam Fir	
	- - Dollars per Cord - -			
1	5.70	8.36	8.93	6.00
2				
3	5.70	8.36	8.93	6.00
4	9.90	14.52	15.51	6.00
5	5.70	8.36	8.93	6.00
6				
7				
8	5.70	8.36	8.93	6.00
9				
10				
11				
12	5.70	8.36	8.93	6.00
13	5.70	8.36	8.93	6.00
14	5.70	8.36	8.93	6.00
15	5.70	8.36	8.93	6.00
16				
17	7.50	11.00	11.75	6.00
18	5.70	8.36	8.93	6.00
19				
20	5.70	8.36	8.93	6.00
21				
22				
23	5.70	8.36	8.93	6.00
24				
25				
26	5.70	8.36	8.93	6.00
27				
28				

<sup>a</sup>Differential of \$6 for spruce and balsam fir reduced to \$4 or \$5

TABLE 22.- Continued

Mill B		Mill C			Mill D	
Rail Charges	Truck Differ- ential	Rail Charges		Truck Differ- ential	Rail Charges	Truck Differ- ential
		Rough Aspen	Rough Pine			
- - Dollars per Cord - -						
6.80	4.50	6.80	6.97	5.75	5.70	5.00
		6.00	6.15	5.75		
4.80	1.50					
10.00	2.50	14.80	15.17	4.75		
		6.80	6.97	5.75		
6.80	4.50	6.80	6.97	5.75		
		6.00	6.15	5.75		
		6.80	6.97	5.75		
4.80	1.50					
		7.20	7.38	5.75		
12.80	3.00	14.80	15.17	4.75		
6.80	4.50	6.80	6.97	5.75		
6.00	4.50	6.00	6.15	5.75		
6.80	4.50					
6.00	4.50	6.00	6.15	5.75		
		6.00	6.15	5.75		
10.00	2.50	14.80	15.17	4.75		
		6.00	6.15	5.75		
		6.80	6.97	5.75		
6.00	4.50	6.00	6.15	4.75		

for peeled aspen.

used, the pulp mills involved are assuming freight charges which are greater than the price differentials offered for direct truck deliveries. The excess is frequently in the neighborhood of several dollars or more.

The transportation alternatives from the pulpwood seller's point of view are truck hauling to railroad loading points and truck hauling to mill yards.

Cost under the first alternative applies to a truck haul ranging usually from 5 to 30 miles and includes an additional loading and unloading beyond the loading requirements of a truck haul to the mill yard. Cost under the second alternative is diminished, in the seller's view, by the saving of one loading and unloading operation (estimated at about \$1.00 per cord) and by the amount of the price differential obtained for direct mill deliveries.

A cost comparison, from the seller's viewpoint, is made in Table 23. Charges for truck deliveries to rail loading points in use are compared with charges for truck deliveries to mill yards as reduced by price differential offered for direct deliveries. The seller's hauling costs to railroads, including loading onto cars, are shown under two assumptions: a short haul of 5 to 10 miles; a long haul of 30 miles.

The comparative advantage is highly variable. In several instances, it is seen to be controlled by the length of haul to railroad; that is, a short haul of 5 to 10 miles to the loading point is cheaper for the seller than a direct haul to the mill, a long haul of 30 miles to the loading point is more costly than a direct haul to the mill. In the great majority of cases, the issue is unaffected by the relative length of haul to railroad loading points--hauling cost to railroad is substantially more or



TABLE 23.- Comparison of sellers' average truck-hauling costs to railroad loading points with net costs to sellers of direct truck deliveries to Lower Michigan pulp mills: 1957

Loading Points	Mill A			
	Net Hauling Cost to Mill <sup>a</sup>		Hauling Cost to Railroad	
	Peeled Aspen	Rough Spruce and Balsam Fir	Short Haul of 10 Miles	Long Haul of 30 Miles
	- - Dollars per Cord - -			
1	6.50	5.50	4.00	5.50
2				
3	1.05	0.05	4.00	5.50
4	1.05	0.05	4.00	5.50
5	8.40	7.40	4.00	5.50
6				
7				
8	6.50	5.50	4.00	5.50
9				
10				
11				
12	9.65	8.65	4.00	5.50
13	4.85	3.85	4.00	5.50
14	4.65	3.65	4.00	5.50
15	4.90	3.90	4.00	5.50
16				
17		---- <sup>b</sup>	4.00	5.50
18	11.00	10.00	4.00	5.50
19				
20	8.30	7.30	4.00	5.50
21				
22				
23	4.65	3.65	4.00	5.50
24				
25				
26	3.35	2.35	4.00	5.50
27				
28				

<sup>a</sup>Average trucking charge less than price differential.

TABLE 23.- Continued

Mill B			Mill C		
Net Hauling Cost to Mill <sup>a</sup>	Hauling Cost to Railroad		Net Hauling Cost to Mill <sup>a</sup>	Hauling Cost to Railroad	
	Short Haul of 10 Miles	Long Haul of 30 Miles		Short Haul of 10 Miles	Long Haul of 30 Miles
- - Dollars per Cord - -					
5.65	4.00	5.50	6.25	4.00	5.50
			4.50	4.00	5.50
3.95	4.00	5.50			
4.00	4.00	5.50	3.75	4.00	5.50
			4.00	4.00	5.50
3.80	4.00	5.50	3.65	4.00	5.50
			5.90	4.00	5.50
			6.15	4.00	5.50
3.50	4.00	5.50			
			5.40	4.00	5.50
3.75	4.00	5.50	4.45	4.00	5.50
4.80	4.00	5.50	6.50	4.00	5.50
4.85	4.00	5.50	5.35	4.00	5.50
5.60	4.00	5.50			
3.75	4.00	5.50	3.65	4.00	5.50
	4.00	5.50	3.65	4.00	5.50
4.00	4.00	5.50	4.05	4.00	5.50
			4.45	4.00	5.50
			6.35	4.00	5.50
3.90	4.00	5.50	3.85	4.00	5.50

<sup>b</sup>Price differential exceeds charge.

substantially less than net hauling cost to the mill.

In rearranging the comparative cost data by distance of haul to pulp mills, it becomes apparent that at shorter distances it is more advantageous to sellers to haul directly by truck to mills. At greater distances the comparative advantage decreases, and at still greater distances the advantage shifts to hauling to railroad loading points. These are general relationships which are widely known, but the specific relationships are quite variable. It is impossible, even on the basis of averages, to point to a particular break-even point below which the seller gains by delivering wood to the mill and above which it pays him to load onto railroad cars.

Average charges for hauling by truck to mills rise regularly with greater distance, but net costs to sellers, which are controlled by price differentials paid for direct mill deliveries, do not rise so regularly. Each mill has a different scale of price differentials. The result is that break-even points occur at different distances for different mills and that the points are not always sharp (they may be zones rather than points).

