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WOOD PROCUREMENT PRACTICES and PROBLEMS of ILLINOIS PULPMILLS

BY DAVID C. BAUMGARTNER

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964 has been the rapid increase in the amount of
ood residues used; competition for wood has also
increased. Most firms felt that further increases
in competition and corresponding increases in wood
prices would be the major future problems.

NORTH CENTRAL FOREST EXPERIMENT STATION
FOREST SERVICE • U.S. DEPARTMENT OF AGRICULTURE

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WOOD PROCUREMENT PRACTICES AND PROBLEMS OF ILLINOIS PULPMILLS

David C. Baumgartner

The present paper is the first of an intended series to describe pulpwood marketing in Illinois and consider the impacts of possible pulpwood industry expansion on various forestry interests in the State. A 1966 study (Holland, Kallio, and Quigley 1966) showed that wood supplies, water, transportation, and labor resources in the State were favorable for expansion. If expansion occurs, each forestry-related interest group in Illinois would be affected somewhat differently. The intended research series should help minimize the problems that might accompany expansion, so that full potential benefits could be realized.

The purpose of this first paper is to present basic data showing how the pulp and paper industry in Illinois obtains its wood supply, and to document recent changes, future plans, and problem areas in the industry.

STUDY METHODS AND OBJECTIVES

During the summer of 1974 a representative from each woodpulp mill in Illinois was interviewed. The information obtained[1/], together with data from earlier studies was used to achieve the following objectives:

1. To obtain current information on the wood purchasing practices of pulpwood users in Illinois including: (a) amount and type of wood purchased, (b) prices paid for wood--the degree of price variations and reasons for them, and (c) wood sources and methods of delivery.
2. To determine future use of pulpwood by Illinois firms.
3. To identify present and future problems of pulpwood-using firms.
4. To assemble data for studies that will help provide a complete picture of pulpwood marketing in Illinois and the Central States region.

1/ *The interview form is available from the author.*

DESCRIPTION OF THE PULPWOOD INDUSTRY IN ILLINOIS

In 1973 the pulping capacity of Illinois' eight woodpulp mills (fig. 1) was 865 tons per day or 57 percent of the total daily capacity of the four Central States of Illinois, Indiana, Iowa, and Missouri (Blyth 1973). Both the number of mills and the pulping capacity has remained stable during the past 20 years. Receipts of pulpwood by Illinois mills have, however, increased steadily in recent years from 90,000 standard cords in 1965 to 193,000 in 1973 (Blyth 1966, 1975). Illinois pulpwood production has also increased from 92,000 standard cords in 1965 to 146,000 in 1973. These increases in production and receipts were due to using more pulpwood and less substitute materials in the pulp mix, and to utilizing a higher percent of pulping capacity (Blyth 1969).

The following tabulation for 1973 shows that Illinois is a net importer of pulpwood even though some wood is exported to other States (Blyth 1975).

	Standard cords
Pulpwood produced in Illinois	145,522
Exported to other States	46,467
Illinois production consumed within State	99,055
Imports consumed in Illinois	93,667
Total receipts of Illinois mills	192,722

Missouri was the most important exporter of pulpwood to Illinois; most Illinois exports stayed within the Central States Region or went to adjacent Kentucky.

Wood residues, rather than roundwood or roundwood chips, make up more and more of the wood used by Illinois mills. Residues rose from 24 percent of receipts in 1965 to nearly 64 percent in 1973 (Blyth 1966, 1975).

Seven of the eight Illinois woodpulp mills employ the groundwood or mechanical pulping method and produce roofing felts and insulation materials. Two of these seven also process the felt further into roofing and one produces a wide range of building materials. The 1973 pulping capacity of

