SASKATCHEWAN'S FOREST INDUSTRY AND ITS ECONOMIC IMPORTANCE

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HIGHLIGHTS

Industrial Base

- Saskatchewan's 1972 primary wood-using industry was made up of 6 wood pressure-treating plants, 3 pulp or waferboard mills, and 316 sawmills and planing mills.

- the 316 individual sawmills varied in productive capacity from 5 to 425 m^3 (2 to 180 Mfbm) per 8-hour shift.

- the 3 largest sawmills (each producing more than 11 799 m^3 or 5 000 000 fbm in 1972) together accounted for 85% of total lumber production.

- of the 313 small sawmills, 75% were portable, 53% had been purchased prior to 1963 (often second-hand), 83% required four or fewer workers to operate, most were owned and operated on a part-time basis, 87% were single proprietorships, and in about 75% of the cases, the sawmills provided their owner-operators with less than 30% of their annual net income.

Resource Base

- 30.5 million ha (75.4 million acres), or 46.8% of Saskatchewan's area is classified as forest land, with 95% being crown-owned.

- the 8.3 million ha (20.6 million acres) of productive crown forest land support 514 million m^3 (18.1 billion ft^3) of growing stock with spruce, pine, and poplar the dominant species.

- total harvest from Saskatchewan's forest lands in 1972 was 2.6 million m^3 (93.3 million ft^3) with 95% of the cut from crown lands.

- the allowable annual cut from provincial crown land is estimated at 10.3 million m^3 (362 million ft^3) and based on the 1972 harvest, Saskatchewan's timber surplus approaches 7.8 million m^3 (274 million ft^3).

- total utilization of the allowable annual cut could theoretically support an industry three times the size of that operating in 1972.

Products Produced

- the 325 primary wood-using firms produced 199 000 t (219 000 tons) of bleached kraft pulp, 26 million m^2, 1-mm basis (22 million ft^2, 1/2" basis) of fiberboard, 110 million m^2, 1-mm basis (744 million ft^2, 1/16" basis) of waferboard, 393 000 m^3 (167 000 Mfbm) of lumber and nearly 3.5 million pieces of pressure-treated wood products.

- out-of-province sales accounted for 100% of kraft pulp, a significant share of waferboard, 82% of fiberboard, 72% of lumber, and about 28% of pressure-treated materials.

- dimension lumber was the major lumber product, representing 92% of total production. About 85% of all lumber produced was planed prior to final marketing. At least 71% of total production was kiln-dried.

- the species mix in lumber production consisted of 85% spruce, 14% pine, and 1% poplar and other species.

Economic Impacts

- gross sales of all products manufactured by the forest industry amounted to $84 million.

- forest products exported to foreign markets brought a conservatively estimated $54 million in foreign exchange earnings into the province.

- total direct employment by the forest industry in 1972 was 1127 in logging and 1227 in manufacturing with an additional 2277 jobs supported indirectly by the industry.

- major forest-based communities are Meadow Lake, Prince Albert, and Hudson Bay.

- 15% of the forest industry workers were Indian and Métis peoples.

- total payroll of the forest industry was $10.8 million with an average annual income of $9868 in the pulp and paper industry, $7722 in the sawmill industry and $7071 in the wood preservation industry.

- value added by the forest industry was $35.6 million, or 15% of the total for the manufacturing sector.

- value added per employee was greatest at $33 995 in the pulp and paper industry, $24 797 in the sawmill industry and $13 967 in the wood preservation industry.

- every m^3 (cunit) of wood processed in 1972 provided 2.64 man-hours of employment (7.45 man-hours) in the wood preservation industry, .98 man-hours (2.77 man-hours) in the pulp and paper industry and 1.14 man-hours (3.23 man-hours) in the sawmill industry.

RÉSUMÉ

En 1972, en Saskatchewan, les 316 scieries ordinaires et à raboter, les 6 usines à imprégner la surface du bois sous pression et les 3 usines à pâte et à panneaux à flocons utilisèrent au total 2.6 millions de m^3 (93.3 millions de pi^3) de bois rond et de copeaux. Avec ces matières premières, on produisit 199 000 t (219 000 tonnes) de pâte kraft blanchie, 26 millions de m^2 (22 millions de pi^2, base de 1/2 po) de panneaux de fibre, 110 millions de m^2 (744 millions de pi^2, base de 1/16 po) de panneaux gauffrés, 393 000 m^3 (1.67 milliard de p.m.p.) de bois d'oeuvre et près de 3.5 millions de pièces de bois imprégnées sous pression. Ces matériaux valaient (prix de vente) 84 millions de dollars.

On vendit beaucoup des produits forestiers en dehors de la province: 100% de la production de pâte kraft et de panneaux gauffrés; 72% de la production des panneaux de fibres; 72% du bois d'oeuvre; et environ 28% du bois imprégné sous pression.

L'industrie primaire du bois employa directement 2354 personnes à plein temps, et indirectement 2277 personnes. Parmi les personnes employées directement, 15% étaient des Amérindiens et des Métis.

La liste de paye en 1972 s'éleva à 10.8 millions de dollars. Le salaire annuel moyen le plus élevé par employé se payait dans l'industrie de pâtes et papiers: $9868, et le plus bas se payait dan l'industrie de la préservation: $7071. Dans le secteur manufacturier: $7560.

Le volume marchand brut debout dans les forêts de la Couronne en Saskatchewan s'élève à 514 millions de m^3 (18.1 milliards de pi^3). Se fondant sur la coupe permissible de 10.3 millions de m^3 (362 millions de pi^3) et comparant la récolte de 1972 de 2.5 millions de m^3 (88 millions

de pi^3), on voit qu'en Saskatchewan, le surplus de bois disponible est estimé a 7.8 millions de m^3 (274 millions de pi^3). Aussi, si on utilisait ce bois non coupé, l'industrie du bois en 1972 aurait pu être trois fois plus importante.

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CHAPTER I

PURPOSE AND APPROACH

This study was requested by the Regional Program Advisory Committee (Northern Forest Research Centre) and the Saskatchewan Department of Tourism and Renewable Resources (formerly the Department of Natural Resources). Its purpose was to better understand the size of Saskatchewan's forest industry and its economic impact on the provincial economy. Indicators used to assess this impact included employment, salaries and wages, sales, products, and value added.

THE PROBLEM

Saskatchewan's forest resources are the responsibility of the provincial government. This responsibility includes management of the timber, forest land, wildlife, and water resources over most of the province. It also includes promoting the development of new forest industry and managing the forest resources to yield increased net benefits to the provincial economy. Because of its expanding role in the economic life of the province, the government needs new information on the economic impacts of forest industry and resource development to make decisions on optimum resource allocation, use, and management. Forest resources are limited. Should they be developed? If they are, who should receive the benefits? At what rate should the forest industry expand? Answers to these and other questions depend largely on the impact the forest industry has on the welfare of Saskatchewan residents.

At present reliable information on the economic impacts of forest industry on Saskatchewan's economy is not available. Data on the number of sawmills, total roundwood harvested, and size of labor force are hardly sufficient for an in-depth assessment of the forest-based industry. Thus the problem is a scarcity of relevant quantitative information. As defined by the study's Ad Hoc Steering Committee, the problem was

> To provide a comprehensive statistical description of some major economic impacts of forestry and forest-based industry to the prairie and local economies for the purpose of more effective utilization and management of forest resources.[1]

OBJECTIVES OF THE STUDY

For Saskatchewan, the objectives of the study were to:

1. describe the land and forest resources of the province
2. identify and describe some of the major product flows from the forest to the consumer including the raw wood requirements of selected product groups
3. identify and estimate the major economic benefits and impacts of the forest resource and its utilization to the province
4. indicate briefly some of the alternative (competitive and complementary) uses of the forest in addition to

[1] Minutes of the first inter-government Ad Hoc Steering Committee meeting held on July 26, 1972.

the production of wood fiber.

This report deals with the first three objectives. As such, it provides a quantitative perspective of the contribution of sawmills and planing mills, pulp and waferboard mills, and wood preserving plants to Saskatchewan's economy. Measuring this contribution requires the selection of specific items or statistics as economic parameters.

SELECTED ECONOMIC IMPACT VARIABLES

Economic impact parameters or variables must be quantifiable and should reflect the more important economic goals of the province. Although such goals are not well defined we have assumed them to include a high and sustained level of full-time employment, increased personal incomes, reasonable price stability, and significant export earnings. Variables that measure these effects can also be examined for their direct and indirect components. For example, when salaries and wages earned by sawmill employees are spent they create additional jobs and income for people working in other sectors of the economy. Demand for foodstuffs, clothing, entertainment, medical care, and transportation, to name a few, depends in large part on the level of basic employment and earnings in the economy. This indirect or multiplier effect may include other secondary processing establishments such as furniture factories.

The selection of economic variables traditionally includes salaries and wages, value added, and number of employees. Because no single item clearly measures all the economic and social impacts policy-makers are concerned with, each study must identify those factors which

best meet its objectives. In this report emphasis was placed on describing the array of inputs used in primary wood-using industries. Within this natural transformation process special emphasis was placed on labor inputs, wood inputs, and types and quantities of products produced.

Seasonality of labor, number of salaried and hourly workers, and native participation in the industry were of particular concern. Similarly, documenting the quantities of board, dimension stock, and timbers produced, as well as their markets and mode of transportation, was necessary to indicate the importance of Saskatchewan lumber production to Saskatchewan consumers.

CLASSIFICATION OF PRIMARY WOOD-USING INDUSTRIES

This report uses specific meanings for the terms "forest products industries" and "forest industry" or "primary wood-using industry". Forest products industries include all industries classified under Major Groups 8 and 10, Division 5 (Manufacturing Industries) of the Standard Industrial Classification Manual (Statistics Canada, 1970). A list of these industries is given in Appendix H. Note that Logging [Major Group 1, Division 2 (Forestry)] is not included in the above definition.

The term "forest industry" (primary wood-using industry) has a more restricted definition in the context of the Northern Forest Research Centre (N.F.R.C.) Wood Industry Survey, 1972. It includes only those firms using roundwood or wood chips in their manufacturing process. Data for the logging industry [Major Group 1,

Division 2 (Forestry)] were included where available and applicable. Primary wood-using industries included in the N.F.R.C. Wood Industry Survey are listed in Table 1. So that there would be confidentiality of data, the waferboard plant was combined with pulp mills for purposes of analysis.

TABLE 1. SASKATCHEWAN N.F.R.C. WOOD INDUSTRY SURVEY, 1972.

Industry	S.I.C. Code
FORESTRY	
Logging	031
WOOD INDUSTRIES	
Sawmills and Planing Mills (Except Shingle Mills)	2513
Wood Preservation Industry	2591
Manufacturers of Particle Board[1] (Waferboard)	2593
PAPER AND ALLIED INDUSTRIES	
Pulp and Paper Mills	271

[1] Combined with Pulp and Paper Mills in this report.

SOURCE: Appendix I.

SAMPLING PROCEDURES AND SURVEY TECHNIQUES

A lack of existing detailed data on the economic variables being considered necessitated a survey of firms in Saskatchewan's forest industry[2]. One of the early recommendations of the Ad Hoc Steering Committee was that this study should go beyond the information provided

[2] Design of questionnaires and data requirements were discussed and cleared through Mr. N. Hartgerink of the Forestry Statistics Section of the Manufacturing and Primary Industries Division of Statistics Canada.

by the Forestry Statistics Section of the Manufacturing and Primary Industries Division of Statistics Canada. This desire for a detailed analysis of the forest industry required a complex questionnaire which in turn required enumeration by personal interview.

The sampling frame (universe of primary wood-using firms) was constructed from the *Directory of Primary Wood-Using Industries in Alberta, Saskatchewan and Manitoba, 1972* (Teskey and Smyth, 1973). Intensity of sampling and success rates in surveying are indicated in Table 2.

TABLE 2. SAMPLE SURVEY OF FOREST INDUSTRIES IN SASKATCHEWAN, 1972

Industry Group	Total No. of Firms	No. in Sample	Surveys Completed	Completion Rate %
Pulp and Flakeboard Mills	3	3	3	100
Wood Preservation Industy	6	6	6	100
Sawmills and Planing Mills				
Class 1. <118 m^3 (<50 Mfbm)	102	15	15	100
Class 2. 118-470 m^3 (50-199 Mfbm)	181	27	27	100
Class 3. 472-2357 m^3 (200-999 Mfbm)	19	19	18	95[1]
Class 4. 2360-11 796 m^3 (1000-4999 Mfbm)	11	11	11	100
Class 5. $\geq$ 11 799 m^3 ($\geq$ 5000 Mfbm)	3	3	3	100
TOTAL	325	84	83	99

[1] One respondent in this class could not be located.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

All of Class 3, 4 and 5 sawmills, pulp and flakeboard mills, and wood preservation plants were surveyed. The 283 sawmills in Classes 1 and 2 required random sampling, which was done with replacement using random number tables. Repeat draws of a sample firm were ignored, thus providing a sample equivalent to one drawn without replacement. Lists of 15 and 27 mills (15% and 15% of Classes 1 and 2) were constructed and surveyed. Survey results were used to estimate totals for all parameters under consideration. Sample size was determined by budget constraints and precision of data required. Location of the firms surveyed is illustrated in Map 1.

Interviewers were given instruction on interpretation of the questionnaire, methods of conducting a proper interview, and the reasons for obtaining data as specified in the forms. This was followed by field training sessions to assure uniformity in interviewing method among enumerators. In general enumerators were well received by industry and field personnel of the Saskatchewan government. The latter were helpful in locating some of the smaller sawmill operations.

Interviewing commenced in July 1973 after questionnaires had been developed, field tested, and modified[3]. Early returns were monitored to identify any problems with the questionnaires being used, but none were found. All field questionnaires were given a preliminary audit for internal consistency and accuracy as completed. Initial interviewing was completed by February 1974, with late returns and resolution of data inconsistencies completed by June 1974.