Nevertheless, a broad delineation of break-even points or zones can be made for each of three pulp mills in Lower Michigan. These points or zones are indicated separately under two assumptions of truck haul to railroads (Table 24). Where the alternatives are to haul 5 to 10 miles to a railroad loading point or to truck directly to the mill, the break-even distance for peeled aspen to Mill A is 180 miles. That is, if the haul to Mill A is less than 180 miles, it is most advantageous for the seller to truck pulpwood directly to the mill; if the distance is greater than 180 miles, it is most advantageous to the seller to load directly

TABLE 24.- Break-even distance points or zones for pulpwood sellers between short and long truck hauls to railroad loading points and direct truck deliveries to Lower Michigan pulp mills: 1957

Destination	Break-even points or zones in miles for direct truck deliveries when truck haul to railroad is --	
	5 to 10 Miles	30 Miles
Mill A:		
Peeled aspen	180	215
Spruce and balsam fir	205	235
Mill B	70 - 120	195
Mill C	140 - 180	230

onto railroad cars. In the case of Mill B, a break-even zone of 70 to 120 miles rather than a point is indicated. That is to say that between 70 and 120 miles of Mill B, it makes little difference to the seller whether he trucks directly to the mill or takes his wood 5 or 10 miles to a railroad loading point. Below 70 miles, however, it is more economical for the seller to truck directly to the mill. Above 120 miles, the advantage shifts to loading on railroad cars.

Table 24 also makes it clear that as the haul to railroad is lengthened, the break-even distance at which net cost in hauling to railroad or to mill is the same increases.

#### The Influence of Nonprice Factors

Very little wood volume is brought by rail from distances beyond the

calculated break-even distance points, but as a matter of fact nearly a fourth of the wood moved within Lower Michigan to pulp mills is transported by rail. Some of this wood volume, as was shown in Table 20, is brought in from loading points which are closer to mills than the break-even distance points. This is equivalent to stating that much wood is moved by rail even when this is not the cheapest mode of transportation from the seller's viewpoint. Since rail haul is almost always more expensive from the pulp company's point of view, it is obvious that non-price factors have influenced the decisions made.

Dealers who assemble large quantities of wood from broad areas often find it simpler to deliver to railroads than to pulp mills. It might be cheaper for them to transport by truck, provided trucks are available in sufficient quantity and the average contract charges can be maintained. Nevertheless, because of the difficulties of scheduling truck deliveries and the efforts required on the part of the sellers, some pulpwood dealers prefer to hold to rail deliveries even at a small cost.

The key decisions are those of the pulp companies. Since they designate the loading points from which they will accept rail deliveries, and since rail transportation is nearly always the more costly alternative from the pulp company's point of view, it is obvious that nonprice factors enter the decisions of companies to accept rail deliveries.

To some extent longer rail hauls are encouraged to spread out wood supply areas and thus avoid overcutting within short trucking radius of the mill. Decisions are also affected by the number of contracts the company is willing to negotiate, the advantage of maintaining supply channels from areas that may be needed for wood supply over the long run, and the comparative yard space and unloading facilities for rail and truck



deliveries. Delivery timing may also tend to favor rail haul since some, but not all, companies assume the rate of delivery can be better controlled by rail than it can by truck.

To what extent nonprice advantages found in railroad transportation can offset price advantages in direct truck hauling to mills is difficult to summarize. Comparative transportation costs must be an important factor to pulp companies and pulpwood sellers, but it is obvious that nonprice factors often determine the transportation decisions made.

## CHAPTER XIV

### COMPARISON OF PULPWOOD COSTS AND PRICES

The study of the costs of producing pulpwood and the prices received is of small value when these two factors are considered separately. It is the margin between the prices and cost--the profitability--that determines if a producer will enter the pulpwood market or turn to another occupation.

There are two ways of determining profit. Profit may be considered as the absolute difference between price and cost, and as long as this is positive, the operation is profitable. However, this tends to ignore the investment requirements and the alternative possibilities. In order to account for these, profit may be considered as a ratio of the margin for profit before taxes to the sales value of product produced (Weintraub, 1958). This will permit comparison with other pulpwood operations.

The use of the profit ratio expressed as a percentage also permits the comparing of two completely different operations. With the profit ratio percentages from pulpwood production and wood pulp production, it may be possible to compare the returns of the two on an equal basis.

Data on the costs of producing pulpwood come from many sources: public and private organizations; published records and field notes. There is, as a result, a great amount of variation due to the inherent differences in the operations from which the data were obtained and to the differences in the concepts of cost determination of the different





operators. It is seldom that all the costs involved are obtained from a single operation, much less for all operations so that averages obtained are averages by segments and are not directly comparable to one another.

With such a combination of sources and intermediate averages, the validity of taking the resulting sum as the total average costs of producing pulpwood may not be entirely acceptable. However, by determining this ersatz average for the major pulp species and deducting it from the average price paid for the species, it is possible to obtain figures for the margins for profit and risk for each species. The resulting margins are by no means accurate in an absolute sense, but they will give a reasonable basis for the comparison of the profitability of the production of pulpwood from the various species.

With these reservations in mind, spruce pulpwood yields the greatest return, although rough spruce in the Upper Peninsula does not have as great a return as in the Lower Peninsula (Table 25). Balsam fir ranks second, with the exception of the Upper Peninsula rough balsam fir, followed in descending order by the miscellaneous hardwoods, peeled aspen, pine, and, lastly, rough aspen. In general, the returns are higher in the Lower Peninsula than in Upper Michigan.

Too much significance should not be placed on the negative figures. The peculiarities of the data gathering and averaging of the figures leads to the negative results, but variations of the actual costs may make the negative figures erroneous when applied to individual operations. For example, hauling costs are based on a 30-mile haul which is normally considered to be the maximum hauling distance for pulpwood sold f. o. b. rail-car, and are based on existing contract rates. The shorter distances



TABLE 25.- Margins and profit ratios from the production of Michigan pulpwood delivered on railroad cars from a hauling distance of 30 miles: 1958

Region and Species	Price Received	Stumpage Cost	Logging Cost	Hauling Cost	Margin	Profit Ratio
	- - Dollars per Cord - -					Per- cent
Lower Peninsula						
Spruce						
Rough	28.00	5.66	12.31	4.25	5.78	20.6
Peeled	33.00	6.51	16.57	4.25	5.67	17.2
Balsam Fir						
Rough	23.00	3.65	12.32	4.25	2.78	12.1
Peeled	28.00	4.20	16.57	4.25	2.98	10.6
Aspen						
Rough	11.00	1.37	5.75	4.25	-0.37	----
Peeled	17.33	1.58	9.62	4.25	1.88	10.8
Pine						
Rough	16.00	3.12	7.72	4.25	0.91	5.7
Miscellaneous						
Hardwoods	13.00	1.40	5.00	4.25	2.35	18.1
Upper Peninsula						
Spruce						
Rough	27.75	7.53	13.75	4.50	1.97	7.1
Peeled	32.66	8.58	13.97	4.50	5.61	17.2
Balsam Fir						
Rough	22.63	4.41	13.75	4.50	-0.03	----
Peeled	27.50	5.07	16.05	4.50	1.88	6.8
Aspen						
Rough	14.00	2.02	8.34	4.50	-0.86	----
Peeled	19.85	2.32	11.37	4.50	1.66	8.4
Pine						
Rough	17.00	2.67	9.96	4.50	-0.13	----
Miscellaneous						
Hardwoods	13.00	1.22	5.00	4.50	2.26	17.4

which are normally encountered in transporting the more ubiquitous species would call for lesser rates in the range of \$3.00 per cord for hauls of 10 miles or less and \$4.00 for hauls of 20 miles. The use of contract rates automatically includes the margin for profit and risk of the hauling contractor. As many producers truck their own pulpwood, the inclusion of this margin may tend to increase the cost excessively.