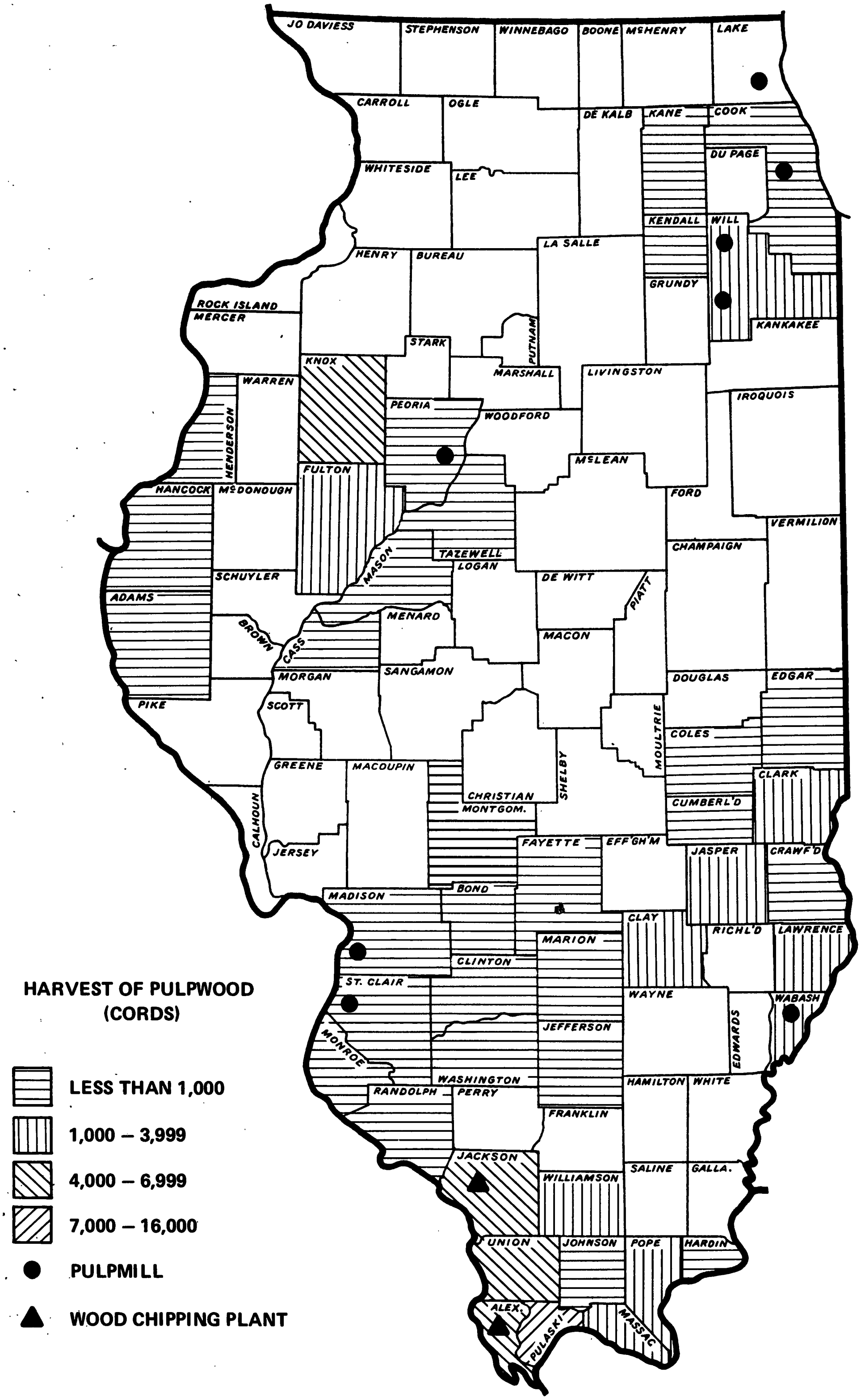

Figure 1.--*Location of Illinois pulpmills and wood-chipping plants; harvest of pulpwood bolts in standard cords by county, 1973.*

these groundwood mills ranged from 30 to 190 tons per 24-hour day and averaged about 80 tons per day. One mill with a capacity of 300 tons per day used a semichemical process and produced boxboard. Six of the eight Illinois mills were operating at or near full capacity in 1973; one was operating at 75 percent of capacity, and one at 50 percent. No significant changes in the percent of capacity used, the pulping process, or the materials produced have occurred since 1969.

The percent of wood to wastepaper used in the pulp mix varied from 15 percent to more than 50 percent. Most firms used about 45 percent wood and about 55 percent wastepaper. Very little change in the ratio of wood to paper is possible in the groundwood mills. The single semichemical mill would, however, be capable of using up to 100 percent of either wood or wastepaper in its pulp mix.