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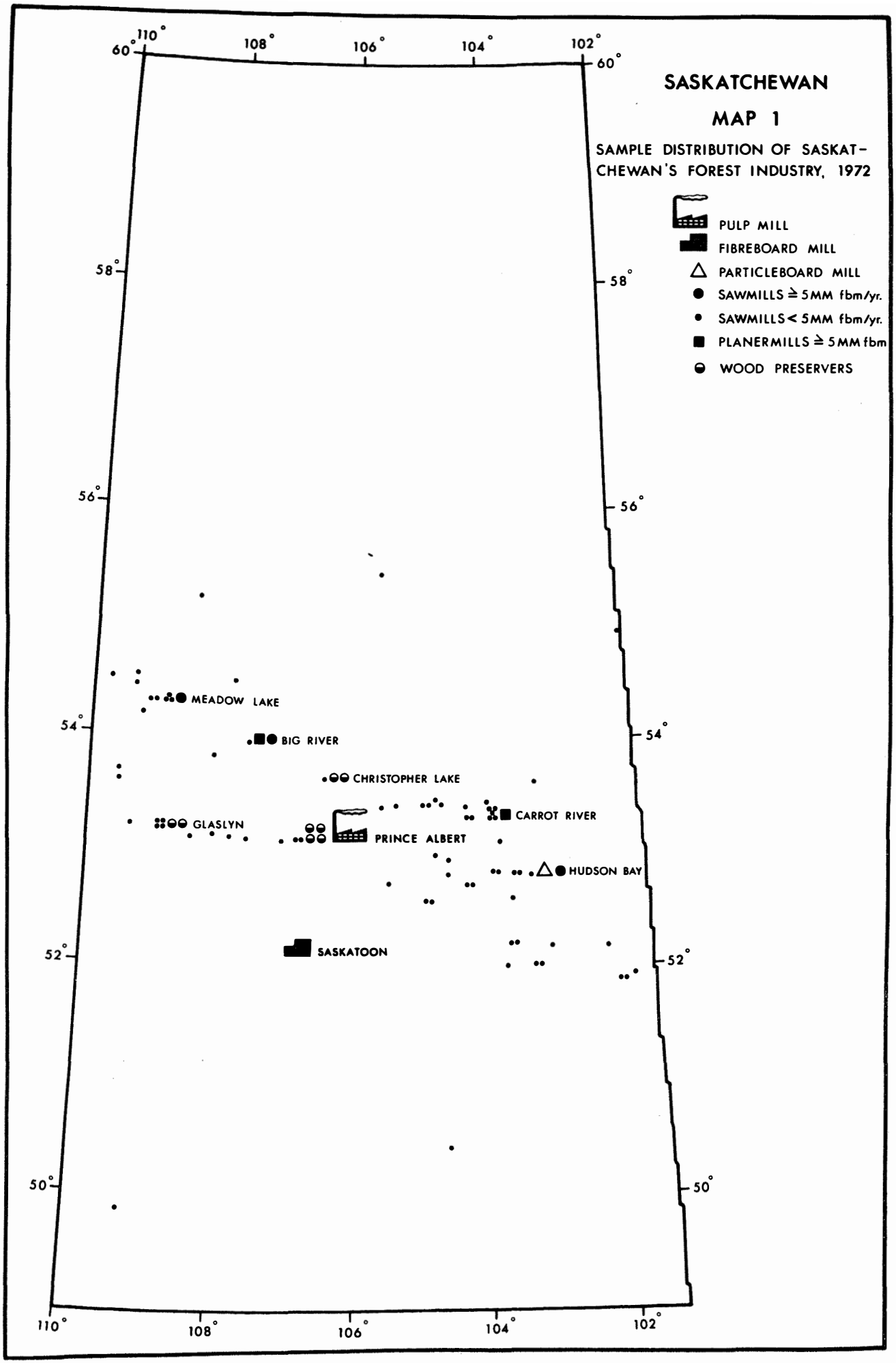
[3] Copies of questionnaires used are available upon request.


SASKATCHEWAN
MAP 1
SAMPLE DISTRIBUTION OF SASKATCHEWAN'S FOREST INDUSTRY, 1972
PULP MILL
FIBREBOARD MILL
PARTICLEBOARD MILL
SAWMILLS ≥ 5MM fbm/yr.
SAWMILLS < 5MM fbm/yr.
PLANERMILLS ≥ 5MM fbm
WOOD PRESERVERS
MEADOW LAKE
BIG RIVER
CHRISTOPHER LAKE
GLASLYN
PRINCE ALBERT
CARROT RIVER
HUDSON BAY
SASKATOON
60°
58°
56°
54°
52°
50°
110°
108°
106°
104°
102°

An overall completion rate of 99% provided almost complete coverage of the samples (Table 2). Coupled with census enumerations of all larger firms the results are believed to accurately reflect the actual status of the forest industry.

ANALYTICAL PROCEDURES

Analysis of questionnaires consisted of two phases after the preliminary audit following the interview. First, each questionnaire was subjected to a detailed and comprehensive audit for internal consistency. Where inconsistencies were revealed, call-backs (either in person or by telephone) were made in an effort to resolve them. In some instances important additional information was collected. Secondly, after individual questionnaires were audited, group totals[4] and summaries of data for all industry groups were compiled. Many of the tables appearing in the Appendixes were constructed from these summaries.

Data were collected in Canadian units, requiring conversion to metric units prior to publication in keeping with Canadian Forestry Service policy. Metric conversion was carried out on data in the appendixes at the most disaggregated level. Totals and subtotals were summed after conversion and not converted directly into metric equivalents.

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[4] Except where samples were 100% of the universe, estimates of population parameters were made by expanding the sample statistics in the same proportion as the sample size was of the universe.

CHAPTER II

THE RELATIVE IMPORTANCE OF WOOD-USING INDUSTRIES IN SASKATCHEWAN'S ECONOMY

FOREST INDUSTRY DEVELOPMENT IN SASKATCHEWAN

Historically, the area that is now Saskatchewan was controlled by the Hudson's Bay Company from 1670 to 1870, the Dominion of Canada from 1870 to 1905, and the Province of Saskatchewan since 1905 (Saskatchewan Department of Natural Resources, 1959). Control of the region's natural resources, including forestry, remained with the federal government until 1930 when it was transferred to the province.

Southern grasslands in Saskatchewan were being broken for wheat production by 1885 and by 1900 homesteading had moved north into the forested areas. Forests growing on suitable agricultural land were cut, stumps pulled, and wood burned. For the next 40 years forest fires (both accidental and deliberate) devastated large areas of the province's southern forests. For example, in 1937 fires burned over 809 000 ha (2 million acres) with a timber loss of $400 000 (Saskatchewan Department of Natural Resources, 1959). Simultaneously the sawmill industry overcut some species and areas, especially white spruce. When large stands of spruce bordering rail and water ways were cut, big mill operations closed down and smaller portable units took over.

However, even with this relatively wasteful exploitation of Saskatchewan's accessible timber from 1900 to 1940 large volumes remained for emergency production during World War II. Annual harvests averaged 307 000 m^3 (130 million board feet) annually during this period. After

the war a provincial forest inventory complemented new forest management regulations and helped to govern use of the province's forests so that sustained yield management could be achieved.

Saskatchewan's economic history is that of a one-product economy--wheat. Even by 1953 81% of the province's total net production was from agricultural products (Mathias, 1971). During the early 60's development of potash mining added a second commodity. When world prices for both wheat and potash fell in 1969 and 1970 the province's economic vulnerability and need for more diversification were re-emphasized. In an effort to provide diversification the provincial government invested in its first major pulp mill (Prince Albert Pulp Ltd.) which came into operation in mid-1968. During this period two new sawmills and a waferboard plant expanded the contribution of forest products industries to the provincial economy.

These new developments increased demand for roundwood (Table 28, Chapter 3), particularly pulpwood. From 1960 to 1972 total roundwood production from provincial crown lands almost quadrupled while pulpwood production increased by more than 22 times. During this period sawtimber production only doubled in volume and dropped from its dominant position to one of secondary importance in relation to pulpwood. New job opportunities, service industries, and forest management procedures such as clear-cutting were also created. These, in turn, have generated new problems for policy-maker and forest manager alike.

SASKATCHEWAN'S FOREST PRODUCTS INDUSTRIES, A PERSPECTIVE

Where does Saskatchewan's forest products industry stand today in relation to Canadian forest industry? What is its position in the Saskatchewan economy? The latest data available are for the years 1971 and 1972. In 1971 Canada's forest products industries employed 258 840 people, paid $2.1 billion in salaries and wages, and produced almost $8.0 billion in sales (Environment Canada, 1974). With a value added of $3.5 billion, or 44% of sales, this output generated nearly $3.1 billion in foreign exchange. Exports of wood, wood products, and paper represented 18% of all Canadian exports. Since Canada imports very little of these products, the forestry sector, more than most people realize, is very important as a net earner of foreign exchange.

In spite of its absolute national importance the forest products industries' real domestic product has grown at a relatively slow rate since 1961, particularly logging and the paper and allied industry (Table 3). The logging industry (forestry), with the exception of agriculture and fishing and trapping, had the smallest increase in real domestic product. Pulp and paper grew somewhat faster but was still in the bottom half of the commodity group. On the other hand, the wood industries group performed much better, increasing output by 71 points from 1961-1971 and an additional 18 points in both 1972 and 1973. This performance placed them above the economy average which had an index of 175, 185, and 197 in 1971, 1972, and 1973, respectively. During the 60's the sawmill and planing mill industry recorded the highest real growth rates of any major primary wood-using industry. It even out performed service-producing industry groups.

TABLE 3. INDEXES OF REAL DOMESTIC PRODUCT[1] BY INDUSTRY FOR CANADA, 1971, 1972, AND 1973

SIC		1971	1972	1973
1-11	Real Domestic Product	175.4	184.5	197.2
1-6, 7:04	Goods-producing industries	177.5	185.8	200.4
1	Agriculture	152.7	140.8	142.3
2	Forestry	129.7	129.0	158.0
3	Fishing and trapping	110.0	102.4	102.7
4	Mines (includes milling), quarries and oil wells	183.1	192.2	210.5
5	Manufacturing	183.3	195.8	211.9
5:10	Paper and Allied Industries	140.5	152.7	160.1
5:271	Pulp and Paper Mills	134.3	146.4	153.9
5:08	Wood Industries	170.7	188.9	207.0
5:251	Sawmills and planing mills	183.2	202.4	223.5
5:252	Veneer and plywood mills	167.4	185.6	200.7
6	Construction	165.6	166.5	177.9
7:04	Electric power, gas and water utilities	208.2	229.4	247.2
7:01-:03, 8-11	Service-producing industries	173.6	183.6	194.7
7:01-:03	Transportation; storage and communication	184.3	198.8	216.7
8	Trade	170.6	182.6	192.5
9	Finance, insurance and real estate	176.9	186.0	197.4
10	Community, business and personal service industries	187.6	194.8	202.7
11	Public administration and defence	132.4	138.9	148.9

[1] Base year was 1961 = 100. These indexes have been adjusted for price changes and represent industry changes in real production.

SOURCE: Statistics Canada, Indexes of Real Domestic Product by Industry, Catalogue 61-005, Monthly, 1974 Supplement, June 1974.

In Saskatchewan combined logging and forest products industries accounted for an insignificant portion of the province's Gross Domestic Product (G.D.P.). For 1972, Saskatchewan's G.D.P. was estimated at $3354 million, with the service-producing sector providing about 48% on a value-added basis, and the goods-producing industries supplying the remaining 52% (Figure 1).

The combined value added of logging and the wood industries at $32 million was only 1% of Saskatchewan's G.D.P. in 1972. A corresponding figure for the contribution of logging, wood, and paper and allied industries to the province's G.D.P. cannot be determined because of confidential information in the paper and allied industries group. In relation to the goods-producing sector which has a value of $1741 million, the logging and wood industries combined represented 2%. The forest products industries' share (logging excluded) of manufacturing value added is again indeterminate; however, the figure must exceed the 10% arising from the wood industries alone.

Agriculture clearly dominated Saskatchewan's goods-producing industries in 1972, with 46% of all manufacturing value added (Table 4). Mining followed with 20%, and construction and manufacturing were nearly equal at 15 and 14%, respectively. Forestry was insignificant at 0.4%. This breakdown of the goods-producing sector's value added emphasizes the heavy reliance of Saskatchewan on the agriculture and mining sectors, and illustrates why diversification into forest products industries is an important alternative.

FIG. 1 The Relative Position of SASKATCHEWAN'S FOREST PRODUCTS INDUSTRIES in 1972

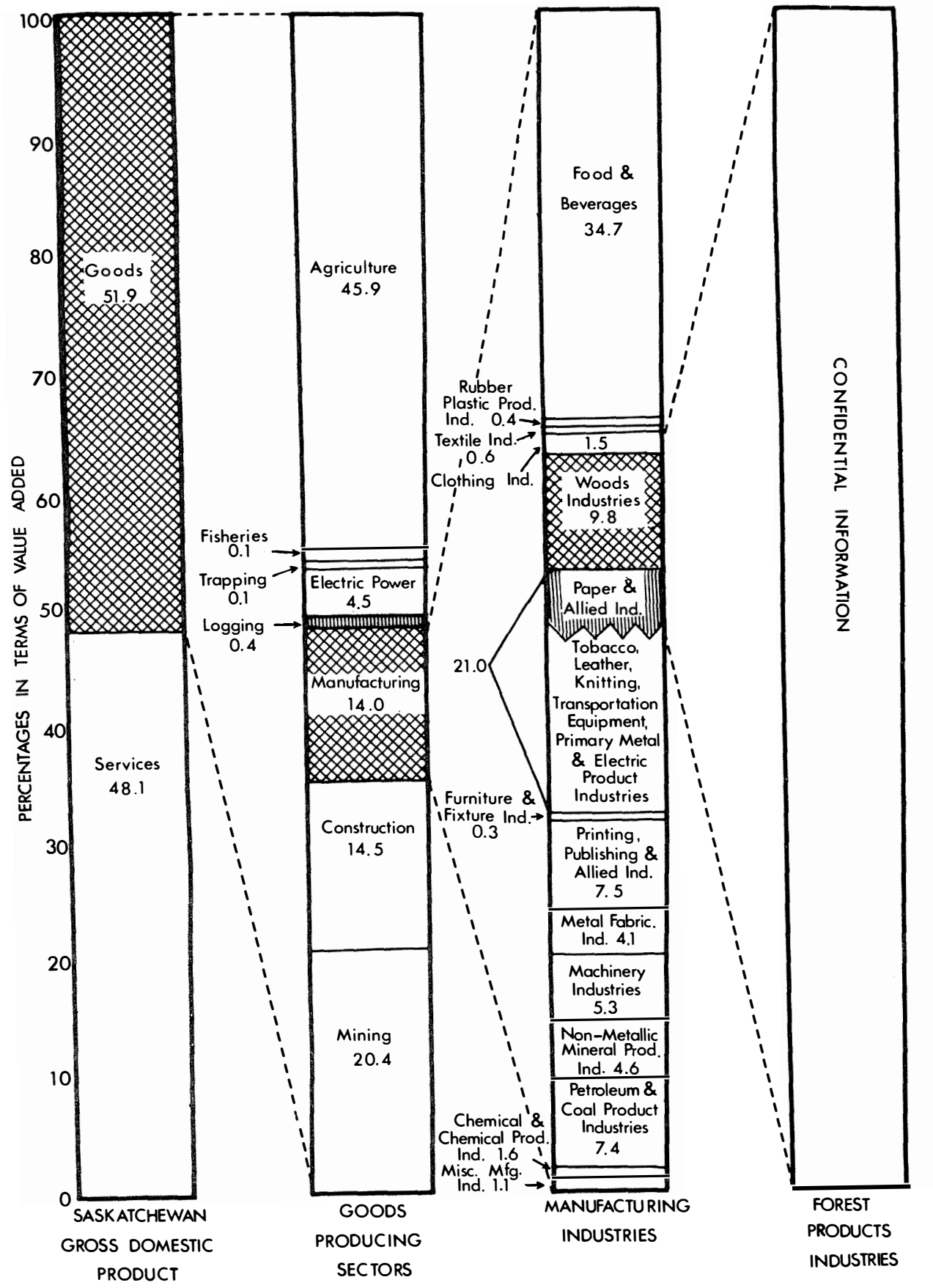

TABLE 4. CENSUS VALUE ADDED IN GOODS-PRODUCING INDUSTRIES AND RELATIVE SHARES, SASKATCHEWAN, 1971 AND 1972

Goods-producing industries	Census value added 1971 $'000	1971 %	1972 $'000	1972 %
Agriculture	801 762	47.8	798 852	45.9
Forestry[1] (logging)	6 649	0.4	7 679	0.4
Fisheries	1 802	0.1	1 634	0.1
Trapping	1 317	0.1	2 103	0.1
Mining	348 321	20.8	355 820	20.4
Electric Power	75 246	4.5	78 135	4.5
Manufacturing[2]	209 965	12.5	244 221	14.0
Construction	231 115	13.8	252 642	14.5
Total goods-producing industries	1 676 177	100.0	1 741 086	100.0
(Corresponding totals for Canada)	(38 921 156)		(43 363 889)	

[1] Forestry data excludes stumpage.