The other production costs are based either on contract rates or U. S. Forest Service manual rates. As a result, these figures contain two elements which are not considered in the smaller operations: wages and efficiency. In the Forest Service studies, labor costs were considered in all stages, but many of the smaller operators do not consider the total costs of labor as they do not count the time that they invest, or consider, in the case of a profit sharing organization, that the sharer's investment as labor creates a cost. In a family operation where wages are paid, quite often they are less than the normal rate.

On the other hand, most of the figures used for production costs were developed from operations on the national forests which may reduce in part the error inherent to the wage consideration. The majority of the pulpwood operations on the national forests are carried on by the larger, more permanent organizations with the financial backing necessary for efficient operations, and the more efficient the operation the less the cost of production. It is almost impossible to determine what savings accrue to efficiency, but it is felt that they will reduce, but not eliminate, the differences in the wage calculations.

Another source of variation between the calculated costs and the actual costs for a given operation is the effect of indirect costs. Few operators take into consideration these costs or distribute equipment

costs. Among the smaller operators--although the larger producers are not completely free of this error--depreciation of equipment is unknown. Pulpwood production is considered highly profitable so long as the out-of-pocket costs are less than the returns, but when a key piece of equipment needs replacing, the producer finances a new piece if he has the funds and the credit; if not, he returns to a wage earning position or to his retreat occupation. In the same manner, maintenance costs are charged to the operation in which they occur, and no attempt is made to distribute them over all the operations in which the equipment was used. Because of this, producer estimates of the profitability of pulpwood production vary with each operation and are useless in determining the actual profitability.

Another source of variation which contributes to the fallacy of the negative figures is in stumpage prices. Producers cutting on their own lands do not consider stumpage as a cost, but frequently regard it as a gift of nature. The resulting increase in the difference between income and expense indicates a very profitable operation. The timber may have been grown at little cost to the producer, but its exclusion from a cost summation can yield a very distorted margin for profit and risk.

Because of these variations between actual operational costs and the average costs used, the positiveness and negativeness of the figures are somewhat debatable, but they do present an excellent comparison of the relative, but not absolute, profitableness of the production of pulpwood from the different species.

The comparison of net returns shows the difference in the per-cord margins of the different species on a more-or-less absolute basis, but shows nothing as to the investments required to produce these margins,



and with capital often the limiting factor it is well to know which species will yield the greatest relative return.

This may be determined as the ratio of the margin for profit and loss before taxes to the sales value of the pulpwood produced. This profit ratio permits profitability to be expressed as a percentage return (Table 25). Under this condition, all the species still maintain their relative profit positions with the exception of the miscellaneous hardwoods which become second only to spruce pulpwood in the Lower Peninsula and exceeds rough spruce in Upper Michigan in terms of return on investment.

However, it is not enough to say that one species is more profitable or has greater profit ratio than another when examining price relationships. It is necessary to go a step further along the production line, and determine the returns and profitability of the production of wood pulp. Using the same basis for the determination of profitability, the pulp companies have a profit ratio in pulping of between 32 and 39 percent when operating between 75 percent and 100 percent capacity (Table 26). The return on the manufacture of wood pulp is approximately 2 to 3 times greater than on the production of pulpwood. Although the returns are based on a per-ton production of hardwood pulp, the returns are easily convertible to other species on the basis that it takes roughly two cords of pulpwood to produce one ton of bleached sulphate wood pulp, and it may be assumed that the other costs remain the same. Where unbleached wood pulp is used, the price falls to \$134.00 per ton and the returns fall to 23 and 31 percent, respectively. Pulpwood consumption remains the same; two cords of roundwood per ton of pulp (House of Representatives, 1957).



TABLE 26.- Costs incurred and prices received for the manufacture of bleached hardwood sulphate wood pulp: 1959

Costs	Operating Capacity	
	75 percent	100 percent
	- - Dollars per Ton - -	
Pulpwood	29.25	29.25
Chemicals	14.19	14.19
Labor	13.40	11.15
Steam and Power	6.57	6.57
Repairs, etc.	5.80	5.00
Freight Absorbed	5.00	5.00
General Admin. & Sales	4.00	3.00
Ad Valorem Tax (0.6%) <sup>a</sup>	2.49	1.88
Insurance (0.3%) <sup>a</sup>	1.25	0.94
Depreciation (5%) <sup>a</sup>	20.78	15.64
Total Cost	102.73	92.62
Price Received	153.00	153.00
Margin for Profit and Loss	48.27	59.38
Percentage Return	31.5	38.8

Source: U. S. Forest Service, Feasibility of Using Lake States Hardwoods for Newsprint and Other Pulp and Paper Products, U. S. Department of Agriculture, Washington, D. C., 1959, p. 72

<sup>a</sup>Based on an investment of \$32,847,000.

If the entire paper-making process from roundwood to paper products is considered, and the entire plant is taken as investment, the returns on the investment are approximately 10 percent. It is estimated that this would decrease almost 50 percent if wood pulp were purchased rather than manufactured. However, such a comparison would not be completely acceptable as the additional investments were not considered in the pulpwood producer's costs, and the primary consideration is to determine and compare the different alternatives available to the pulp and paper companies for procuring the necessary wood pulp.

Thus, it would appear that the pulpwood producer is getting between 5 and 21 percent as a return in producing an undifferentiated product for a highly competitive sellers market while the buyer of his product is receiving 30 to 39 percent in producing a good for a captive market.



## CHAPTER XV

### SUMMARY AND CONCLUSIONS

This study is concerned with the investigation of all aspects of pulpwood marketing in Michigan. From data gathered by field survey and mail questionnaire in 1957 and 1959, it is possible to determine the movements of pulpwood from standing tree to final delivery and to determine the contributions made by the various units of the marketing system.

#### Production and Supply

There are no significant trends in the production of pulpwood in Michigan. The 899,600 cords produced in 1958 fall within the usual limits of 700,00 and 1,000,000 cords. However, the changes in proportions of the species produced are significant. The increase in the usage of aspen, pine, and the miscellaneous hardwoods is quite pronounced. These species have increased from 40 percent to 74 percent of the annual production in the last 10 years. It would appear that the proportion of aspen in the annual production is becoming stable at approximately 50 percent, but the percentage of the other hardwoods should continue to increase. Pine pulpwood production can be expected to become more stable as the limits of sustained yield production are approached.

These two factors, irregularity of annual production and the changes in the proportions of the species produced, point up the major problems faced in pulpwood marketing in Michigan. The irregularity of the overall

demand makes it impossible for suppliers to maintain confidence in pulpwood marketing as a permanent occupation. An unstable market will be supplied by unstable suppliers. The preponderance of part-time producers and middlemen bears this out. The full-time producers and middlemen should be the suppliers of pulpwood up to the 700,000-cord lower limit while the part-time operators should supply the marginal or additional quantities. However, the changing proportions of the pulpwood species taken by the mills may permit the part-time operators to take a larger share of the market than would be acceptable in more stable enterprises.