All of the Illinois woodpulp mills have been operating at their present locations for more than 50 years and all are owned by parent firms with wood-using plants in other States. Two of the Illinois mills are owned by the same firm. All the mills are located on major water and railways.

In addition to the eight plants that produced woodpulp in Illinois in 1973, there was at least one permanent and several portable or semiportable operations that buy and chip pulpwood for resale to pulping plants. Several pulp and paper mills located in adjacent States also influence the Illinois pulpwood market.

AMOUNT, TYPE, AND SOURCE OF WOOD USED

Of the 193,000 cords of pulpwood used by Illinois pulpmills in 1973, only about 19 percent was purchased as roundwood. Four mills bought and chipped roundwood but only one of these purchased more roundwood than chips. Two other mills maintained chippers that could be used if needed. Purchased chips from wood residues accounted for nearly 64 percent of all pulpwood used and the remaining 17 percent was chips from roundwood. More than 80 percent of all the wood used was hardwoods.

Only about one-third of the pulpwood used in Illinois was handled by an intermediary agent or dealer. The rest was purchased directly from a roundwood producer or chip-producing plant and normally delivered to the pulpmill by the producer, as none of the Illinois mills purchased any of their own stumpage or did any logging.

As stated earlier, about 99,000 cords, or more than half of the wood used by Illinois pulpmills, was produced within the State.

The pattern of pulpwood production by county clearly indicates that most Illinois pulpwood-using plants operate in a more or less distinct timbershed (fig. 1). Chip production from residue shows a similar county production pattern.

The type and source of the nearly 94,000 cords of wood that were imported by Illinois in 1973 is shown in the following tabulation:

	Total imports (Percent)
Hardwood residue from Missouri	36
Softwood residue from the Lake States	17
Hardwood roundwood from Indiana	10
Hardwood residue from the Lake States	7
Softwood residue from Iowa	5
Other wood from Central and Lake States	17
Miscellaneous wood from Mississippi, Tennessee, Alabama, and other States	8
	100

RECEIPT AND INVENTORY PATTERNS

Three of the eight pulpmills in Illinois obtained their wood in equally spaced deliveries throughout the year and had no seasonal pattern of receipts. Two of these operated with residues from a few large, dependable, out-of-State producing plants and the third obtained roundwood and chips through a dependable agent. These firms had very little storage capacity and maintained no more than a few days inventory. The five other firms did experience some seasonal variation in their patterns of wood receipts in 1973 but there was very little uniformity in these patterns, except for a tendency to increase inventories in early and midwinter followed by a slump in late winter and early spring. Most of the mills said that no typical pattern of receipts could be expected and that weather and local influences often affected receipts unpredictably.

More than 30-days-supply was rare. Inventories were limited both by space and by the firm's ability to use wood before it deteriorated. All the mills would have preferred to have a uniform pattern of receipts and uniformly low inventories if dependable supplies could have been obtained.

PRICES AND TRANSPORTATION METHODS

The average price paid for pulpwood by Illinois mills in 1973 varied from $9.40 per ton for hardwood roundwood delivered to the mill by a producer, to $21.00 per ton for softwood roundwood delivered by an agent (table 1). Wood delivered by agents was priced higher than that purchased directly from producers, chips were priced higher than roundwood, and softwood was generally somewhat more expensive than hardwood. The high price of softwood roundwood, however, is partially due to the fact that only a small amount of this material was purchased when local shortages occurred and had to be shipped long distances.

Pulpmills that purchased most of their wood from one or two large, stable, out-of-State firms experienced little or no variation in the price paid for wood in 1973 or recent previous years. Wood obtained from local producers was subject to more price variation and the prices charged by agents varied widely. Pulpwood prices, generally, increased substantially in early 1974.

Table 1.--*Prices paid for pulpwood by Illinois pulpmills in 1973 by type of wood and marketing agent*

(In dollars per ton F.O.B. mill)

Type of wood and marketing agent	Highest price	Lowest price	Average price
Hardwood roundwood from producers	$10.50	$ 8.00	$ 9.40
Hardwood roundwood from agents	22.00	8.50	16.00
Hardwood chips from producers	21.00	8.00	13.64
Softwood roundwood from agents[1]	22.00	20.00	21.00
Softwood chips from producers	21.00	12.00	16.31

[1] No softwood roundwood was purchased from producers.