[2] Includes the Wood Industries group (SIC 5:08 - sawmills, planing mills, plywood mills, etc.) and the Paper and Allied Industries group (SIC 5:10 - pulp and paper mills, etc.). Consult the Standard Industrial Classification (SIC) manual for a complete listing of industries included.

SOURCE: Statistics Canada, Survey of Production, Catalogue 61-202, annual, Ottawa, 1972.

A detailed examination of Saskatchewan's manufacturing industry groups using five major statistics for comparative purposes reveals several significant features (Tables 5, 6, 7, 8, and 9). The five basic criteria used in this particular investigation were

1. value of shipments of goods of own manufacture
2. value added by manufacturing activity
3. value added on a total activity basis

TABLE 5. VALUE OF SHIPMENTS OF GOODS OF OWN MANUFACTURE OF THE MANUFACTURING INDUSTRIES OF SASKATCHEWAN AND CANADA BY INDUSTRY GROUP, 1972

Industry Group	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
Wood Inds.	43 823	6.8	3 084 899	5.5
Paper & Allied Inds.	X	X	4 414 017	7.9
Sub total	X	X	7 498 916	13.3
Food & Beverage Inds.	302 294	46.8	10 244 826	18.2
Tobacco Products Inds.	-	-	596 236	1.1
Rubber & Plastic Products Inds.	2 456	0.4	1 317 310	2.3
Leather Inds.	X	X	443 389	0.8
Textile Inds.	2 273	0.4	1 887 430	3.4
Knitting Mills	-	-	470 083	0.8
Clothing Inds.	8 241	1.3	1 644 606	2.9
Furniture & Fixture Inds.	1 585	0.2	958 348	1.7
Printing, Publishing & Allied Inds.	26 033	4.0	1 853 532	3.3
Primary Metal Inds.	X	X	4 193 421	7.5
Metal Fabricating Inds.	20 804	3.2	3 821 990	6.8
Machinery Inds.	21 532	3.3	2 134 648	3.8
Transportation Equipment Inds.	X	X	7 747 271	13.8
Electrical Products Inds.	X	X	3 062 536	5.5
Non-Metallic Mineral Products Inds.	21 321	3.3	1 665 455	3.0
Petroleum & Coal Products Inds.	75 019	11.6	2 441 065	4.3
Chemical & Chemical Products Inds.	8 682	1.3	2 943 118	5.2
Miscellaneous Manufacturing Inds.	4 630	0.7	1 267 828	2.3
Sub total	X	X	48 693 092	86.7
Total all Industry Groups[1]	645 959	100.0	56 192 009	100.0

[1] Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1972 Annual Census of Manufacturers, (preliminary), Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P, Ottawa, August, 1974.

TABLE 6. VALUE ADDED BY MANUFACTURING ACTIVITY OF THE MANUFACTURING INDUSTRIES OF SASKATCHEWAN AND CANADA BY INDUSTRY GROUP, 1972

Industry Group	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
Wood Inds.	23 894	9.8	1 397 320	5.8
Paper & Allied Inds.	X	X	1 928 434	7.9
Sub total	X	X	3 325 754	13.7
Food & Beverage Inds.	84 668	34.7	3 470 445	14.3
Tobacco Products Inds.	-	-	252 091	1.0
Rubber & Plastic Products Inds.	981	0.4	719 828	3.0
Leather Inds.	X	X	214 226	0.9
Textile Inds.	1 546	0.6	836 937	3.4
Knitting Mills	-	-	218 950	0.9
Clothing Inds.	3 674	1.5	788 878	3.2
Furniture & Fixture Inds.	751	0.3	496 173	2.0
Printing, Publishing & Allied Inds.	18 337	7.5	1 239 417	5.1
Primary Metal Inds.	X	X	1 917 318	7.9
Metal Fabricating Inds.	9 993	4.1	1 962 345	8.1
Machinery Inds.	12 969	5.3	996 776	4.1
Transportation Equipment Inds.	X	X	2 631 462	10.8
Electrical Products Inds.	X	X	1 553 347	6.4
Non-Metallic Mineral Products Inds.	11 251	4.6	973 218	4.0
Petroleum & Coal Products Inds.	18 079	7.4	462 565	1.9
Chemical & Chemical Products Inds.	3 822	1.6	1 524 064	6.3
Miscellaneous Manufacturing Inds.	2 677	1.1	708 352	2.9
Sub total	X	X	20 966 392	86.3
Total all Industry Groups[1]	244 221	100.0	24 292 148	100.0

[1] Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1972 Annual Census of Manufacturers, (preliminary), Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P, Ottawa, August, 1974.

TABLE 7. VALUE ADDED ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF SASKATCHEWAN AND CANADA BY INDUSTRY GROUP, 1972

Industry Group	Saskatchewan		Canada	
	$'000	%	$'000	%
Wood Inds.	24 810	9.7	1 422 423	5.5
Paper & Allied Inds.	X	X	1 961 576	7.5
Sub total	X	X	3 383 999	13.0
Food & Beverage Inds.	91 398	35.6	3 689 605	14.2
Tobacco Products Inds.	-	-	254 645	1.0
Rubber & Plastic Products Inds.	1 161	0.5	762 823	2.9
Leather Inds.	X	X	224 234	0.9
Textile Inds.	1 579	0.6	862 211	3.3
Knitting Mills	-	-	218 299	0.8
Clothing Inds.	3 642	1.4	800 840	3.1
Furniture & Fixture Inds.	787	0.3	505 673	1.9
Printing, Publishing & Allied Inds.	18 441	7.2	1 263 749	4.9
Primary Metal Inds.	X	X	1 960 592	7.5
Metal Fabricating Inds.	12 733	5.0	2 049 396	7.9
Machinery Inds.	13 029	5.1	1 144 875	4.4
Transportation Equipment Inds.	X	X	3 150 950	12.1
Electrical Products Inds.	X	X	1 787 865	6.9
Non-Metallic Mineral Products Inds.	11 977	4.7	1 010 146	3.9
Petroleum & Coal Products Inds.	18 326	7.1	465 518	1.8
Chemical & Chemical Products Inds.	4 071	1.6	1 676 041	6.4
Miscellaneous Manufacturing Inds.	3 044	1.2	802 803	3.1
Sub total	X	X	22 630 265	87.0
Total all Industry Groups[1]	256 828	100.0	26 014 264	100.0

[1] Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1972 Annual Census of Manufacturers, (preliminary), Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P, Ottawa, August, 1974.

TABLE 8. EMPLOYMENT ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF SASKATCHEWAN AND CANADA BY INDUSTRY GROUP, 1972

Industry Group	Saskatchewan		Canada	
	No.	%	No.	%
Wood Inds.	1 228	7.9	102 699	6.1
Paper & Allied Inds.	X	X	120 758	7.2
Sub total	X	X	223 457	13.3
Food & Beverage Inds.	5 979	38.5	220 184	13.1
Tobacco Products Inds.	-	-	9 525	0.6
Rubber & Plastic Products Inds.	93	0.6	49 098	2.9
Leather Inds.	X	X	27 238	1.6
Textile Inds.	124	0.8	73 304	4.4
Knitting Mills	-	-	24 732	1.5
Clothing Inds.	447	2.9	102 012	6.1
Furniture & Fixture Inds.	81	0.5	46 942	2.8
Printing, Publishing & Allied Inds.	1 549	10.0	86 071	5.1
Primary Metal Inds.	X	X	113 958	6.8
Metal Fabricating Inds.	1 037	6.7	138 309	8.3
Machinery Inds.	869	5.6	77 437	4.6
Transportation Equipment Inds.	X	X	158 105	9.4
Electrical Products Inds.	X	X	121 135	7.2
Non-Metallic Mineral Products Inds.	660	4.2	53 087	3.2
Petroleum & Coal Products Inds.	447	2.9	15 409	0.9
Chemical & Chemical Products Inds.	197	1.3	74 731	4.5
Miscellaneous Manufacturing Inds.	303	1.9	60 085	3.6
Sub total	X	X	1 451 362	86.8
Total all Industry Groups[1]	15 549	100.0	1 674 819	100.0

[1] Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1972 Annual Census of Manufacturers, (preliminary), Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P, Ottawa, August, 1974.

TABLE 9. SALARIES AND WAGES ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF SASKATCHEWAN AND CANADA BY INDUSTRY GROUP, 1972

Industry Group	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
Wood Inds.	9 354	8.0	770 902	5.8
Paper & Allied Inds.	X	X	1 135 298	8.5
Sub total	X	X	1 906 200	14.2
Food & Beverage Inds.	43 738	37.2	1 593 301	11.9
Tobacco Products Inds.	-	-	82 540	0.6
Rubber & Plastic Products Inds.	734	0.6	372 587	2.8
Leather Inds.	X	X	145 694	1.1
Textile Inds.	785	0.7	474 585	3.5
Knitting Mills	-	-	127 626	1.0
Clothing Inds.	2 118	1.8	514 281	3.8
Furniture & Fixture Inds.	429	0.4	299 296	2.2
Printing, Publishing & Allied Inds.	10 587	9.0	712 463	5.3
Primary Metal Inds.	X	X	1 108 809	8.3
Metal Fabricating Inds.	7 627	6.5	1 150 517	8.6
Machinery Inds.	5 757	4.9	676 016	5.0
Transportation Equipment Inds.	X	X	1 517 008	11.3
Electrical Products Inds.	X	X	965 915	7.2
Non-Metallic Mineral Products Inds.	5 087	4.3	458 227	3.4
Petroleum & Coal Products Inds.	4 647	4.0	186 037	1.4
Chemical & Chemical Products Inds.	1 700	1.4	697 117	5.2
Miscellaneous Manufacturing Inds.	1 872	1.6	417 134	3.1
Sub total	X	X	11 499 153	85.8
Total all Industry Groups[1]	117 553	100.0	13 405 353	100.0

[1] Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1972 Annual Census of Manufacturers, (preliminary), Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P, Ottawa, August, 1974.

4. employment on a total activity basis

5. salaries and wages on a total activity basis.

Corresponding national figures are provided in each case as a means of documenting the relative importance of Saskatchewan's manufacturing to that of Canada.

Regardless of the indicator examined, food and beverage industries clearly played a dominant role within Saskatchewan manufacturing, representing between 34.7% and 46.8% of provincial manufacturing. In the 20 manufacturing industry groups, the wood industries ranked 3rd, 2nd, 2nd, 3rd, and 3rd, respectively in terms of the five statistical indicators. Similar comparisons for the paper and allied industries were impossible, due to confidential information.

Saskatchewan's manufacturing sector accounted for 1% of the Canadian total based on value of shipments (Table 5). Other principal statistics show similar relationships (Tables 6, 7, 8, and 9). Using these parameters, Saskatchewan's wood industries group on the average represented 1.5% of the national figure. (Paper and allied industries' percentages were impossible to calculate.)

Each of the five principal statistics examined for Saskatchewan revealed that its forest products industries' share of total manufacturing was indeterminate (Table 10). One can only say that the share accruing to the forest products industries must be greater than the percentage shown for the wood industries alone, thereby establishing a minimum for the total forest products industry group. No definite conclusion as to which component of the forest products industry dominates can be drawn.

TABLE 10. COMPARISON OF FIVE PRINCIPAL STATISTICS OF THE FOREST PRODUCTS INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

Selected Principal Statistic	Percent of Respective Manufacturing Industry	
	Saskatchewan	Canada
Value of shipments of own manufacture		
Wood Industries	6.8	5.5
Paper and Allied Industries	X	7.9
Total	X	13.3
Value added by manufacturing activity		
Wood Industries	9.8	5.8
Paper and Allied Industries	X	7.9
Total	X	13.7
Value added on a total activity basis		
Wood Industries	9.7	5.5
Paper and Allied Industries	X	7.5
Total	X	13.0
Employment on a total activity basis		
Wood Industries	7.9	6.1
Paper and Allied Industries	X	7.2
Total	X	13.3
Salaries and wages on a total activity basis		
Wood Industries	8.0	5.8
Paper and Allied Industries	X	8.5
Total	X	14.2

X Confidential

SOURCE: Tables 5, 6, 7, 8, and 9.

A breakdown of the wood industries and paper and allied industries at the S.I.C. three- and four-digit level is provided in Tables 11 through 15. A comparison of these codes with those of the primary wood-using industries surveyed and reported on in this study (establishments which utilized roundwood or wood chips in their manufacturing processes) will help the reader relate the study's findings to the data presented

TABLE 11. VALUE OF SHIPMENTS OF GOODS OF OWN MANUFACTURE OF LOGGING, WOOD, PAPER AND ALLIED INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

S.I.C. No.	Industry	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
031	Logging	19 695	100	1 872 572	100
Major Group 8	Wood Industries[1]	43 823	100	3 084 899	100
2511	Shingle Mills	-	-	55 657	1.8
2513	Sawmills & Planing Mills	20 799	47.5	1 893 573	61.4
252	Veneer & Plywood Mills	-	-	393 336	12.8
2541	Sash, Door & Other Millwork Plants	2 778	6.3	290 516	9.4
2542	Hardwood Flooring Plants	-	-	26 949	0.9
2543	Mfs. of Pre-Fab. Bldgs.	6 435	14.7	128 077	4.2
2544	Mfs. of Wooden Kitchen Cabs.	X	X	63 356	2.1
256	Wooden Box Factories	X	X	62 295	2.0
258	Coffin and Casket Industry	-	-	18 422	0.6
259	Miscellaneous Wood Inds.[2]	X	X	152 719	5.0
Major Group 10	Paper and Allied Inds.[3]	X	100	4 414 017	100
271	Pulp and Paper Mills	X	X	3 127 821	70.7
272	Asphalt Roofing Mfs.	-	-	62 572	1.4
2731	Folding Carton & Set-up Box Mfs.	X	X	214 355	4.9
2732	Corrugated Box Mfs.	X	X	345 291	7.8
2733	Paper and Plastic Bag Mfs.	X	X	210 958	4.8
274	Miscellaneous Paper Converters	X	X	453 020	10.3

[1] Wood Industries include S.I.C. 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

[2] Miscellaneous Wood Industries include S.I.C. 2591, 2592, 2593, 2599.