The change in demand from the softwood species to the more ubiquitous hardwoods is brought about by technological developments and cost benefits to the pulpwood users. With the present procurement systems, the shifts in preference are permitting a greater number of part-time producers to enter the market. Low initial investment costs, short hauling distances, and cheap stumpage encourage this entry of the small producer operating on a very narrow margin of profit.

An additional aspect of this problem is that of supply. There is no question as to the potential ability of the forests of Michigan to produce larger quantities of pulpwood. For all species except pine, the allowable cut exceeds the actual cut, and in terms of aspen and the miscellaneous hardwoods the excess is tremendous in nearly all areas. Output can be expanded in all species with the greatest possible increase in the hardwoods. This expansion of output will vary with the geographical divisions of the state. The eastern half of the Upper Peninsula can expand its production of all species while the other sections are approaching or exceeding the allowable cut for several species. In the southern half of the Lower Peninsula, only the miscellaneous hardwoods

offer the possibility of an expanded output. In other areas, expansion in some species is possible, but very limited in others. Thus, with expansion possibilities lying mainly in the more common species, the Michigan pulp mills will be depending on the small, part-time producers for their future supply of pulpwood to an even greater extent.

### Pulpwood Markets

The markets for Michigan-produced pulpwood are increasing. Four new mills, two in the northern half of the Lower Peninsula and two in the western half of the Upper Peninsula, have recently gone into operation, but in 1959 two had not yet attained full production. These new mills increase the number of mills drawing on Michigan's forests to 13 in Michigan and 23 in Wisconsin. Although these new mills will draw on the same timber-sheds used by a number of other mills, they should have little effect on the demand situation since, with one exception, they will be using pulpwood of the species which have an excess of allowable cut over actual cut.

Competition in the pulpwood market is controlled by the buyers. With little exception, the flow of pulpwood is carefully regulated by contract. The buyers contact those sellers with whom they wish to do business, grant them contracts for specified quantities and establish points of title transfer. All pulp companies pay the same price in a given procurement area for the same species with minor variations depending mainly on the type of supplying agent. The practice of contracting directly with producers for quantities as small as 10 cords prevents the establishment of producer influence in the market.

Faced with these conditions, there is little the producers can do



except abide by the company regulations. In the Upper Peninsula, the Michigan suppliers must compete with pulpwood from Canada and Minnesota for Michigan markets, and with wood from as far west as Montana as well in Wisconsin. In Lower Michigan, competition from imported wood is not as intense, but the unequal distribution of consumption may establish price leaders among the pulp mills.

The Lower Michigan pulp mills enter into nonprice competition among themselves more readily and in more ways than those of the Upper Peninsula. This competition takes the form of the establishment of rail siding acceptance points and sliding-price scales for pulpwood delivered directly to the mill by truck from varying distances. One Lower Michigan pulp mill also buys wood in the cutting area and supplies the truck transportation. While these aids do allow producers who would be limited to a single market to supply several pulp mills, the per-cord returns remain essentially the same. Rather than pay a higher price for pulpwood, the pulp companies take over part of the productive process, thereby increasing their procurement costs while holding prices constant.

As the source of supply moves away from the mill, the size of individual contracts increases, and there is a tendency to accept the services of pulpwood middlemen. However, the majority of the Michigan mills are not so far from the sources of supply that they feel this additional service is necessary. For the more distant loading points, the pulp mills rely, for the most part, on the larger producers, and supply them with the necessary aid to keep them in operation. This aid is usually confined to advance payments for pulpwood that has been cut but not delivered to the point of title transfer. The pulp companies will not provide funds for stumpage purchase, and only occasionally will they provide their producers



with stumpage. For the producers with limited personal resources, this means a consistently short supply of working capital and a dependence on the stumpage seller for timber supply on credit. As a result, the producer is encouraged to overcut on lands where the owner will permit him to pay for stumpage after removal and sale of the pulpwood, and to go out of business when he is unable to find such landowners. Pulp companies encourage this practice by offering to receive the wood by location and to notify the landowner of the quantities delivered so he will have an accounting of the amount sold. Where this practice is common, the landowners, especially the absentee landowners, will sell stumpage without obtaining an estimate of the quantity of wood available or determining the amount that should be removed for stand improvement. Thus, the stand is often left by the cutter in a poorer condition than he found it.

#### ✓ Pulpwood Market Agents

Pulpwood is procured by the pulp companies through pulpwood middlemen (dealers) and pulpwood producers. The producers cut and sell pulpwood directly to the pulp mills or to dealers who in turn sell it to the mills. Forest landowners either sell stumpage or produce pulpwood for sale as producers.

Almost all Michigan pulpwood is procured by contract. The contracts range from oral agreements to formal written documents and require quantities ranging from ten to several thousand cords. The specifications are almost standard for all pulp mills with many requirements left for agreement after production has started. Delivery timing is vague. A final delivery date is usually specified, but intermediate deliveries are based upon the seller's supply and the buyer's needs.



The producer's function is to convert the standing timber into pulp sticks assembled at a point of title transfer. In pursuing this objective, he must seek and procure stumpage and arrange for the transportation of the pulpwood from the woods to the point of acceptance. Normally, the expenses of these operations are met by the producer as they occur, but in the case of the smaller producers, those expenses associated with stumpage purchase require such a large proportion of the working capital that the producer may be unable to meet other expenses. If the producer has a contract with a pulp mill, the pulp company may purchase part of the cut pulpwood in the woods. This advance payment will permit the producer to meet the other expenses incurred in delivering the pulpwood to the mill. However, the existence of a contract between the mill and the producer does not guarantee advance payments. This privilege is extended only to those producers considered to be the more reliable by the pulp company.

Thus, a producer, even though he is able to obtain a contract, may not be able to obtain sufficient credit to operate. The normal credit sources are closed to the pulpwood producers, and if the buyers will not furnish the necessary credit, production is almost impossible. The only other creditor available to the producer selling directly to the mill is the forest landowner. If the producer is permitted to defer payment for stumpage until receipt of payment for the delivered pulpwood, his limited supply of capital is not tied up for the entire operating period. In some cases, forest landowners will allow this type of sale, especially when the pulp mill will scale the pulpwood upon delivery and notify the landowners. In this type of sale, the landowners seldom determine the volume to be removed. The producer, wishing to obtain all the wood



possible under these conditions, will usually remove much more than is desirable for stand conditions.

The lack of credit for stumpage limits the producer's areas of operation quite severely unless he is well endowed with personal capital (a situation not normally found with the small producers). The large stumpage sales or sales which require payment before cutting are closed to the small producers with limited resources. Very seldom will a pulp company procure stumpage for its suppliers. Thus, the pulpwood producer supplying a pulp mill must be of the larger size or must operate entirely on small private woodlands. Where this is done, the producer is often dependent upon the landowner for credit. The role of the small producer in harvesting the small woodlot timber crop is an extremely important one, but the lack of available credit tends to force him to become a part-time operator cutting only when he has funds. This type of operation does not encourage entry of the better, more skilled producer who is willing to practice better cutting methods to improve the stand productivity. The practice of the pulp mills granting the small contracts may be hindering the development of better forest management on the small woodlots in Michigan.