Six of the Illinois mills reported high to moderate competition for wood while the other two reported little or no competition. In general the mills that purchased from one, or a few large, distant, dependable sources reported little or no competition for wood; those buying from numerous local sources faced more.

The price of wastepaper purchased by Illinois mills more than doubled during 1973, averaging about $18 per ton for mixed paper in early 1973 and rising to an average of $42 per ton by early 1974. Corrugated paper was much higher in price, sometimes costing twice as much as mixed paper.

Seven of the eight Illinois pulpmills provided transportation data and averaged 70 percent of their wood by truck and 30 percent by rail; all received at least some wood by rail and one obtained all its wood by rail. Even though most of the mills were located on major waterways carrying barge traffic, none had water loading facilities, so no raw material or output from the mills was shipped by water.

The length of the truck haul to Illinois mills varied from 5 to 300 miles. Three of the mills received wood trucked 45 to 50 miles. Two mills had an average truck haul distance of about 100 miles and one did not report its average distance.

The distance wood was shipped by rail ranged from 65 to 600 miles. One mill had and average rail haul of 200 miles, three an average of 350 miles, and three an average between 500 and 600 miles.

CHANGES IN THE ILLINOIS PULPWOOD INDUSTRY

Most Illinois pulpmills noted a definite increase in competition for wood during the period of 1964-1973--particularly in the early 1970's--and they expected further increases. The number of suppliers of roundwood serving the needs of the Illinois mills declined from 139 in 1968 to 120 in 1972 and to only 77 in 1973. The number of chip suppliers, however, increased from 20 in 1968 to 28 in 1972 and to 44 in 1973, obviously paralleling the steady shift from roundwood to residue as a raw material. Further increases in the use of residues are likely because three mills plan to increase their use of chips and another reported that it would like to increase chip use if chips were available. This shift from roundwood to residue has been without doubt the most significant development affecting the Illinois pulpwood industry in recent years.

Transportation methods have changed very little in the last 10 years except for a slight increase in the percent of wood shipments received by rail.

INDUSTRY CONCERNS

Many pulpmills were concerned with the fact that some sawmills, either currently supplying wood residues or with potential for supplying them, were going out of business. Others felt that sawmills were using smaller logs that previously would have been available for pulpwood. There was general concern that local chip shortages and the exhaustion of local roundwood resources would necessitate transporting wood from more distant points. Competition for local wood from large firms extending their supply radii and capable of influencing local prices was an important concern, particularly for the small mills that were more reliant on local wood suppliers. Two mills also expressed concern over the increasing difficulty in meeting environmental standards.

SUMMARY AND CONCLUSIONS

The number of Illinois pulpmills and plant capacity have remained quite stable during the past 20 years. However, pulpwood production and mill receipts in Illinois have both steadily increased due to an increased proportion of wood in the pulp mix and to greater utilization of plant capacity. The sale of Illinois pulpwood to mills in adjacent States has also affected production.

In 1973, about two-thirds of all pulpwood used in Illinois was supplied directly by producers and about one third by an agent who bought from producers. More than 80 percent of all the wood used was hardwood. Wood residues accounted for nearly 64 percent of all wood used. Slightly more than half of the pulpwood used was produced within the State and the remainder was imported, primarily from Missouri, Indiana, and the Lake States.

Receipts and inventories by Illinois pulpmills varied only slightly by season but were subject to unpredictable local influences. Seventy percent of the pulpwood was delivered by truck and the remainder by rail. Most Illinois firms reported a high to moderate degree of competition for wood. Wood prices varied by source and type of wood purchased and with general market factors. Both wood and wastepaper prices increased substantially in late 1973 and 1974.

The most significant change in the Illinois pulpwood industry since 1964 has been the rapid increase in the amount of wood residues used. Paralleling this increase was a decrease in the number of roundwood suppliers and an increase in the number of chip suppliers. Competition for wood increased. Most firms felt that competition and resulting wood price increases would be the major problem of the future.

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