[3] Paper and Allied Industries include S.I.C. 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Numbers 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

TABLE 12. VALUE ADDED BY MANUFACTURING ACTIVITY OF LOGGING, WOOD, PAPER AND ALLIED INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

S.I.C. No.	Industry	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
031	Logging	7 678	100	814 264	100
Major Group 8	Wood Industries[1]	23 894	100	1 397 320	100
2511	Shingle Mills	-	-	29 105	2.1
2513	Sawmills & Planing Mills	12 639	52.9	864 865	61.8
252	Veneer & Plywood Mills	-	-	181 920	13.0
2541	Sash, Door & Other Millwork Plants	1 469	6.2	122 781	8.8
2542	Hardwood Flooring Plants	-	-	10 429	0.8
2543	Mfs. of Pre-Fab. Bldgs.	1 523	6.4	42 381	3.0
2544	Mfs. of Wooden Kitchen Cabs.	X	X	33 799	2.4
256	Wooden Box Factories	X	X	30 218	2.2
258	Coffin and Casket Industry	-	-	9 988	0.7
259	Miscellaneous Wood Inds.[2]	X	X	71 833	5.1
Major Group 10	Paper and Allied Inds.[3]	X	100	1 928 434	100
271	Pulp and Paper Mills	X	X	1 374 129	71.2
272	Asphalt Roofing Mfs.	-	-	28 219	1.5
2731	Folding Carton & Set-up Box Mfs.	X	X	98 353	5.1
2732	Corrugated Box Mfs.	X	X	135 318	7.0
2733	Paper and Plastic Bag Mfs.	X	X	79 423	4.1
274	Miscellaneous Paper Converters	X	X	212 992	11.0

[1] Wood Industries include S.I.C. 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

[2] Miscellaneous Wood Industries include S.I.C. 2591, 2592, 2593, 2599.

[3] Paper and Allied Industries include S.I.C. 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Numbers 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

TABLE 13. VALUE ADDED ON A TOTAL ACTIVITY BASIS OF LOGGING, WOOD, PAPER AND ALLIED INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

S.I.C. No.	Industry	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
031	Logging	7 689	100	829 421	100
Major Group 8	Wood Industries[1]	24 810	100	1 422 423	100
2511	Shingle Mills	-	-	29 178	2.0
2513	Sawmills & Planing Mills	12 894	52.0	869 320	61.1
252	Veneer & Plywood Mills	-	-	186 555	13.1
2541	Sash, Door & Other Millwork Plants	1 571	6.3	130 099	9.1
2542	Hardwood Flooring Plants	-	-	10 545	0.7
2543	Mfs. of Pre-Fab. Bldgs.	2 068	8.3	49 519	3.5
2544	Mfs. of Wooden Kitchen Cabs.	X	X	33 867	2.4
256	Wooden Box Factories	X	X	30 385	2.1
258	Coffin and Casket Industry	-	-	10 301	0.7
259	Miscellaneous Wood Inds.[2]	X	X	72 654	5.1
Major Group 10	Paper and Allied Inds.[3]	X	100	1 961 576	100
271	Pulp and Paper Mills	X	X	1 380 052	70.2
272	Asphalt Roofing Mfs.	-	-	30 997	1.6
2731	Folding Carton & Set-up Box Mfs.	X	X	99 257	5.1
2732	Corrugated Box Mfs.	X	X	134 866	6.9
2733	Paper and Plastic Bag Mfs.	X	X	85 675	4.4
274	Miscellaneous Paper Converters	X	X	230 729	11.8

[1] Wood Industries includes S.I.C. 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

[2] Miscellaneous Wood Industries include S.I.C. 2591, 2592, 2593, 2599.

[3] Paper and Allied Industries include S.I.C. 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Numbers 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

TABLE 14. EMPLOYMENT ON A TOTAL ACTIVITY BASIS OF LOGGING, WOOD, PAPER AND ALLIED INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

S.I.C. No.	Industry	Saskatchewan No.	Saskatchewan %	Canada No.	Canada %
031	Logging	626	100	47 553	100
Major Group 8	Wood Industries[1]	1 228	100	102 699	100
2511	Shingle Mills	-	-	1 798	1.8
2513	Sawmills & Planing Mills	531	43.2	57 111	55.6
252	Veneer & Plywood Mills	-	-	13 664	13.3
2541	Sash, Door & Other Millwork Plants	122	9.9	11 150	10.9
2542	Hardwood Flooring Plants	-	-	1 258	1.2
2543	Mfs. of Pre-Fab. Bldgs.	223	18.2	4 049	3.9
2544	Mfs. of Wooden Kitchen Cabs.	X	X	3 090	3.0
256	Wooden Box Factories	X	X	3 218	3.1
258	Coffin and Casket Industry	-	-	1 202	1.2
259	Miscellaneous Wood Inds.[2]	X	X	6 159	6.0
Major Group 10	Paper and Allied Inds.[3]	X	100	120 758	100
271	Pulp and Paper Mills	X	X	78 969	65.4
272	Asphalt Roofing Mfs.	-	-	1 277	1.1
2731	Folding Carton & Set-up Box Mfs.	X	X	8 012	6.6
2732	Corrugated Box Mfs.	X	X	10 129	8.4
2733	Paper and Plastic Bag Mfs.	X	X	6 194	5.1
274	Miscellaneous Paper Converters	X	X	16 177	13.4

[1] Wood Industries include S.I.C. 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

[2] Miscellaneous Wood Industries include S.I.C. 2591, 2592, 2593, 2599.

[3] Paper and Allied Industries include S.I.C. 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada. Catalogue Numbers 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

TABLE 15. SALARIES AND WAGES ON A TOTAL ACTIVITY BASIS OF LOGGING, WOOD, PAPER AND ALLIED INDUSTRIES IN SASKATCHEWAN AND CANADA, 1972

S.I.C. No.	Industry	Saskatchewan $'000	Saskatchewan %	Canada $'000	Canada %
031	Logging	5 182	100	457 586	100
Major Group 8	Wood Industries[1]	9 354	100	770 902	100
2511	Shingle Mills	-	-	16 407	2.1
2513	Sawmills & Planing Mills	4 122	44.1	447 712	58.1
252	Veneer & Plywood Mills	-	-	108 209	14.0
2541	Sash, Door & Other Millwork Plants	776	8.3	73 804	9.6
2542	Hardwood Flooring Plants	-	-	7 261	0.9
2543	Mfs. of Pre-Fab. Bldgs.	1 405	15.0	28 651	3.7
2544	Mfs. of Wooden Kitchen Cabs.	X	X	21 634	2.8
256	Wooden Box Factories	X	X	19 198	2.5
258	Coffin and Casket Industry	-	-	7 370	1.0
259	Miscellaneous Wood Inds.[2]	X	X	40 656	5.3
Major Group 10	Paper and Allied Inds.[3]	X	100	1 135 298	100
271	Pulp and Paper Mills	X	X	808 869	71.2
272	Asphalt Roofing Mfs.	-	-	11 776	1.0
2731	Folding Carton & Set-up Box Mfs.	X	X	60 375	5.3
2732	Corrugated Box Mfs.	X	X	83 702	7.4
2733	Paper and Plastic Bag Mfs.	X	X	46 627	4.1
274	Miscellaneous Paper Converters	X	X	123 950	10.9

[1] Wood Industries include S.I.C. 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

[2] Miscellaneous Wood Industries include S.I.C. 2591, 2592, 2593, 2599.

[3] Paper and Allied Industries S.I.C. 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada. Catalogue Numbers 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

in this chapter. These tables also provide ample illustration of a problem facing users of Statistics Canada information for detailed analysis of an industry having few respondents in a given province. As clearly illustrated in Tables 11-15, requirements of confidentiality resulted in data being suppressed for the entire paper and allied industry, while roughly 30-35% of the data on wood industries was withheld. Given this acute lack of relevant data, decisions concerning the desirability of utilizing a particular natural resource, in this case Saskatchewan's forests, are even more difficult to make. Thus present sources of data on Saskatchewan's forest products industry are inadequate for even a preliminary analysis.

SOME STRUCTURAL FEATURES OF SASKATCHEWAN'S FOREST INDUSTRY

Like most provinces, Saskatchewan's forest industries include the very large, sophisticated plants and the very small, rudimentary operations. The sawmill and planing mill industry provides the best example, for mill capacity (production per 8-h shift) ranges from 2000 fbm to 180 000 fbm per shift, with the average shift capacity being less than 5000 fbm (Figure 2).

A distribution of forest industry firms among industry groups is provided in Table 16. Small mills and plants dominate in numbers with a few large firms accounting for most of the output (Table 17). The three largest sawmills were responsible for 85% of the industry's production, while at the other end of the spectrum, 42 of the smaller mills (13.3% of the total number of sawmills) accounted for a mere 0.6%.

FIG. 2 DISTRIBUTION OF SAWMILLS IN SASKATCHEWAN BY RATED CAPACITY PER 8 HOUR SHIFT IN 1972

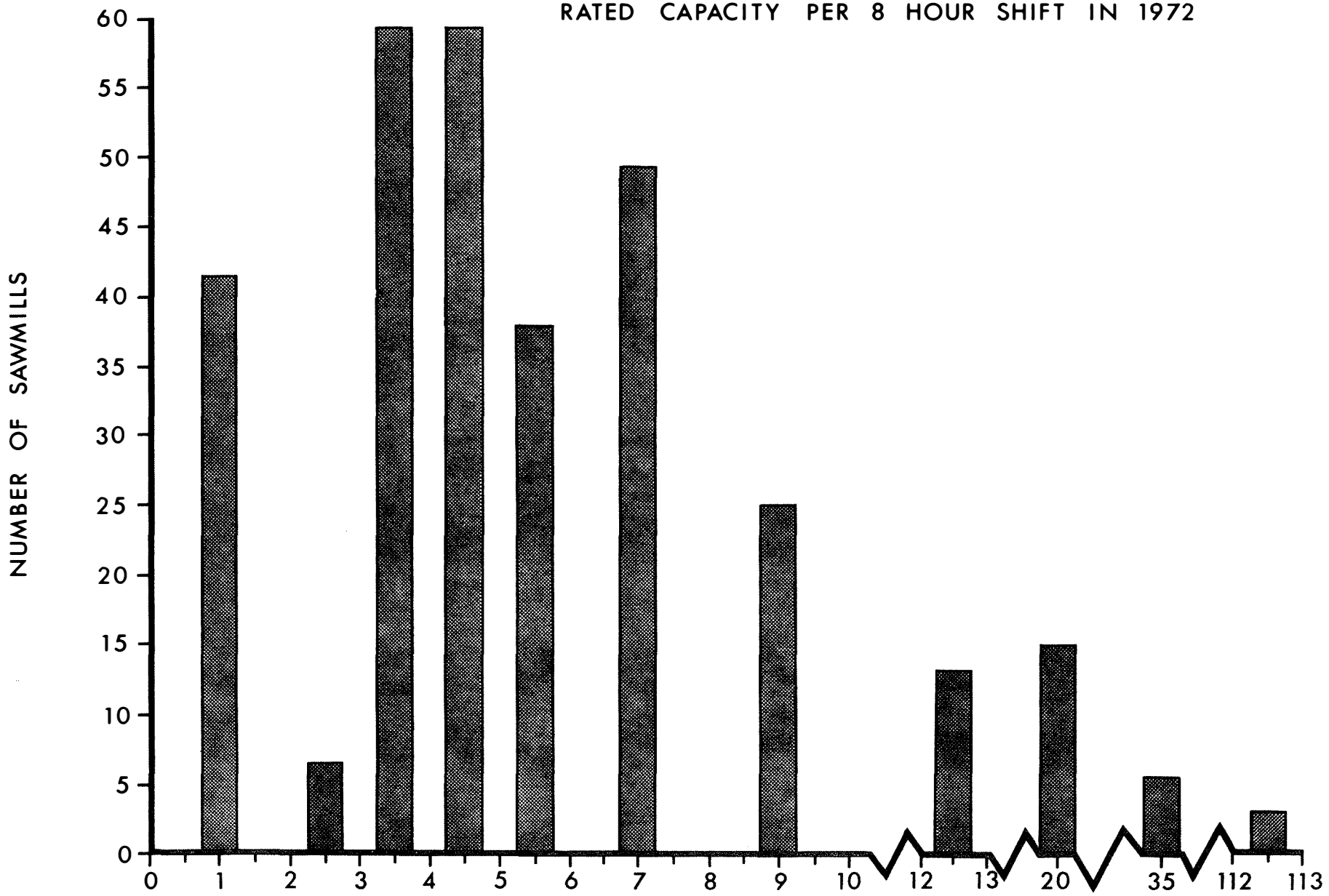

TABLE 16. PRIMARY WOOD-USING INDUSTRIES IN SASKATCHEWAN, 1972

Industry	S.I.C. No.	No. of Firms
Sawmills and Planing Mills	2513	
Class 1. <118 m^3 (<50 Mfbm)		102
Class 2. 118 - 470 m^3 (50 - 199 Mfbm)		181
Class 3. 472 - 2357 m^3 (200 - 999 Mfbm)		19
Class 4. 2360 - 11 796 m^3 (1000 - 4999 Mfbm)		11
Class 5. ≥11 799 m^3 (≥5000 Mfbm)		3
Wood Preservation Industry	2591	6
Pulp and Paper Mills[1]	271 and 2593	3
	Total	325

[1] Includes waferboard plant for the purposes of this study

SOURCE: Appendix I and Table 2

TABLE 17. CONCENTRATION OF LUMBER PRODUCTION IN SASKATCHEWAN, 1972

Percent of Mills (largest to smallest)	Cumulative Percent of Total Production
0.9	85.5
2.8	90.2
7.6	94.9
11.7	95.9
19.6	96.5
35.1	98.3
47.2	98.7
65.8	98.8
84.5	99.3
86.7	99.4
100.0	100.0

SOURCE: Appendix B. N.F.R.C. Wood Industry Survey, 1972

If one were to categorize sawmills whose production in 1972 was less than 11 799 m^3 as "small" (Classes 1, 2, 3, and 4), then one could see the differences due to size much more clearly. As indicated in Table 18 there are 313 of these small sawmills and they produced only 15% of Saskatchewan's total lumber production for 1972[1]. However, these mills are of local importance as suppliers for local and regional markets. (Chapter IV expands on markets served and modes of transportation used by the various production classes as outlined in Table 16.)

Portable sawmills are more popular in the small production classes than in the large (Table 18). A second difference between production classes is the tendency for the smaller sawmills to be somewhat older, thereby showing a possible reliance on older technology. A problem arises with this sort of analysis, however, because the age of each sawmill could not be established directly. This was partly because some mills had been completely rebuilt while others had been resold several times. Therefore the purchase date of the mill by the present owner was used as a proxy for age. More than half of the mills had belonged to the current owner for over a decade (Table 19), and most of the mills had been purchased as second-hand units. In terms of the number of workers required per shift during operation, the small sawmills (Class 1) required for the most part only 3 workers to run the mill, whereas the Class 4 mills never employed fewer than 9 workers per shift (Table 20). However, some 96% of the mills within Classes 1

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[1] It must be remembered that a concentration of production does not necessarily mean concentration of market power. In this case over half of the lumber produced is sold in the international market where Saskatchewan firms have little or no influence on price. Thus the domestic lumber market in the province is much closer to a perfectly competitive market (in an economic sense) than an oligopolistic one.