One of the answers to the credit problem may be the pulpwood middleman. The dealer functions primarily as a concentration agent. He procures pulpwood from a large number of small producers, concentrates it into acceptable quantities, and transfers it to the pulp companies. For this service, he receives a fee of \$0.50 to \$1.00 per cord from the pulp companies and is usually granted larger contracts than those given producers. In Michigan, dealer contracts average 1,300 cords per contract as compared to 400 cords for the average producer.

Nearly two-thirds of the middlemen in Michigan supply pulpwood as a sideline to their normal occupation. They are permanently established in the local communities for reasons other than pulpwood procurement. However, while the pulpwood dealership is a sideline, it is one which they would like to see continue. Thus, they are in an ideal position to encourage their producers to develop good cutting practices and to encourage the landowners from whom they or their producers procure stumpage to practice forest management for pulpwood production. In addition, they are able to provide the producers with operating funds, either directly in the form of loans or advance payments, or indirectly in the form of stumpage procurement or material credit accounts. The dealers may obtain additional capital through advance payments from the pulp companies and from their other enterprises. However, the nonmercantile part-time middlemen and the full-time middlemen are limited by their ability to obtain mill advances if the grants to the producers are to remain interest-free.

Credit need not be advanced directly to the producer. Middlemen often procure stumpage, especially on the large sales, and distribute it among their producers. The most common practice is to sell it in small areas to individual producers, deducting the price from payments for the delivered pulpwood.

While the middleman is in a position, through control of credit, to encourage the development of a better type of producer, he has actually made little effort in this direction. The major reasons for this are obvious. The middleman, like the producer, is faced with an erratic market. Irregularities in pulp-company procurement often leave the middleman without a contract and no knowledge of when he will receive one.



This tends to make him limit credit to that amount which can be repaid under the existing contract. As the effect of this lack of market continuity is passed along to the producers, they feel no occupational security. In addition, the middleman is under constant pressure from two directions. A number of Michigan pulp mills prefer to deal with the producers directly, refusing to deal with middlemen completely. Some mills offer dealers contracts paying the same per cord price as that offered producers, while others refuse to make advance payments on the theory that the middleman fee eliminates the need for this. Under these conditions, a dealer cannot operate. The middleman fee is the return on the effort required to organize the work of a great number of small producers while the advance payments are required in order that the dealer provide credit and stumpage for his producers. The middleman has a greater source of credit than the producers, but it is by no means unlimited.

Producers tend to resent the pulpwood middlemen, especially the part-time middleman, as they feel that the middlemen have no real interest in their problems. The dealers enter the market and encourage production when market conditions are good and retreat to their alternative occupations when conditions are poor. The producers feel that they are encouraged to go into full-time production, and then are ignored when the market declines. There have been, on the other hand, charges of lending more than the value of the pulpwood purchases, establishing an unpayable debt, and of offering prices below the established producer price when there is an oversupply of pulpwood. Those middlemen operating mercantile establishments have been accused of refusing to purchase pulpwood from others than their patrons.



Thus, the pulpwood middleman is in a position to aid the pulpwood producers and, possibly, the landowners. However, the pulp mills tend to avoid the use of dealers and the attitude of the producers is one of mistrust. While the attitude of the pulp companies may be understandable when viewed in terms of price, there is some question as to its soundness even in terms of price. Direct procurement costs to the companies in buying from producers may exceed the costs of buying through dealers.

#### Pulpwood Marketing Cooperatives

If producer mistrust is a major factor in the nonuse of dealers, a cooperative dealer would tend to militate against this feeling, and would provide the benefits of the middleman operation. A cooperative would perform the dealer functions of supplying credit and concentrating pulpwood while being controlled by the producers themselves. The payment of the dealer fee, less expenses, to the producers as dividends would be an added benefit.

Past experience with cooperative marketing of forest products is not encouraging. Of the two types of cooperatives handling pulpwood in Michigan, only one--the forest-products marketing cooperative--has shown any sign of success. The other type--the cooperative store--has almost completely withdrawn from pulpwood marketing even though it made up a large share of the value handled at one time. While overcutting of member woodlots and economic conditions contributed much to the decline, a lack of knowledge of forest products marketing may also have played a large part. Perhaps a more aggressive management would have done more in maintaining the markets. However, the main objective of the

cooperative store is to procure and retail products at minimum costs rather than to market wholesale products for maximum returns.

The success of the forest-products marketing cooperative in Michigan has been attributed to its dependence on public lands for stumpage, which automatically rejects overcutting and loss of supply. However, the constantly decreasing proportion of timber procured from national forest lands in conjunction with an increasing total production indicates that the cooperative can operate independently. Much of this non-public timber is being procured from the large private landowners who are conscious of the value of their timberlands and insist upon good cutting practices.

Although the cooperative has no restrictions on cutting practices, its ability to obtain stumpage from the large sales and its use of a "hard core" of members to do the harvesting should attract the better type of full-time producers who would be more interested in and more capable of cutting timber lands in a proper manner. The cooperative, while refusing to insist on such practices, will usually follow the desires of the landowners.

It is this factor which makes the forest-products marketing cooperative appear the most attractive approach to the Michigan pulpwood marketing problem. If a procedure were developed to encourage the small landowner, especially the absentee landowner, to grant the cooperative the authority to do all harvesting of forest products on his woodlands, it is felt that better conditions could be developed on the small woodlands. Actually, the benefits arising from such an agreement are many. The cooperative would be assured of a supply of pulpwood, the presence of other products would permit the cooperative to expand and develop

other markets, and the landowner would be assured that his woodlot is being harvested for the most profitable products while the productivity is being increased. It would permit more full-time employment of the producer-members as the additional products would partially counter the irregularity of the pulpwood market.

The forest-products marketing cooperative appears to have a great potential in the pulpwood-marketing field. It is in a position to provide all the services of the pulpwood middleman with none of the disadvantages to the producer that are charged to the profit-oriented dealers. With the managerial ability undiluted by alternative occupations, the cooperative should be able to offset irregularities in pulpwood procurement by expansion into other fields. In this manner, it would be able to offer the landowners stumpage prices based on the products available rather than on the basis of a single product while offering its members more permanent employment. However, as pulpwood is the major forest product in Michigan, success of a pulpwood-marketing cooperative is dependent on acceptance by the pulp mills or by obtaining membership great enough and strong enough to control the market flow of pulpwood. The avoidance of "iron clad" contracts and the widespread occurrence of the most heavily used species makes the latter unlikely.

#### Forest Landowners

The ownership of Michigan's 18.8 million acres of commercial forest lands is very diverse. Public ownership accounts for 33 percent of the forest lands and 42 percent of the pulpwood production. Pulp companies own only 3 percent of the land and produce 3 percent of the pulpwood. Farmers own 20 percent of the land and produce 9 percent of the pulpwood

and the miscellaneous other landowners control 42 percent of the land and produce 38 percent of the pulpwood.

The public landowners are increasing in importance as pulpwood growers. Although their sales policies tend to discriminate against the smaller producers, they are not unreasonably restrictive. The major problem in public sales is not the sales themselves, but the producer's credit position. However, with pulp company and dealer aid, the producers are beginning to procure more stumpage from public lands than from any other type of ownership.