TABLE 18. SASKATCHEWAN SMALL SAWMILLS BY TYPE AND PRODUCTION CLASS, 1972

Production Class	Type	Number	% of Total Within Production Class
1.	Portable	68	66.6
	Stationary	34	33.3
2.	Portable	151	83.3
	Stationary	30	16.6
3.	Portable	11	57.9
	Stationary	8	42.1
4.	Portable	4	36.4
	Stationary	7	63.6
Total Small Sawmills	Portable	234	74.8
	Stationary	79	25.2

SOURCE: N.F.R.C. Wood Industry Survey, 1972

TABLE 19. PERIOD OF PURCHASE OF SASKATCHEWAN'S SMALL SAWMILLS BY CURRENT OWNER AND PRODUCTION CLASS, 1972

Period of Purchase	Production Class 1. No.	1. %[1]	2. No.	2. %[1]	3. No.	3. %[1]	4. No.	4. %[1]	Total No.	Total % of Total
1932 and earlier	-	-	16	8.9	-	-	-	-	16	5.1
1933 - 1942	17	16.5	16	8.9	-	-	-	-	33	10.5
1943 - 1952	9	8.7	33	18.3	-	-	1	9.1	43	13.7
1953 - 1962	17	16.5	49	27.2	3	15.8	4	36.4	73	23.3
1963 - 1972	60	58.3	66	36.7	16	84.2	6	54.5	148	47.3

[1] Calculated as a percentage of the total sawmills within that particular production class.

SOURCE: N.F.R.C. Wood Industry Survey, 1972

TABLE 20. REQUIRED NUMBER OF WORKERS PER SMALL SAWMILL IN SASKATCHEWAN, 1972

No. of Workers per Mill	Number of Sawmills				Total	% of Total
	Class 1.	Class 2.	Class 3.	Class 4.		
1	10	24	1	-	35	11.2
2	-	57	-	-	57	18.2
3	62	66	6	-	134	42.8
4	10	23	-	-	33	10.5
5	-	-	-	-	-	-
6-9	20	11	6	2	39	12.5
10-13	-	-	4	6	10	3.2
14-17	-	-	2	1	3	1.0
18 and more	-	-	-	2	2	0.6

SOURCE: N.F.R.C. Wood Industry Survey, 1972

through 4 required fewer than 10 workers per shift in order to operate the mill. It is also interesting that the smaller production class tends to be more variable in the number of workers per shift.

The question of who owns and operates these small sawmills is answered in Table 21. In each case the owner(s) were the managers and generally the operators, usually working as the sawyer. The majority of the mills were owned and operated by private individuals. Most of the mills were operated on a part-time basis and, in some instances, only every other year. While a breakdown was not given for each class contained within the small sawmill component, the dominance of single proprietorships is obvious. This is perhaps the only real similarity that exists among production classes within the small sawmill group, as all classes were solidly single proprietorships.

TABLE 21. OWNERSHIP PATTERN OF SASKATCHEWAN'S SMALL SAWMILL INDUSTRY, 1972[1]

Ownership	% of Total
Single Proprietorship	87.4
Partnership	11.6
Incorporated	.9
	99.9

[1] Includes sawmill classes 1, 2, 3, and 4

SOURCE: N.F.R.C. Wood Industry Survey, 1972

Sawmilling was relatively insignificant as an earner of net income for about 68% of the operators (Table 22). Nearly 90% of the sawmill operators received less than half their net income from sawmill operations. Nevertheless, the convenience, independence, and contribution to cash income were significant enough to keep them in the industry.

TABLE 22. SAWMILLING AS A SOURCE OF NET INCOME IN SASKATCHEWAN BY PRODUCTION CLASS, 1972

% of Net Income	Number of Operators in Production Class								Total Operation	% of Total Operation
	Class 1.		Class 2.		Class 3.		Class 4.			
	Op.	%	Op.	%	Op.	%	Op.	%		
0-9	81	79.4	125	69.1	6	31.6	1	9.1	213	68.1
10-19	14	13.7	-	-	-	-	2	18.2	16	5.1
20-29	-	-	-	-	3	15.8	2	18.2	5	1.6
30-39	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	1	9.1	1	0.3
50-59	-	-	42	23.2	2	10.5	2	18.2	46	14.7
60-69	-	-	14	7.7	3	15.8	2	18.2	19	6.1
70-79	-	-	-	-	-	-	1	9.1	1	0.3
80-89	-	-	-	-	-	-	-	-	-	-
90-99	-	-	-	-	3	15.8	-	-	3	1.0
100	7	6.9	-	-	2	10.5	-	-	9	2.9
									313	100.1

[1] Calculated as a percentage of the total sawmills within that production class.

SOURCE: N.F.R.C. Wood Industry Survey, 1972

CHAPTER III

THE FOREST RESOURCE, ITS UTILIZATION AND POTENTIAL

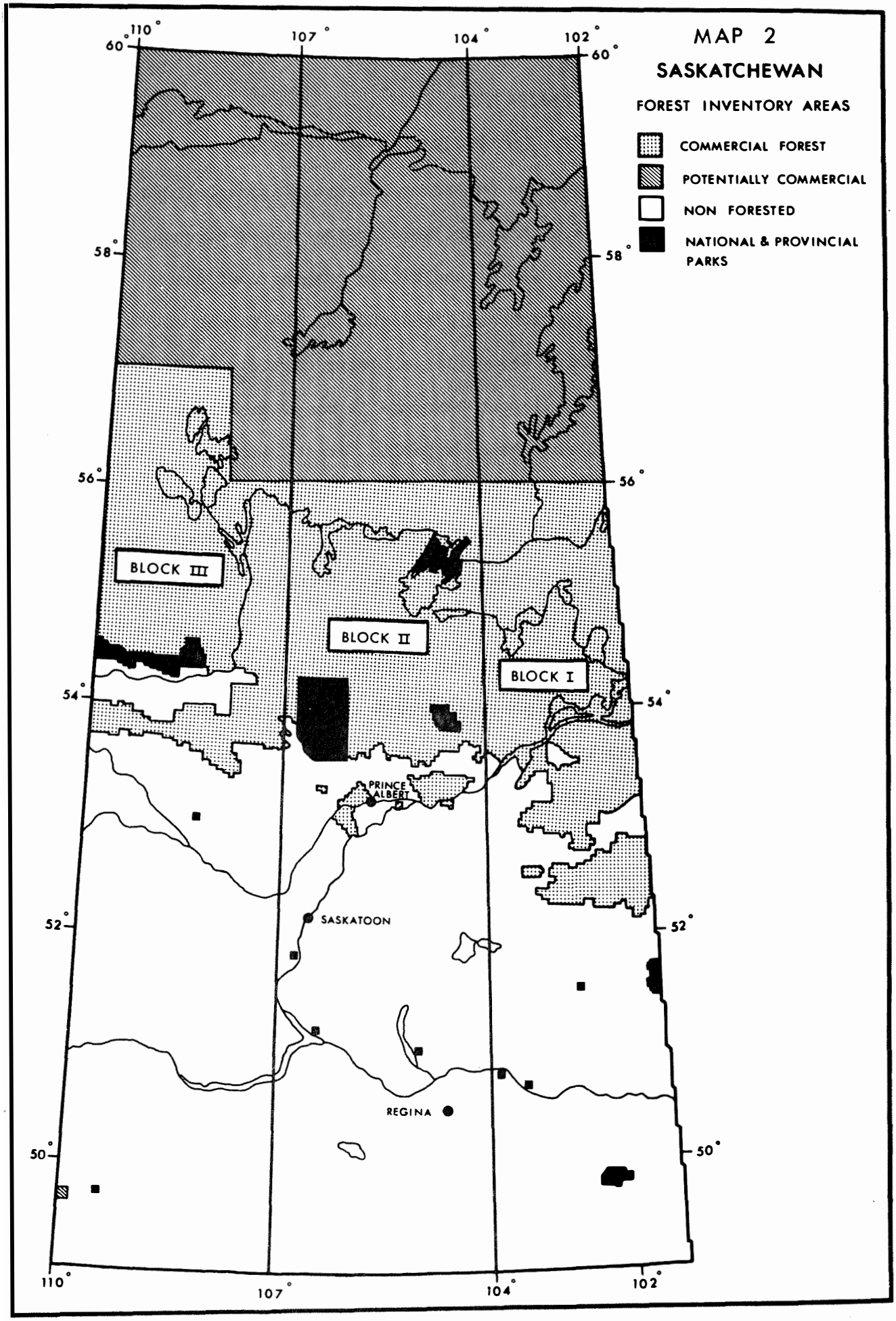
Crown land dominates the ownership pattern of forest lands in Saskatchewan and plays a significant role in the supply of wood fiber to the forest industry. As a result this chapter confines itself primarily to a description and discussion of the forest resource and associated timber harvesting activity on these lands.

A description of the forest resource is based on inventory data for that portion of Saskatchewan's public forest lands designated as "Commercial Forest" (Map 2). This area lies south of 56^{o} north latitude between 108^{o} and 110^{o} longitude. Included are the three provincial parks lying to the south: Duck Mountain, Moose Mountain, and Cypress Hills.

For purposes of this report the commercial forest zone is divided into three "blocks" corresponding very closely with the major lease and timber harvesting agreement areas:

Block I: The forest area extending from 104^{o} east to the Saskatchewan-Manitoba border, and south of 56^{o}. It corresponds to the timber harvesting agreement area of Simpson Timber Company Ltd. and the lease area of MacMillan Bloedel (Sask.) Ltd.

Block II: The forest area west of 104^{o}, east of 107^{o}, and south of 56^{o}. It corresponds to the lease area of Prince Albert Pulp Co. Ltd. but also includes the licences of Northern Wood Preservers and Domtar Chemicals Ltd.


MAP 2
SASKATCHEWAN
FOREST INVENTORY AREAS
COMMERCIAL FOREST
POTENTIALLY COMMERCIAL
NON FORESTED
NATIONAL & PROVINCIAL PARKS
110°
107°
104°
102°
60°
58°
56°
54°
52°
50°
BLOCK III
BLOCK II
BLOCK I
PRINCE ALBERT
SASKATOON
REGINA

Block III: The forest area extending west from 107° to the Saskatchewan-Alberta border, and south of 57°. It corresponds to the licence area of Meadow Lake Sawmill Company Ltd., but also includes the lease area of L & M Wood Products Ltd. and Northern Wood Preservers.

AREA CLASSIFICATION

The total area of Saskatchewan is 65.2 million ha (161.1 million acres), of which land accounts for 87% and water 13% (Table 23). Land classified as forested is comprised of 10.9 million ha (27.0 million acres) of productive and 19.6 million ha (48.4 million acres) of non-productive forest land. Of this, provincial crown land constitutes an overwhelming share of the total. In the commercial forest zone public lands occupy 13.5 million ha (33.3 million acres) of which productive lands account for 62% and non-productive 38% of the total. Agricultural lands, located primarily in the southern half of the province, form 40% of the total area.

COVER TYPE DISTRIBUTION

The Saskatchewan forest inventory for the commercial forest zone groups major cover type statistics according to stand height and density. Three broad cover types are recognized in the inventory: softwood, hardwood, and mixedwood. The coniferous cover type is one in which 75% or more of the volume in a stand of trees is softwood; the hardwood type is composed 75% or more by volume of hardwood trees. All other combinations are classed as mixedwoods. In addition there are areas such

TABLE 23. AREA CLASSIFICATION OF SASKATCHEWAN, 1972

Land Classification	Area ---- 000's ha	Total (000's acres)---	Percentage of Total Area
FOREST LAND			
Productive	10 915 (26 972)		
Non-Productive[1]	19 579 (48 381)		
		30 494 (75 353)	46.8
AGRICULTURE			
Improved	18 788 (46 427)		
Unimproved	7 539 (18 630)		
		26 327 (65 057)	40.3
OTHER (Urban, etc.)		206 (508)	0.3
TOTAL LAND		57 027 (140 918)	87.4
WATER		8 163 (20 172)	12.6
TOTAL AREA		65 190 (161 090)	100.0

[1] Areas incapable of producing crops of merchantable timber because of adverse climatic, soil, or moisture conditions, and reserve forest lands for which no inventories are available.

SOURCE: Dominion Bureau of Statistics, 1971. Canada Year Book, 1970-71, Ottawa.

1971. Canadian Forestry Statistics, 1968. Cat. No. 25-202.

Statistics Canada, 1972. Agriculture: Census - Farms by Size, Area, and Use of Farm Land. Cat. No. 96-721, (AA-4), August, 1972.

F.L.C. Reed and Associates. 1973b. Canada's Reserve Timber Supply. Can. Dept. Ind. Trade and Com. Ottawa.

as cutovers, burnovers, clearings, plantations, etc. which have not established a sufficiently stable composition to be classified into cover types. Such areas are referred to as "potentially productive" forests.

There are 8.3 million ha (20.6 million acres) of productive forest land in the commercial forest (Table 24). The softwood cover type occupies 4.2 million ha (10.4 million acres) or 51% of the productive area. The mixedwood and hardwood types occupy 15% and 24% of the productive area, respectively. The remaining 10% or 877 691 ha (2.2 million acres) is classed as potentially productive.

The softwood cover type dominates in each block. Distribution ranges from 45% of productive forest area in Blocks I and III to 62% in Block II. Distribution of the mixedwood type ranges from 11% of productive area in Block II to 20% in Block I and the hardwood type from 17% in Block II to 29% in Block III (Appendix C, Table 1).

Four height classes are recognized: 0.3048-9.144 m (1-30 ft, young growth), 9.449-15.240 m (31-50 ft, cordwood size), 15.545-21.336 m (51-70 ft, cordwood size), and 21.641 + m (71 + ft, sawtimber size). Only 5% of the total productive forest area contains mature saw timber and peeler log material available for immediate harvest. Fourteen percent of this area is located within the softwood cover type, 48% in the mixedwood type, and 38% in the hardwood type. Within the softwood cover type mature stands of coniferous saw timber occupy less than 2% of the productive area (Table 24). Fifty-one percent of this area is located in Block I and the remainder is distributed fairly evenly between Blocks II and III (Appendix C, Table 2).

TABLE 24. AREA OF PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY COVER TYPE, STAND HEIGHT, AND STAND DENSITY[1]

Cover Type	Height Class	Total (ha)	Density Class[2]	Total (ha)
Softwood	0.3048- 9.144 m	1 399 853	Understocked	336 018
	9.449 -15.240 m	2 173 908	Inadequately Stocked	1 135 880
	15.545 -21.336 m	581 385	Well Stocked	1 448 005
	21.641 + m	60 078	Overstocked	1 295 323
	TOTAL[3]	4 215 225		4 215 225
Mixedwood	0.3048- 9.144 m	379 645	Understocked	153 129
	9.449 -15.240 m	270 065	Inadequately Stocked	395 306
	15.545 -21.336 m	389 420	Well Stocked	496 708
	21.641 + m	203 982	Overstocked	197 968
	TOTAL[3]	1 243 111		1 243 111
Hardwood	0.3048- 9.144 m	520 400	Understocked	144 540
	9.449 -15.240 m	718 035	Inadequately Stocked	414 302
	15.545 -21.336 m	583 197	Well Stocked	624 482
	21.641 + m	158 802	Overstocked	797 110
	TOTAL[3]	1 980 434		1 980 434
Potentially Productive		877 691 ha		
TOTAL PRODUCTIVE COMMERCIAL FOREST LAND		8 316 461 ha		

[1] See Table 24A for Canadian equivalent measures.

[2] Based on percentage of tree crown closure; understocked < 30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked > 71%.

[3] Totals may not add due to rounding of original data.

SOURCE: Appendix C, Tables 1 and 2.

TABLE 24A. AREA OF PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY COVER TYPE, STAND HEIGHT, AND STAND DENSITY

Cover Type	Height Class	Total (acres)	Density Class[1]	Total (acres)
Softwood	1 to 30 feet	3 459 109	Understocked	830 317
	31 to 50 feet	5 371 840	Inadequately Stocked	2 806 817
	51 to 70 feet	1 436 632	Well Stocked	3 578 095
	71+ feet	148 457	Overstocked	3 200 809
	TOTAL	10 416 038		10 416 038
Mixedwood	1 to 30 feet	938 123	Understocked	378 390
	31 to 50 feet	667 344	Inadequately Stocked	976 821
	51 to 70 feet	962 276	Well Stocked	1 227 392
	71+ feet	504 049	Overstocked	489 189
	TOTAL	3 071 792		3 071 792
Hardwood	1 to 30 feet	1 285 936	Understocked	357 165
	31 to 50 feet	1 774 301	Inadequately Stocked	1 023 761
	51 to 70 feet	1 441 110	Well Stocked	1 543 128
	71+ feet	392 408	Overstocked	1 969 701
	TOTAL	4 893 755		4 893 755
Potentially Productive			2 168 819 acres	
TOTAL PRODUCTIVE COMMERCIAL FOREST LAND			20 550 404 acres	

[1] Based on percentage of tree crown closure: understocked <30% inadequately stocked 31-50%; well stocked 51-70%; over stocked >71%.

SOURCE: Appendix C, Tables 1 and 2.

More encouraging, particularly from a sawmilling point of view, are the figures pertaining to the area of forest land under coniferous cover approaching maturity. Height class 15.545-21.336 m (51-70 ft)[1] currently occupies 581 385 km^2 (1.437 million acres), or 14% of the area occupied by the softwood cover type. It accounts for 23%, 46%, and 31% of the area occupied by the softwood cover type in Blocks I, II, and III, respectively (Appendix C, Table 2).

Stocking is an indication of stand density, expressed in number of trees, volume, crown closure, or other criteria on a per hectare (acre) basis. In Saskatchewan crown closure is used as a measure of stand density and is divided into four levels of stocking (Table 24). Excluding the potentially productive area, 9% of the timber stands in the commercial forest zone are understocked, 26% inadequately stocked, 35% well stocked, and 30% overstocked. Understocked and inadequately stocked stands combined comprise 2.6 million ha (6.4 million acres), or 35% of the productive area. Almost 60% of these stands are found within the softwood cover type.

VOLUME AND SPECIES COMPOSITION[2]

Eleven species occur in sufficient volume to be recorded in the forest inventory (Table 25). Four species--white spruce, black spruce

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[1] Although height class 21.641 + m (71 + ft) is usually considered as sawtimber and peeler log material, much of the material utilized by the sawmill industry belongs to the 15.545-21.336 m (51-70 ft) class.

[2] Additional data relating to Saskatchewan's forest lands not discussed in this chapter can be found in Appendix C.

TABLE 25. GROSS MERCHANTABLE VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND BLOCK

SPECIES	BLOCK I		BLOCK II		BLOCK III		TOTAL	
	000's m^3	000's ft^3	000's m^3	000's ft^3	000's m^3	000's ft^3	000's m^3	000's ft^3
White Spruce	31 986	1 129 594	19 950	704 513	21 773	768 908	73 709	2 603 015
Black Spruce	36 940	1 304 513	45 008	1 589 453	18 608	657 133	100 556	3 551 099
Jack Pine	21 998	776 868	53 181	1 878 066	43 957	1 552 345	119 137	4 207 279
Balsam Pine	2 571	90 784	1 569	55 407	1 726	60 950	5 866	207 141
Tamarack	1 021	36 071	1 400	49 457	1 023	36 144	3 445	121 672
TOTAL SOFTWOODS[1]	94 517	3 337 830	121 108	4 276 896	87 088	3 075 480	302 712	10 690 206
White Poplar	57 493	2 030 367	42 159	1 488 817	64 728	2 285 856	164 380	5 805 040
Black Poplar	15 914	562 001	5 352	189 017	9 065	320 111	30 331	1 071 129
White Birch	6 172	217 961	4 286	151 375	3 731	131 768	14 190	501 104
Green Ash	170	5 987	-	-	-	-	170	5 987
Manitoba Maple	1 137	40 162	-	-	-	-	1 137	40 162
White Elm	997	35 222	-	-	-	-	997	35 222
TOTAL HARDWOODS[1]	81 884	2 891 700	51 797	1 829 209	77 524	2 737 735	211 205	7 458 644
TOTAL ALL SPECIES[1]	176 400	6 229 530	172 905	6 106 105	164 612	5 813 215	513 917	18 148 850

[1] Totals for metric equivalents may not add due to rounding of original data

SOURCE: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

jack pine, and white poplar (trembling aspen)--form 89% of the total gross merchantable wood volume.[3] White poplar is the leading species with 164 million m^3 (5.8 billion ft^3), or 32% of the total volume. Jack pine, with 119 million m^3 (4.2 billion ft^3), forms 23% of the total volume, black spruce, with 101 million m^3 (3.6 billion ft^3), forms 20%, and white spruce, with 74 million m^3 (2.6 billion ft^3), forms 14%. All species combined, the total volume of Saskatchewan's growing stock is 514 million m^3 (18.1 billion ft^3), an average of 62 m^3/ha (883 ft^3/acre).[4]

The commercially valuable softwood species comprise 303 million m^3 (10.7 billion ft^3), or 59% of the total growing stock volume. Block I contains 31%, Block II 40%, and Block III 29% of the total softwood volume. Black spruce and jack pine are the principal softwood species, forming 73% of the softwood volume. Forty-five percent of this volume is found in Block II.

White and black spruce are the leading softwood species in Block I, comprising approximately 73% or 69 million m^3 (3.0 billion ft^3) of the softwood volume. In Block III white spruce, black spruce, and jack pine comprise 97% of the softwood volume. Jack pine accounts for about 52% of the total.

White poplar, Saskatchewan's principal species, forms 78% of the hardwood volume. Widely distributed throughout the commercial zone, volumes range from 42 million m^3 (1.5 billion ft^3) or 81% of

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[3] Gross merchantable volume includes the cubic metre (cubic foot) volume of solid wood contained in all trees 9.144 cm (3.6 in.) diameter breast height outside bark and over in the stems only from a 0.304 m (1 ft) stump to a 7.62 cm (3.0 in.) top inside bark.

[4] Average volume in Block I is 74 m^3/ha (1061 ft^3/acre), in Block II 62 m^3/ha (891 ft^3/acre), and in Block III 54 m^3/ha (774 ft^3/acre).

the total volume of hardwood stock in Block II to 65 million m^3 (2.3 billion ft^3) or 83% in Block III. Black poplar, second to white poplar in commercial value, represents 14%, or 30 million m^3 (1.1 billion ft^3), of the total hardwood volume.

SIZE CLASS RELATIONSHIP

Volumes for primary growing stock by three size classes are presented in Table 26. Volumes in trees 10.16-17.78 cm dbh (4-7 in. dbh) and 20.32-22.86 cm (8-9 in.) are considered as pulpwood and sawtimber[5] material, depending on species.

Products such as poles, posts, railway ties, rails and droppers may also be obtained from these two size classes. Volumes in the 25.40 cm (10 in.) and over class are utilized for sawlogs, peeler logs, and other uses where larger timber is required.

The 10.16-17.78 cm (4-7 in.) class comprises nearly 280 million m^3 (10 billion ft^3), or 55% of the total volume of growing stock. The 20.32-22.86 cm (8-9 in.) class contains 99 million m^3 (3.5 billion ft^3), or 19% of the volume, and the 25.40 cm (10 in.) and over class contains 135 million m^3 (4.8 billion ft^3).

Seventy-nine percent of the softwood volume occurs in the 10.16-22.86 cm (4-9 in.) size class. Of the principal coniferous species only white spruce has a substantial amount of timber--37 million m^3 (1.3 billion ft^3) or 50% of its volume--in the sawtimber class. Black spruce

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[5] Changing technology in harvesting and manufacturing operations has allowed the minimum size of sawtimber to be lowered gradually from 35.56 cm (14.0 in.) to 20.32 cm (8.0 in.) dbh and in some cases to 17.78 cm (7.0 in.) in the last 20 years.

TABLE 26. GROSS MERCHANTABLE CUBIC METRE VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND THREE SIZE CLASSES BY BLOCK[1]

SPECIES	BLOCK I			BLOCK II			BLOCK III			TOTAL[2]
	10.16-17.78 cm dbh	20.32-22.86 cm dbh	25.40+ cm dbh	10.16-17.78 cm dbh	20.32-22.86 cm dbh	25.40+ cm dbh	10.16-17.78 cm dbh	20.32-22.86 cm dbh	25.40+ cm dbh	
	000's m^3									
White Spruce	8 868	5 925	17 193	6 917	4 019	9 013	6 678	3 249	10 996	73 709
Black Spruce	29 570	5 443	1 926	37 596	5 764	1 649	15 746	2 197	665	100 556
Jack Pine	13 230	4 494	4 274	33 419	10 763	8 998	29 204	7 685	7 068	119 137
Balsam Fir	1 133	540	898	803	322	444	805	376	545	5 866
Tamarack	732	180	110	1 017	260	123	726	207	91	3 445
TOTAL SOFTWOODS[2]	53 533	16 582	24 401	79 752	21 128	20 227	53 159	14 564	19 365	302 712
White Poplar	22 489	14 025	20 980	21 372	9 837	10 950	32 315	14 460	17 953	164 380
Black Poplar	2 755	2 244	10 915	1 903	1 258	2 191	3 199	1 846	4 020	30 331
White Birch	3 357	974	1 841	2 898	718	670	2 117	734	880	14 190
Green Ash	98	33	39	-	-	-	-	-	-	170
Manitoba Maple	550	367	220	-	-	-	-	-	-	1 137
White Elm	178	96	724	-	-	-	-	-	-	997
TOTAL HARDWOODS[2]	29 427	17 739	34 719	26 173	11 813	13 811	37 631	17 040	22 853	211 205
TOTAL ALL SPECIES[2]	82 960	34 321	59 120	105 925	32 941	34 038	90 790	31 604	42 218	513 917

[1] See Table 26A for Canadian equivalents

[2] Totals may not add due to rounding of original data

SOURCE: Forestry Branch, Saskatchewan Department of Natural Resources, December, 1972

TABLE 26A. GROSS MERCHANTABLE CUBIC FOOT VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND THREE SIZE CLASSES BY BLOCK

SPECIES	BLOCK I			BLOCK II			BLOCK III			TOTAL
	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	
	(thousands of cubic feet)									
White Spruce	313,171	209,243	607,180	244,279	141,944	318,290	235,838	144,738	388,332	2,603,015
Black Spruce	1,044,250	192,232	68,031	1,327,691	203,540	58,222	556,078	77,588	23,467	3,551,099
Jack Pine	467,229	158,715	150,924	1,180,194	380,095	317,777	1,031,337	271,395	249,613	4,207,279
Balsam Fir	40,027	19,061	31,696	28,347	11,377	15,683	28,419	13,270	19,261	207,141
Tamarack	25,853	6,340	3,878	35,924	9,191	4,342	25,635	7,295	3,214	121,672
TOTAL SOFTWOODS	1,890,530	585,591	861,709	2,816,435	746,147	714,314	1,877,307	514,286	683,887	10,690,206
White Poplar	794,182	495,284	740,901	754,754	347,380	386,683	1,141,194	510,662	634,000	5,805,040
Black Poplar	97,294	79,248	385,459	67,198	44,430	77,389	112,975	65,181	141,955	1,071,129
White Birch	118,542	34,391	65,028	102,358	25,353	23,664	74,765	25,917	31,086	501,104
Green Ash	3,453	1,150	1,384	-	-	-	-	-	-	5,987
Manitoba Maple	19,434	12,956	7,772	-	-	-	-	-	-	40,162
White Elm	6,282	3,382	25,558	-	-	-	-	-	-	35,222
TOTAL HARDWOODS	1,039,187	626,411	1,226,102	924,310	417,163	487,736	1,328,934	601,760	807,041	7,458,644
TOTAL ALL SPECIES	2,929,717	1,212,002	2,087,811	3,740,745	1,163,310	1,202,050	3,206,241	1,116,046	1,490,928	18,148,850

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

and jack pine have most of their volume, 96% and 83% respectively, in the pulpwood class with the residual volumes occurring in the largest class and distributed in varying quantities across the commercial zone.

Sixty-six percent of the hardwood volume occurs in the 10.16-22.86 cm (4-9 in.) class. By species, 70% of the white poplar volume occurs in this class while black poplar is more evenly distributed, with 44% of its volume in the two smaller classes and the remainder in the largest.

CURRENT FOREST PRODUCTION

The total volume of timber harvested from Saskatchewan's forest lands in fiscal 1972 was 2.6 million m^3 (93.3 million ft^3). Ninety-five percent of this volume was harvested from provincial crown lands while the remainder came from federal crown, Indian, and private lands. Production from these two timber supply areas for the 12-year period 1960-72 is shown in Table 27 and Figure 3.

In the period 1960-66 production from lands other than provincial crown lands constituted a significant proportion of the annual cut. Since 1966 wood production from these areas has been declining in both absolute and relative terms. By 1972 production had declined to an estimated 139 857 m^3 (4.9 million ft^3), or 5% of the total cut.

Sawtimber and pulpwood (including material for conversion into waferboard and fiberboard) are the two most important products harvested from crown lands (Table 28). During the past decade they have accounted for 80% of total production. During the period 1966-72 pulpwood production increased by 913 443 m^3 (32.3 million ft^3), or 238%,

TABLE 27. ANNUAL CUT IN SASKATCHEWAN, 1960-1972[1]

Fiscal Year	Total Cut	Provincial Crown Land					Other Land[2]	
		Block I	Block II	Block III	Total	% of Total Cut		% of Total Cut
	m^3						m^3	
1960	1 411 876	307 747	69 150	230 216	607 112	43	804 763	57
1961	1 246 959	298 940	45 618	234 576	579 135	46	667 823	54
1962	1 354 789	328 730	72 321	200 568	601 619	44	753 170	56
1963	1 191 882	360 020	75 379	199 945	635 344	53	556 538	47
1964	1 114 832	399 777	87 669	172 789	660 235	59	454 598	41
1965	1 285 668	583 298	103 413	195 952	882 663	69	403 005	31
1966	1 313 531	633 815	89 566	195 414	918 795	70	394 736	30
1967	1 825 556	627 302	841 604	266 263	1 735 169	95	90 387	5
1968	1 828 812	628 548	741 277	243 723	1 613 548	88	215 264	22
1969	2 325 659	808 388	1 009 182	206 939	2 024 510	87	301 149	13
1970	2 709 974[3]	591 085	1 451 774	389 243	2 432 102	90	277 873	10
1971	2 291 679	792 446	935 021	309 616	2 037 082	89	254 596	11
1972	2 641 108	1 019 405[4]	1 110 896[4]	370 950[4]	2 501 251	95	139 857	5

[1] See Table 27A for Canadian equivalents

[2] Calculated by subtracting "total provincial crown land cut" from "total cut". It includes wood harvested on federal crown lands, patent lands, Indian Reserves, etc.