Pulp-company lands, while well managed, are too limited to be an important source of pulpwood stumpage, and it is doubtful if any expansion will occur.

The remaining forest lands are extremely complex. Industry-owned lands are highly productive and well managed while all other ownerships, with few exceptions, are poorly managed and are decreasing in productivity. Unless there is a radical change in management concepts and ownership planning, these lands will become an increasingly unimportant source of pulpwood.

The main question posed by the forest landowners of Michigan is that of the decreasing production of pulpwood from the small, private ownerships. With the increasing demand for aspen and the other hardwoods, it would appear that these lands would, being in an ideal productive position for these species, become increasingly important producers, but such is not the case. The reasons for this may only be rationalized. Yoho and others (1957) noted that, while Michigan landowners had little concept of forest management, a great number refrained from cutting their woodlands for non-economic reasons. With



the stabilization of ownership noted in the same study, the speculative landowners are being eliminated and cutting restricted.

If this stabilization is taking place and woodlot owners are protecting their lands, it is highly possible that the pulpwood producers are being forced to other lands. The poor cutting practices of the past have lowered the general productivity and make the present landowners hesitant in permitting another harvest. As few landowners prefer doing their own cutting, the poor reputation of the pulpwood producers is preventing the harvesting of the private woodlands. Yet, these woodlots must be cut if the decline in productivity is to be halted.

This is one area where a forest products marketing cooperative could provide great benefit. A completely trusted, competent market agent could cause the development of competent producers, and it appears that many private landowners are going to insist on proper cutting by competent cutters before allowing their lands to be harvested.

#### Pulpwood Costs and Prices

Production costs for rough pulpwood are approximately \$12.00 per cord for aspen, \$23.00 for spruce, \$21.00 for balsam fir, \$16.00 for pine, and \$11.00 per cord for the miscellaneous hardwoods. These costs are a little higher in some stages of production in the Upper Peninsula, but not enough to be significant. However, costs between operations vary widely depending upon physical conditions, cutting requirements, and negotiating ability. Also, great variability exists between producers because of differences in cost concepts. The small producers using family labor tend to underestimate labor costs while those cutting on their own lands tend to neglect to charge for stumpage. The small

hauling contractors may also underestimate their operating costs because of a lack of understanding of fixed costs. These are reflected in the wide variation between the averages and the costs of an actual operation.

Pulpwood prices are stable and tend to remain constant for periods often exceeding one year. However, prices do change over time. Prior to 1953, pulpwood prices slowly moved together for all species, but now there is a tendency for prices to change independently of one another. This does not indicate price competition between pulp mills. While there is competition on the basis of aid to suppliers, the price paid at any one time is basically the same for all pulp mills.

In 1958, the average f. o. b. railcar prices in Upper Michigan were \$13.50 per cord for rough aspen, \$27.75 for spruce, \$22.62 for balsam fir, \$18.00 for pine, \$19.17 for hemlock, and \$13.00 for the miscellaneous hardwoods. In general, Lower Michigan prices averaged \$1.00 to \$2.00 less than in the Upper Peninsula. Peeled pulpwood brought from \$3.00 to \$5.00 more than rough pulpwood.

The differences in price show one reason for the increasing usage of aspen and the miscellaneous hardwoods. The differences had been almost constant, but now that prices move independently, the price spread between species may be expected to widen and to create an even greater demand for the hardwoods.

#### Pulpwood Transportation

All Michigan pulpwood moves by truck at least part of the way to the mill, and 54 percent moves directly to the mill by truck. The other 46 percent is transferred to railroad cars for the final movement. For the short truck hauls, the rates are negotiated but usually range from

\$4.00 to \$5.50 per cord. Beyond the 30-mile range, the rates are usually formularized at \$6.00 for 90 miles, \$7.20 for 130 miles, \$10.30 for 210 miles, and \$12.30 for 250 miles. The contract rates usually include a charge for loading and for unloading if delivered to a rail siding.

Rail rates are more complex. They are not necessarily related directly to distance. The pulp companies usually select those rail loading points having rates less than 20 cents per 100 pounds. At 19 cents per 100 pounds, the charge would be \$7.60 for rough aspen, \$5.70 for peeled aspen, \$8.36 for spruce, \$8.93 for balsam fir, and \$7.79 for pine. These charges are paid by the pulp companies. In spite of the pulpwood price reduction accompanying rail purchases, the rail charges are more expensive to the pulp companies than the higher prices paid for pulpwood delivered at the mill by truck.

The transportations costs for pulpwood range from one-third to one-half the costs of pulpwood production, but the providing of rail loading points and sliding price scales (at least in Lower Michigan) offering \$0.50 per cord more for every 50 miles of haul in excess of the first 50 miles for truck-delivered wood keep these costs from becoming excessive. The use of the fixed f. o. b. railroad car price is of great benefit to the seller and to the pulpwood supply areas. It relieves the seller of the costs of a long haul to the mill and tends to distribute pulpwood cutting more evenly over the state. In the South, where the f. o. b. rail car price is the mill delivered price less rail transportation costs, there is a tendency to overcut those areas close to the mill, and then gradually move out from the mill as the wood shortage pushes the price up. In Michigan, this does not occur as the



producer receives the same price regardless of the rail transportation costs. The sliding price scale permits entry into those areas where trucking costs would be prohibitive for the producer and rail hauling costs excessive for the pulp companies.

Pulp company procurement policies, at least in Lower Michigan, employ the pulpwood-transportation system to obtain the needed pulpwood at minimum expense to the producer by absorbing part of the costs.

### Pulpwood Profitability

It is impossible to state categorically that pulpwood production is profitable or is not profitable. The costs of production vary widely between operations, and pulpwood prices vary widely between species. However, by the use of averages and assumptions, it is possible to compare the profitableness of the production of the various species.

In order of decreasing size of the margin for profit and loss, the Lower Michigan species may be ranked as spruce, balsam fir, the miscellaneous hardwoods, peeled aspen, pine, and rough aspen, while in the Upper Peninsula the order becomes peeled spruce, peeled balsam fir, the miscellaneous hardwoods, rough spruce, rough aspen, rough balsam fir, and pine. When the returns from pulpwood marketing are expressed as a percentage ratio of margin to sales value, the order remains the same except that the miscellaneous hardwoods rise to second place while the balsam fir in the Lower Peninsula and the peeled balsam fir in the Upper Peninsula decline to third place.

In terms of the ratio of margin to sales value expressed as a percentage, pulpwood production may reach a maximum return of 20 percent for the more favored, higher priced species. This is low compared to a



return of 31 to 39 percent for the production of wood pulp.

The question of profitability of pulpwood production does not lie in the prices received, but in the difference between the price received and the costs. As the demand increases, prices should increase to cover the costs of the movement into the more difficult sites. At present, this is being done only in the case of spruce and balsam fir. For the other species, with the exception of the miscellaneous hardwoods, the margin for profit and loss have declined somewhat due to price not reflecting the rising costs of production. There is a tendency to raise prices to encourage production, but only to a limited extent. This is indicated by a comparison of the prices received for two species and the costs of production for those species; the price differences are not proportional to the differences in the costs involved in production. Thus, the returns on the production of the more difficult species--spruce and balsam fir--are greater as it takes a greater return to encourage producers into this field. The returns are lower for aspen and pine because of the lower investment required, and the relative ease of entry and logging.