[3] Published statistics for 1970 denoted Saskatchewan's total cut as less than the total volume harvested from provincial crown land. An estimate was made for production from "other land" and the total cut adjusted accordingly.

[4] Estimated

SOURCE: Saskatchewan Department of Tourism and Renewable Resources. Forestry Branch.
Statistics Canada. Canadian Forestry Statistics Cat. No. 25-202, annual.

TABLE 27A. ANNUAL CUT IN SASKATCHEWAN, 1960-1972

Fiscal Year	Total Cut	Provincial Crown Land					Other Land[1]	
		Block I	Block II	Block III	Total	% of Total Cut		% of Total Cut
	000's ft^3						000's ft^3	
1960	49 860	10 868	2 442	8 130	21 440	43	28 420	57
1961	44 036	10 557	1 611	8 284	20 452	46	23 584	54
1962	47 844	11 609	2 554	7 083	21 246	44	26 598	56
1963	42 091	12 714	2 662	7 061	22 437	53	19 654	47
1964	39 370	14 118	3 096	6 102	23 316	59	16 054	41
1965	45 403	20 599	3 652	6 920	31 171	69	14 232	31
1966	46 387	22 383	3 163	6 901	32 447	70	13 940	30
1967	64 469	22 153	29 721	9 403	61 277	95	3 192	5
1968	64 584	22 197	26 178	8 607	56 982	88	7 602	22
1969	82 130	28 548	35 639	7 308	71 495	87	10 635	13
1970	95 702[2]	20 874	51 269	13 746	85 889	90	9 813	10
1971	80 930	27 985	33 020	10 934	71 939	89	8 991	11
1972	93 270	36 000[3]	39 231[3]	13 100[3]	88 331	95	4 939	5

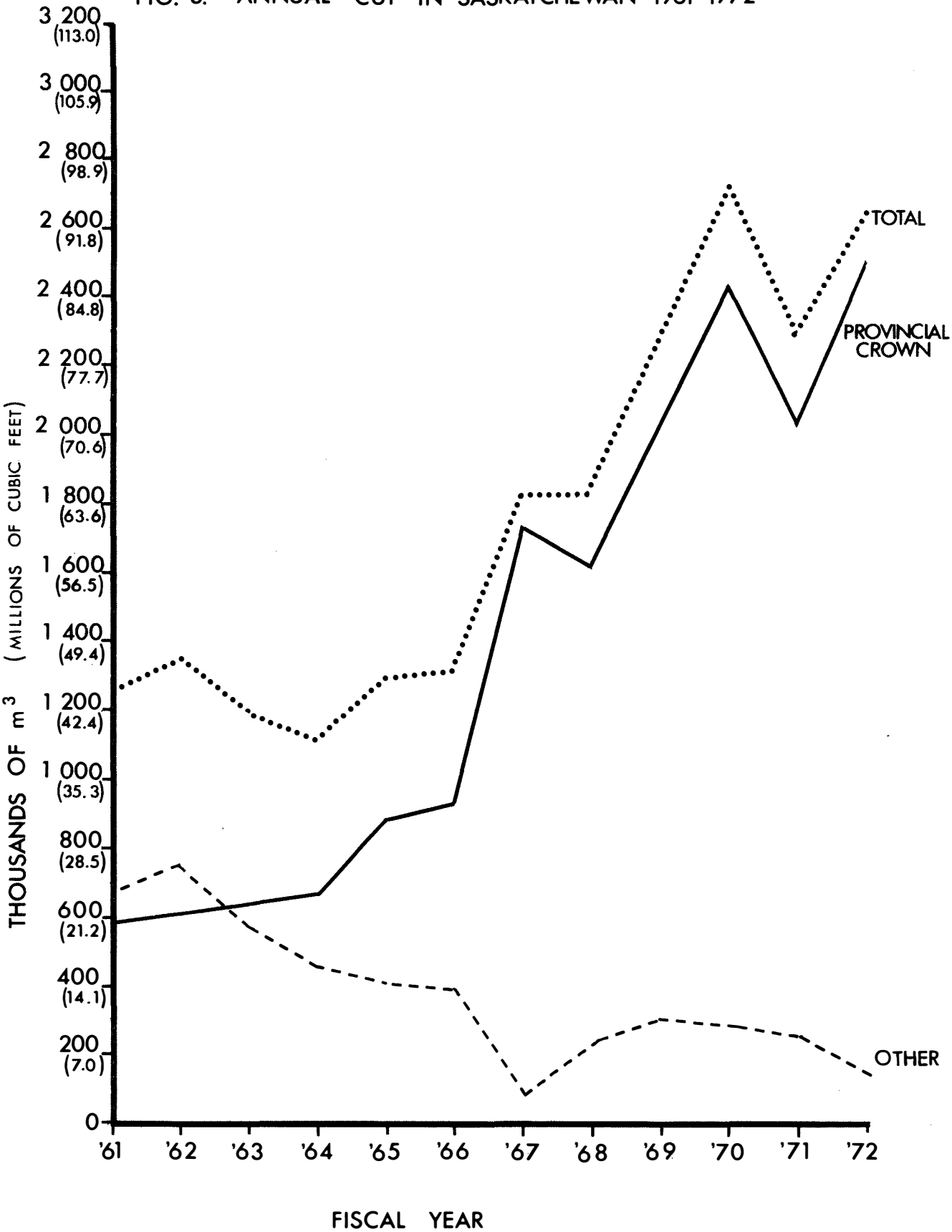
[1] Calculated by subtracting "total provincial crown land cut" from "total cut". It includes wood harvested on federal crown lands, patent lands, Indian Reserves, etc.

[2] Published statistics for 1970 denoted Saskatchewan's total cut as less than the total volume harvested from provincial crown land. An estimate was made for production from "other land" and the total cut adjusted accordingly.

[3] Estimated

SOURCE: Saskatchewan Department of Tourism and Renewable Resources. Forestry Branch
Statistics Canada. Canadian Forestry Statistics Cat. No. 25-202, annual.

FIG. 3. ANNUAL CUT IN SASKATCHEWAN 1961-1972



SOURCE: Tables 27 and 27A.

TABLE 28. PRODUCTION OF LUMBER, PULPWOOD AND OTHER PRODUCTS FROM PROVINCIAL CROWN LAND IN SASKATCHEWAN, 1960-1972

Fiscal Year	Lumber Production		Pulpwood Production[1]		Other Production[2]		Totals	
	m^3	000's ft^3	m^3	000's ft^3	m^3	000's ft^3	m^3	000's ft^3
1960	443 328	15 656	57 710	2 038	106 075	3 746	607 112	21 440
1961	466 406	16 471	47 374	1 673	65 355	2 308	579 135	20 452
1962	430 161	15 191	79 683	2 814	91 774	3 241	601 619	21 246
1963	442 280	15 619	109 388	3 863	83 676	2 955	635 344	22 437
1964	412 094	14 553	151 127	5 337	97 013	3 426	660 234	23 316
1965	442 082	15 612	301 744	10 656	138 837	4 903	882 663	31 171
1966	399 408	14 105	383 183	13 532	136 204	4 810	918 795	32 447
1967	579 277	20 457	957 534	33 815	198 331	7 004	1 735 169	61 277
1968	586 894	20 726	944 252	33 346	82 430	2 911	1 613 548	56 982
1969	743 797	26 267	1 089 036	38 459	191 705	6 770	2 024 510	71 455
1970	494 694	17 470	1 696 913	59 926	240 495	8 493	2 432 102	85 889
1971	637 553	22 515	1 228 808	43 395	170 722	6 029	2 037 082	71 939
1972	955 919	33 758	1 296 626	45 790	248 706	8 783	2 501 251	88 331

[1] Includes material for conversion into waferboard and fiberboard

[2] Includes production such as railway ties, piling, and round timber, telephone and power poles, fuel wood, droppers, roof poles, etc.

[3] Totals of metric equivalents may not add due to rounding of original data.

SOURCE: Saskatchewan Department of Tourism and Renewable Resources. Forestry Branch.

to 1 296 626 m^3 (45.8 million ft^3) in 1972. In the same period the volume of sawtimber harvested increased, although not as rapidly as pulpwood, by 139% from 399 408 m^3 (14.1 million ft^3) in 1966 to 955 919 m^3 (33.8 million ft^3) in 1972.

The increase in the harvest of these two products can be primarily attributed to the growth and expansion of the forest industry at Hudson Bay, Prince Albert, and Meadow Lake. In 1965 MacMillan Bloedel and Powell River (Sask.) Ltd. purchased the "aspenite" plant from Wizewood Limited of Hudson Bay, and DuMont Forest Industries assigned its rights to the Simpson Timber Company of Seattle, Washington. Capital expenditures on plant expansion and equipment to increase production capacity have taken place at both plants since this time.

Prince Albert Pulp Co. Ltd., the province's first major pulpmill, commenced logging operations in mid-1967 and manufacturing of bleached sulphate pulp in 1968. Meadow Lake Sawmill Company Ltd., located at Meadow Lake, commenced operations in March, 1972.

"Other Production" includes products such as railway ties, piling and round timber, telephone and power poles, fuelwood, droppers, roof poles, etc. In aggregate, the volume harvested annually has not been significant in relation to overall crown land production. In recent years, production has fluctuated between 5% and 10% of the total.

ALLOWABLE ANNUAL CUT[6]

The organization and control of the growing stock for a sustained yield of forest products from a specific forest area has traditionally

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[6] An expression of the volume of wood that may be removed from a properly managed area each year in perpetuity.

been called forest regulation. It performs the vital task of balancing the yield or production from the forest with the growth or productive capacity (Meyer et al., 1961). Because the forested area, growing stock, and utilization standards are constantly changing, allowable cut calculations are only valid for a short time. The calculation of the allowable annual cut to support the basic concept of forest management of a sustainable harvest is arrived at in the Province of Saskatchewan using the von Mantel formula[7].

The provincial crown land allowable annual harvest for both softwoods and hardwoods in the commercial zone, including Duck Mountain, Moose Mountain, and Cypress Hills provincial parks, is shown in Table 29. Forest lands within the provincial parks are included in the allowable cut estimates since limited logging is permitted within park boundaries. The estimates of the allowable cut are given in cubic metres (cubic feet) of roundwood without specifying the product or potential product.

A 25% deduction factor[8] was applied to the estimated allowable cuts based on gross merchantable volume (Appendix D, Table 1). This factor allows for the reduction from gross to net merchantable volume as well as the additional volume that is lost because of logging activity itself.

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[7] The formula is useful as a quick and easy method of estimating the allowable annual cut from limited information. This information consists of 1) volume of growing stock and 2) rotation age of species. It is expressed as:

$$\text{A.A.C.} = \frac{\text{total volume of growing stock}}{\text{one half of the rotation age}}$$

[8] Personal communication--Saskatchewan Department of Tourism and Renewable Resources.

TABLE 29. ALLOWABLE ANNUAL CUT, ACTUAL CUT (1972), AND ESTIMATED TIMBER SURPLUS ON PROVINCIAL CROWN LAND

Timber Type and Block	Estimated Allowable Annual Cut (net merch. volume)		Actual Cut[1] Fiscal 1972		% of AAC	Estimated Surplus Timber (net merch. volume)	
	thousands of m^3	millions of ft^3	thousands of m^3	millions of ft^3		thousands of m^3	millions of ft^3
Softwood							
Block I	1 748	61	594	21	34	1 154	40
Block II	2 276	81	1 083	38	47	1 193	43
Block III	1 717	61	343	12	20	1 374	49
TOTAL	5 741	203	2 020	71	35	3 721	132
Hardwood							
Block I	1 740	61	425	15	25	1 315	46
Block II	1 110	39	28	1	3	1 082	38
Block III	1 661	59	28	1	3	1 633	58
TOTAL	4 511	159	481	17	11	4 030	142
ALL SPECIES	10 252	362	2 501	88	23	7 751	274

[1] Breakdown between softwoods and hardwoods for the 1972 timber harvest and its allocation to the three blocks were estimated from the annual report (1973) of the Department of Natural Resources, Tables 1, 4 and 5.

SOURCE: Appendix D, Table 1

Saskatchewan Department of Natural Resources. Annual Report, 1973.

This may include losses of sound felled timber through breakage in felling, excessive trim allowance, cutting high stumps or large top diameters, leaving sound logs in the woods, and the use of timber in logging operations. Losses may also be incurred by the abandonment of sound standing timber which is economically inaccessible because of low stand density, remoteness, or roughness of terrain. All such losses are reflected in the depletion factor used.

The estimated allowable cut is 5.7 million m^3 (203 million ft^3) and 4.5 million m^3 (159 million ft^3) for softwoods and hardwoods respectively. For all species combined the total allowable cut is 10.3 million m^3 (362 million ft^3), or about 2% of the total growing stock.

The volume of softwood harvested in 1972 was about 35% of the estimated allowable cut. Logging for softwood products was heaviest in Blocks I and II where Prince Albert Pulp Co. Ltd., Saskatchewan Forest Products, and Simpson Timber Company have their mills located. Black spruce, white spruce, and jack pine were the three most important commercial species harvested.

The harvest of hardwoods was relatively small at 11% of the estimated allowable cut. Most harvesting occurred in Block I where white and black poplar were logged for the waferboard plant at Hudson Bay. Utilization of hardwoods in Blocks II and III was relatively light, only 3% of the permissible cut in each.

Based on the 1972 harvest, the commercial zone has a timber surplus of 7.8 million m^3 (274 million ft^3), 48% of which is softwood. Thirty-one percent of the surplus timber is found in Block I, 30% in

Block II, and 39% in Block III. This potentially available volume of wood fiber, particularly the softwoods in Blocks I and II, is sufficient to supply existing industry operating at full capacity as well as new industry. Until new plants are established or the existing capacity of the waferboard plant at Hudson Bay is increased substantially, it is highly unlikely that the annual cut of hardwoods in these two blocks will increase significantly.

The 1972 timber harvest in Block III accounted for only 20% of the softwood and 3% of the hardwood allowable cut. Compared to Blocks I and II, Block III contains the largest volume of surplus timber potentially available for utilization by existing and new industry.

CHAPTER IV

PRODUCTION AND MARKETS OF SASKATCHEWAN'S FOREST INDUSTRIES IN 1972

Saskatchewan's forest industries[1] had gross sales of over $84 million and net sales of slightly more than $69 million in 1972. The pulp and paper group led with 64% of gross sales, sawmills and planing mills accounted for 31%, and the wood preservation industry for 5%. These sales represented roughly 199 000 t (219 000 tons) of bleached kraft pulp, 26 million m^2, 1-mm basis (22 million ft^2, 1/2" basis) of fiberboard, 3.5 million pieces of pressure-treated products, 110 million m^2, 1-mm basis (744 million ft^2, 1/16" basis) of waferboard and 393 000 m^3 (167 000 Mfbm) of lumber (Table 32). Also included were some miscellaneous products such as chips, pulpwood, and posts.