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## APPENDIX

### Questionnaires

- A Pulp Mills - Summer 1957
- B Pulp Mills - Summer 1959
- C Forest Products Cooperatives - Summer 1959
- D Dealers or Producers - Summer 1959
- E National Forests - Summer 1959

### Price-Quantity Relationships

- Table A Data pertaining to aspen pulpwood  
price-quantity relationships
- Table B Data pertaining to balsam fir pulpwood  
price-quantity relationships



Date \_\_\_\_\_

Recorder

Species  
(Separate peeled and unpeeled)

	1954	1955	1956	1957
Pulpwood used, 1956 cords:				
Track delivered				
Rail delivered				
Water delivered				
Truck wood delivered in mill				
Yard:				
Price paid, 1957				
(Dealer or producer?)				
Is price on truck, or				
unloaded?				
If mill unloads, what is				
cost?				
Variation in price, by				
distance of haul?				
Distances of haul:				
Range (miles)				
Median (miles)				
Truck wood delivered to				
railroad:				
Price paid, 1957				
(Dealer or producer?)				
Is price on truck, or				
railroad car?				
If mill unloads, what is				
cost?				
If mill loads or car,				
what is cost?				
Variation in price, by				
distance of haul?				
Distances of haul:				
Range (miles)				
Median (miles)				

	Species (Separate peeled and unpeeled)		
Rail-hauled wood:			
Hauling cost to mill:			
Range			
Median			
Unloading cost?			
Who pays unloading?			
Distances of haul:			
Range (miles)			
Median (miles)			
Water-hauled wood:			
Barge or raft?			
Who pays loading?			
What is cost?			
Hauling cost to mill:			
Range			
Median			
Unloading cost?			
Who pays unloading?			
Variation in cost, by distance of haul?			
Distances of haul:			
Range (miles)			
Median (miles)			

Comments:

B  
Pulp Mills - Summer 1959

Company \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

A. List mills for which data are submitted \_\_\_\_\_

B. Pulpwood receipts:		1958	Receipts from Michigan:	
Species		Total Receipts	Upper Peninsula	Lower Peninsula
Aspen and Wh. birch	Unpeeled	Cords	Cords	Cords
	Peeled			
Spruce	Unpeeled			
	Peeled			
Balsam fir	Unpeeled			
	Peeled			
Pine	Unpeeled			
	Peeled			
Hemlock	Unpeeled			
	Peeled			
Mixed Hardwoods				
Total				

C. Contract sources of pulpwood receipts from Michigan:		
	Number of Contracts	Pulpwood Volume in Cords
Dealers or traders		
Producers		
Company's own logging crews		
Total		

D. By what transportation means did the 1958 pulpwood receipts arrive at the mill?

	Receipts from Michigan		Receipts from all Sources	
	Volume	Maximum distance of haul	Volume	Maximum distance of haul
	(cords)	(miles)	(cords)	(miles)
Truck				
Rail				
Water				

E. Forest landownership and pulpwood production from your within region: 1958

Location of company forests	Land area in company forests (acres)	1958 pulpwood production
Michigan Wisconsin Minnesota Canada		

F. Prices paid for pulpwood receipts from Michigan: 1959.  
(List maximum prices paid, whether dealer prices are different from producer prices or not.)

Point of Purchase	Balsam fir		Spruce		Aspen		Pine	Hem- lock
	Rough	Peeled	Rough	Peeled	Rough	Peeled		
	(\$ per Cord)							
Roadside								
F. O. B. Railcar								
At mill, Trucked								

Point of Purchase	Mixed Hardwoods (\$ per Cord)
Roadside	
F. O. B. Railcar	
At Mill, Trucked	

G. Where prices paid for truck-delivered wood are increased for longer-distance hauls, show increase in price by distance zones.

Distance Zones	Dollars per cord

H. Estimated average costs of production to F. O. B. railroad car  
(or to mill if all wood comes in by truck) for pulpwood receipts  
from Michigan: 1959

	Balsam fir	Spruce	Aspen	Pine	Hemlock	Mixed Hardwoods
(Dollars per Cord)						
Stumpage						
Felling and bucking						
Peeling (if done)						
Skidding						
Other logging Costs (if calculated separately) Roads and buildings Maintenance supervision, incidentals						
Hauling						

C  
QUESTIONNAIRE  
Forest Products Cooperatives

Interviewer \_\_\_\_\_  
Date \_\_\_\_\_

- A. Products handled - 1958. (Group non-forest products as one product and omit quantity.)

	<u>Product</u>	<u>Quantity</u>	<u>Dollar Value</u>	<u>% pulpwood value of all products value</u>
1.				
2.				
3.				
4.				
5.				

- B. Pulpwood sales - 1958.

<u>Mills supplied</u>					
-----------------------	--	--	--	--	--

- C. Source of pulpwood - 1958.

1. Geographic (Counties from which pulpwood is received by cooperative or radius of operations.)

2. Ownership of Source

Land Ownership

Pulpwood Produced

Member-owned land

Other private

Pulp company

National Forest

State Forest

D. Purchase procedures.

1. At what point (s) is wood purchased?

% of total volume

Stumpage  
Pulpwood at roadside  
Pulpwood at rail loading points  
Pulpwood at mill

2. How are negotiations made with producers? Who initiates negotiations?

3. Stumpage purchases

a. How does coop allocate stumpage to producers?

b. Is stumpage sold to producers, or is contract let?

c. If contract is made, is it formal or informal? \_\_\_\_\_

Details of contract:

Kind of wood

Amount of wood

Size of wood

Quality of wood

Time or period of purchase

Method of payment

Time of payment

d. What conditions of timber harvest are required of producers by the coop?

e. What are the conditions of payment? \_\_\_\_\_

When are payments made to producer, how many, and on basis of whose scale?

- f. Does coop advance funds to producer prior to taking over control of cut wood? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, how much? \_\_\_\_\_

If Yes, any interest charge? Yes \_\_\_\_\_ No \_\_\_\_\_

How much interest? \_\_\_\_\_

- g. Does coop offer any business aids to producer not including advance payments? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, what aids are offered? \_\_\_\_\_

E. Pulpwood sales by the Cooperative.

1. How many pulp mills does coop deal with? \_\_\_\_\_

2. Does coop sell to intermediate dealers? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, what portion of total pulpwood sales? \_\_\_\_\_

If Yes, to how many dealers? \_\_\_\_\_

3. If intermediate dealers are used, why?

4. Do pulp mills pay coop a dealer bonus? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, how much? \_\_\_\_\_

5. Details of contracts made with pulp mills?

6. Which pulp mills make advance payments to coop, and on what basis?

7. Which pulp mills offer other business aids to coop? What kind are they, and how extensive?



8. Does coop own any equipment? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, what is it and how is it made available for use?

F. Prices Paid by the Cooperative. (Dollars per Cord)

	Species		
Stumpage			
Pulpwood at roadside			
Pulpwood at rail siding			
Pulpwood delivered at mill			

G. Price Received by the Cooperative. (Dollars per Cord)

Pulpwood at roadside			
Pulpwood at rail siding			
Pulpwood at mill			

H. Estimated Pulpwood Production Costs.

	<u>Dollars per Cord</u>
1. Felling & bucking	\$ _____
2. Skidding	\$ _____
3. Loading	\$ _____
4. Hauling*	\$ _____

\* Give on the basis of dollars per cord by distance.

I. Historical Data.

1. Production

Year	Number of Members	Total Sales	Pulpwood sales Value Volume	Number of mem- bers producing pulpwood
1940				
1941				
1942				
1943				
1944				
1945				
1946				
1947				
1948				
1949				
1950				
1951				
1952				
1953				
1954				
1955				
1956				
1957				
1958				
1959				

2. When did the cooperative begin to market pulpwood? Why?

3. How was the organization originally financed?

4. How were later expansion of operations financed?

5. What are the qualifications and obligations of members?

- J. What is the relationship between the cooperative and other types of pulpwood middlemen?

Between the cooperative and the pulp mills?

Between the cooperative and the public forests?

- K. What are the major or original duties of the cooperative? (Marketing, purchasing, productions, etc.)

Are refunds made? Yes \_\_\_\_\_ No \_\_\_\_\_ If so, what is the basis of making these refunds?

- L. Does the cooperative have any programs or is it making any effort to encourage the production of pulpwood on a sustained basis? Yes \_\_\_\_\_  
No \_\_\_\_\_

If Yes, in what way?

- M. Remarks and Observations.

N. Names and Addressed of Selected Suppliers.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

D  
Dealers or Producers - Summer 1959

Name \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

Recorder \_\_\_\_\_

	Species (Separate peeled and unpeeled)			
Volume handled, 1958				
Stumpage price per cord:				
Unclassed origin				
National forest				
State forest				
Private				
Distance to market:				
Total, miles				
Road				
Railroad				
Mill destinations				
Logging cost: (not including hauling)				
Total per cord (contract price)				
Developments:				
Road construction				
Other construction				
Indirect costs:				
Supervision				
Property taxes				
Insurance				
Other				
Direct costs:				
Felling and bucking				
Swamping and skidding				
Bark peeling				
Loading (if part of Logging)				
Sorting				
Slash disposal				
Soc. Sec., Unemp. Ins. & Comp.				

A. Occupation:

1. \_\_\_\_\_ Full time pulpwood producer
2. \_\_\_\_\_ Full time timber producer
3. \_\_\_\_\_ Part time pulpwood producer
- (1) \_\_\_\_\_ Sawmill operator
- (2) \_\_\_\_\_ Operator of other wood-using plant
- (3) \_\_\_\_\_ Operator of other industrial plant
- (4) \_\_\_\_\_ Farm
- (5) \_\_\_\_\_ Professional or businessman
- (6) \_\_\_\_\_ Wage earner

B. Size of pulpwood operations:

1. \_\_\_\_\_ Number of Sales handled, 1958.
2. \_\_\_\_\_ Volume of pulpwood handled, 1958

Species

Cords

C. Does producer handle products other than pulpwood?

\_\_\_\_\_ Yes \_\_\_\_\_ No  
If Yes, what and how much?

D. Does producer sell pulpwood through channels other than cooperative?

\_\_\_\_\_ Yes \_\_\_\_\_ No  
If Yes, how much and where?

E. What functions does producer perform?

1. Buys stumpage? \_\_\_\_\_ Yes \_\_\_\_\_ No  
If Yes:
  - (1) \_\_\_\_\_ With own funds or funds obtained on his own.
  - (2) \_\_\_\_\_ With coop providing security for borrowed funds.
  - (3) \_\_\_\_\_ With coop providing funds.
2. Logging? \_\_\_\_\_ Yes \_\_\_\_\_ No
3. Logging? \_\_\_\_\_ Yes \_\_\_\_\_ No
4. Hauling? \_\_\_\_\_ Yes \_\_\_\_\_ No

	Species (Separate peeled and unpeeled)		
Hauling cost per cord:			
Total (Contract price)			
Road maintenance			
Loading (if by hauler)			
Hauling			
Unloading truck			
(if by hauler)			
Loading rr car			
(if by hauler)			
Other costs			
Size truck (cord cap.)			
Loads per day			
Miles to rr. (if to rr.)			
Miles to mill (if to mill)			

Comments:

E

NATIONAL FOREST QUESTIONNAIRE - 1959

Name of National Forest \_\_\_\_\_

Area of National Forest \_\_\_\_\_ Areas.

Pulpwood Production - 1958:

Species	Allowable Cut	Actual Cut

Size of Sales - 1958:

Value in Dollars	Number of Sales	Volume Sold in Cords	Period of Contract in Years



Forest Service Production Costs Estimates:

Items of Cost				
Direct Costs				
Felling & bucking				
Swamping & skidding				
Bark peeling				
Loading & skidding				
Sorting				
Slash disposal				
Social Sec., Unemploy- ment Insu. & Comp.				
Hauling Costs				
Road Maintenance				
Loading				
Hauling				
Other				

Average Stumpage Prices - 1958:

Species	Stumpage Price

Comments and Remarks

TABLE A. Data pertaining to aspen pulpwood price-quantity relationships

Year	Volume in 1,000's of Cords	Reported Price in Dollars per Cord	Adjusted Price <sup>a</sup> in Dollars per Cord
1947	187	13.50	13.92
1948	167	14.00	13.51
1949	158	11.50	11.57
1950	195	11.00	10.54
1951	281	14.00	12.20
1952	277	14.00	12.54
1953	305	14.00	12.72
1954	348	14.50	13.50
1955	364	13.25	11.97
1956	507	15.00	13.12
1957	453	14.50	12.33
Total	3269	-----	137.57
Average	297.2	-----	12.51

Source: U. S. Forest Service, Lake States Forest Experiment Station, St. Paul, Minn., and the Lake States Timber Digest, University of Wisconsin Extension Forestry Office, Milwaukee, Wisconsin.

<sup>a</sup>Adjusted price equals reported price divided by the Bureau of Labor Statistics index for all commodity prices.

Correlation Coefficient = 0.115

Formula: Volume = 125.31 - (13.74) Price

TABLE B. Data pertaining to balsam fir pulpwood price-quantity relationships

Year	Volume in 1,000's of Cords	Reported Price in Dollars per Cord	Adjusted Price <sup>a</sup> in Dollars per Cord
1947	53	18.50	19.07
1948	87	21.17	20.43
1949	78	18.83	18.94
1950	69	18.00	17.24
1951	55	20.25	17.64
1952	76	24.25	21.73
1953	45	22.50	20.44
1954	56	22.50	20.40
1955	48	22.50	20.33
1956	45	22.75	19.90
1957	60	23.50	19.98
Total	672	-----	216.10
Average	61.1	-----	19.65

Source: U. S. Forest Service, Lake States Forest Experiment Station, St. Paul, Minn., and the Lake States Timber Digest, University of Wisconsin Extension Forestry Office, Milwaukee, Wisconsin.

<sup>a</sup> Adjusted price equals reported price divided by the Bureau of Labor Statistics index for all commodity prices.

Correlation Coefficient = 0.038

Formula: Volume = 52.91 - (0.417) Price



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