PULP AND PAPER INDUSTRY[2]

This group of three firms produced kraft pulp, fiberboard, and waferboard with gross sales of more than $54 million (Table 30). Within each product special grades, sizes, and finishes were marketed according to customer specifications with shipments to markets throughout North America (Table 31). Fiberboard production was sold exclusively in Western Canada where Saskatchewan consumed about 18%. Waferboard had a wider distribution; 41% went to eastern Canadian markets and 13% to the United States. Markets for kraft pulp were largely foreign, with the U.S.A. taking 70% of total production. In general, Saskatchewan

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1 See "Standard Industrial Classification" section in Chapter I for definitions.

2 In this report it was necessary to combine waferboard, fiberboard, and kraft pulp mills for confidentiality of financial data.

TABLE 30. SASKATCHEWAN PULP, FIBERBOARD, AND WAFERBOARD PRODUCTION, 1972

Product	Unit	Quantity
Bleached Kraft Pulp	tonnes	198 673
	(tons)	(219 000)
Fiberboard	m^2 (1 mm basis)	25 957 133
	sq ft (1/2" basis)	(22 000 000)
Waferboard	m^2 (1 mm basis)	109 727 733
	sq ft (1/16" basis)	(744 000 000)
Gross Sales Value	dollars	$54 302 000
Net Sales Value	dollars (F.O.B. mill)	$43 977 000

SOURCE: Appendix E, Table 7

TABLE 31. MARKETS FOR SASKATCHEWAN PULP, WAFERBOARD, AND FIBERBOARD, 1972

	Market Shares		
	Kraft Pulp %	Fiberboard %	Waferboard %[1]
Saskatchewan	-	18	-
Rest of Western Canada	12	82	46
Eastern Canada	-	-	41
TOTAL CANADA	12	100	87
United States	70	-	13
Other Foreign	18	-	-
TOTAL FOREIGN	88	-	13

[1] Saskatchewan included in "Rest of Western Canada"

SOURCE: Appendix E, Table 7

consumed very little of its own pulp, waferboard, and fiberboard products. The export characteristic of this industry group provides Saskatchewan with outside earnings that help pay for imports it needs. Consequently, the secondary industry income and employment multipliers within the province are low. Another feature is that these firms sell in international markets that are price-competitive and where the Saskatchewan government can exert little or no influence even if it wanted to.

SAWMILL AND PLANING MILL INDUSTRY

The Saskatchewan sawmill and planing mill industry comprised 316 of the 325 primary wood-using establishments and produced 393 000 m^3 (167 000 Mfbm) of lumber, timber, and ties. It accounted for 31% of both gross and net sales of the whole primary wood-using industry. Included in the above sales data were quantities of wood chips, pulpwood, mine props and posts.

Output from the three largest mills dominated the Saskatchewan lumber industry, accounting for 85% (336 000 m^3 or 142 000 Mfbm) of all sawn products. The remaining 15% was produced by the smaller sawmills (Classes 1, 2, 3, and 4, Table 32). About 365 000 m^3 or 93% of the total lumber was planed either by the producing mill or another mill in the province before being sold. It must be remembered that an estimated 32 000 m^3 (13 000 Mfbm) of rough lumber was sold by the small operators (Classes 1, 2, 3, and 4 in Table 32) to mills in the largest mill class. This material was planed by the large mills and resold as finished lumber.

TABLE 32. SASKATCHEWAN LUMBER PRODUCTION BY SIZE CLASS AND PRODUCT, 1972[1]

Product Group	Marketings by Mill Class 1	2	3	4	5	Actual Production by Class 5	Intra-Industry Transfers to Class 5	Net Total[2] Marketing	% of Total
	m^3								
Board Lumber (2.54 cm)									
Planed	-	90	791	-	17 100	14 876	-	17 981	4.6
Rough	557	493	753	3 719	-	-	2 224	3 298	0.8
Total	557	583	1 544	3 719	17 100	14 876	2 224	21 279	5.4
Dimension Lumber (5.08 cm)									
Planed	-	503	1 855	-	344 190	316 015	-	346 548	88.1
Rough	3 825	5 656	7 782	28 060	-	-	28 175	17 148	4.4
Total	3 825	6 159	9 637	28 060	344 190	316 015	28 175	363 696	92.5
Timbers and Ties (7.62 cm+)									
Rough	312	-	1 555	1 234	6 659	5 217	1 442	8 318	2.1
Total[2]	4 694	6 742	12 736	33 013	367 948	336 108	31 840	393 293	100.0
% Rough	100	91.2	79.2	100	1.8	1.6	100	7.3	
% Planed	0	8.8	20.8	0	98.2	98.4	0	92.7	

[1] See Table 32A for Canadian equivalents.

[2] This total is net of intra-industry transfers of rough lumber from mills in Classes 1, 2, 3, and 4 to the Class 5 mills where the lumber is planed before marketing. Thus this total represents the final output of the Saskatchewan sawmill and planing mill industry for each product group.

[3] Totals may not add due to rounding.

SOURCE: Appendix E, Tables 1-5

TABLE 32A. SASKATCHEWAN LUMBER PRODUCTION BY SIZE CLASS AND PRODUCT, 1972

Product Group	Marketings by Mill Class 1	2	3	4	5	Actual Production by Class 5	Intra-Industry Transfers to Class 5	Net Total[1] Marketing	% of Total
	Mfbm								
Board Lumber (1")									
Planed	-	38	335	-	7 249	6 304	-	7 622	4.6
Rough	236	209	319	1 576	-	-	945	1 395	0.8
Total	236	247	654	1 576	7 249	6 304	945	9 017	5.4
Dimension Lumber (2")									
Planed	-	213	786	-	145 858	133 919	-	146 857	88.1
Rough	1 621	2 397	3 298	11 891	-	-	11 939	7 268	4.4
Total	1 621	2 610	4 084	11 891	145 858	133 919	11 939	154 125	92.5
Timbers and Ties (3"+)									
Rough	132	-	659	523	2 822	2 211	611	3 525	2.1
Total[2]	1 989	2 857	5 397	13 990	155 926	142 434	13 492	166 667	
% Rough	100	91.2	79.2	100	1.8	1.6	100	7.3	
% Planed	0	8.8	20.8	0	98.2	98.4	0	92.7	

[1] This total is net of intra-industry transfers of rough lumber from mills in Classes 1, 2, 3, and 4 to Class 5 mills where the lumber is planed before marketing. Thus this total represents the final output of the Saskatchewan sawmill and planing mill industry for each product group.

[2] Totals may not add due to rounding

SOURCE: Appendix E, Tables 1-5

The largest sawmill class produced 87% of the dimension lumber, 70% of the board lumber, and 63% of the timbers and ties. Dimension lumber[1] (mainly studs) represented 92% of the net marketings (Table 32).

Almost 93% of the industry's sawn products were sold dressed or finished (Table 32). Again, the influence of the large sawmills is apparent as this group produced and sold about 99% of the total planed lumber. Planed dimension lumber accounted for about 95% of all planed products. The production of rough lumber was not as overwhelmingly dominated by any one mill class.

A more detailed listing of specific products sawn and sold is provided in Table 33. Studs accounted for 72.6% of total provincial lumber production. The majority of these studs were kiln-dried, dressed (planed) on four sides with eased edges, and end-trimmed to 244 cm (96 in.), 235.3 cm (92.5 in.) with smaller quantities at 228.6 cm (90 in.), 213.4 cm (84 in.), and 182.9 cm (72 in.). They were then exported to the United States by rail in lifts (bundles) where the major use was new residential housing construction although small but significant quantities went to the mobile home and trailer industry. The 2x4 dimension lumber category had the largest volume at 270 000 m^3, or 64% of the total, followed by the 2x8 to 12 with 11%, 2x3's with 9%, and 2x6's with 9%. In total, timbers and ties were insignificant and board lumber, at 5.5%, was nearly equally split among its three size groupings.

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[1] Dimension lumber refers to all sawn material in the 5.08 cm (2 in.) thick class of any width and length. Board lumber refers to all sawn material in the 2.54 cm (1 in.) thick class of any width and length.

TABLE 33. LUMBER PRODUCTS FROM SASKATCHEWAN'S SAWMILLS, 1972

Lumber Products cm	inches	Sold as Rough m^3	Sold as Rough Mfbm	Sold as Planed m^3	Sold as Planed Mfbm	Total Marketings[1] m^3	Total Marketings[1] Mfbm	Percent of Total	
Board									
2.54 x 10.16	1 x 4	1 693	718	5 495	2 329	7 188	3 047	1.7	
2.54 x 15.24	1 x 6	2 497	1 058	4 791	2 030	7 288	3 088	1.7	
2.54 x 20.32 To 30.48	1 x 8 To 12	1 332	564	7 695	3 260	9 027	3 824	2.1	
Dimension									
5.08 x 7.62	2 x 3	-	-	38 207	16 191	38 207	16 191	9.0	Studs
5.08 x 10.16	2 x 4	14 023	5 943	256 179	108 563	270 202	114 506	63.6	72.6%
5.08 x 15.24	2 x 6	15 824	6 706	21 589	9 149	37 413	15 855	8.8	
5.08 x 20.32 To 30.48	2 x 8 To 12	15 478	6 558	30 573	12 955	46 051	19 513	10.8	
Timber									
7.62 x 10.16 To 20.32	3 x 4 To 8	7	3	-	-	7	3	0.0	
10.16 x 10.16 To 20.32	4 x 4 To 8	5 276	2 236	-	-	5 276	2 236	1.2	
15.24 x 15.24-20.32 x 20.32	6 x 6-8 x 8	998	423	-	-	998	423	0.2	
Ties		3 477	1 474	-	-	3 477	1 474	0.8	
	TOTAL	60 605	25 683	364 529	154 477	425 134	180 160		

[1] This table uses total marketings, therefore inter-mill transfers are included so as to give a better breakdown of lumber products being sold either as rough or planed. The inter-mill transfers amounted to about 32 000 m^3 (13 000 Mfbm) in 1972.

SOURCE: Appendix E, Tables 1-5

Spruce accounted for the vast majority (85%) of lumber production; pine provided 14%, and insignificant quantities of balsam fir, tamarack and poplar made up the remaining 1% (Table 34).

The importance of exports to the Saskatchewan lumber industry is evident in Table 35, as 62% of total production was shipped to the United States. Saskatchewan consumed 28%, Manitoba took 6%, and Alberta took 3%. There were relatively small volumes of lumber marketed in the rest of Canada, and only the two larger sawmill classes were involved. Most of the rough lumber was sold in Saskatchewan.

The Saskatchewan market absorbed 58% of the board lumber, 95% of the timber and tie production, and 25% of the dimension stock for its 28% share of total mill output (Table 36). Manitoba consumed 12% of board lumber and 6% of dimension lumber for an overall share of 6%. Alberta purchased all lumber types except timber and ties from Saskatchewan producers, and the respective market percentages for board and dimension lumber were roughly half those for Manitoba. Some 503 m^3 (213 Mfbm) of timber and ties were marketed in various parts of Western Canada.

The only foreign market was the United States, which absorbed roughly one quarter of board lumber production and two-thirds of Saskatchewan's dimension stock marketings. Planed lumber comprised the majority of lumber of both sizes going to the United States, with the larger sawmills fulfilling this demand. The United States took 72% (264 000 m^3 or 112 MMfbm) of the planed lumber. No timber or ties were exported to foreign markets in 1972.

TABLE 34. SASKATCHEWAN LUMBER PRODUCTION BY SPECIES, 1972[1]

	Species									
	Spruce		Pine		Poplar		Tamarack		Other	
	m^3	Mfbm	m^3	Mfbm	m^3	Mfbm	m^3	Mfbm	m^3	Mfbm
Board Planed	15 037	6 372	571	243	127	54	-	-	21	9
Board Rough	3 202	1 357	2 153	912	158	67	10	4	-	-
Total	18 239	7 729	2 724	1 155	285	121	10	4	21	9
Dimension Planed	272 020	115 275	45 394	19 237	436	185	-	-	521	221
Dimension Rough	35 402	15 002	5 716	2 422	4 135	1 752	73	31	-	-
Total	307 422	130 277	51 110	21 659	4 571	1 937	73	31	521	221
Timbers & Ties	4 879	2 068	3 433	1 455	2	1	2	1	-	-
TOTAL	330 540	140 074	57 267	24 269	4 858	2 059	85	36	542	230
%	85.0		13.6		1.2		0.0		0.1	

[1] Totals may differ slightly from totals in other tables due to rounding of data. This table is based on production, therefore totals do not correspond to marketing totals.

SOURCE: Appendix E, Tables 1-5

TABLE 35. SASKATCHEWAN LUMBER MARKETS BY PRODUCTION CLASS, 1972[1]

Markets	Mill Class Number 1	2	3	4	5	Total	%
			m^3				
Saskatchewan	4 694	6 742	12 736	30 535	65 870	120 577	28
Manitoba	-	-	-	-	25 630	25 630	6
Alberta	-	-	-	1 463	12 251	13 714	3
TOTAL CANADA	4 694	6 742	12 736	31 998	104 254[2]	160 424[2]	38
United States	-	-	-	1 014	263 693	264 707	62
TOTAL FOREIGN	-	-	-	1 014	263 693	264 707	62

[1] See Table 35A for Canadian equivalents.

[2] Includes 503 m^3 of timbers that were shipped to various Canadian markets. Totals may not compare to those in other tables due to rounding.

SOURCE: Appendix E, Tables 1-5

TABLE 35A. SASKATCHEWAN LUMBER MARKETS BY PRODUCTION CLASS, 1972

Markets	Mill Class Number 1	2	3	4	5	Total	%
			Mfbm				
Saskatchewan	1 989	2 857	5 398	12 940	27 914	51 098	28
Manitoba	-	-	-	-	10 862	10 862	6
Alberta	-	-	-	620	5 192	5 812	3
TOTAL CANADA	1 989	2 857	5 398	13 560	44 181[1]	67 985[1]	38
United States	-	-	-	430	111 747	112 177	62
TOTAL FOREIGN	-	-	-	430	111 747	112 177	62

[1] Includes 213 Mfbm of timbers that were shipped to various Canadian markets. Totals may not compare to those in other tables due to rounding.

SOURCE: Appendix E, Tables 1-5

TABLE 36. SASKATCHEWAN LUMBER MARKETINGS BY LUMBER TYPE AND MARKET, 1972

Market	Lumber Type: Board Lumber Rough	Board Lumber Planed	Dimension Lumber Rough	Dimension Lumber Planed	Timber and Ties	Total Marketings[1]
Saskatchewan						
m^3	4 729	8 939	43 638	54 018	9 257	120 581
Mfbm	2 004	3 788	18 493	22 891	3 923	51 099
%[2]	85.6	49.7	96.3	15.6	94.8	28.4
Manitoba						
m^3	-	2 800	-	22 828	-	25 628
Mfbm	-	1 188	-	9 674	-	10 862
%[2]	-	15.6	-	6.6	-	6.0
Alberta						
m^3	260	1 263	1 203	10 987	-	13 713
Mfbm	110	536	510	4 656	-	5 812
%[2]	4.7	7.0	2.7	3.2	-	3.2
TOTAL CANADA						
m^3	4 989	13 002	44 841	87 833	9 760[3]	160 425[3]
Mfbm	2 114	5 512	19 003	37 221	4 136[3]	67 986[3]
%[2]	90.3	72.3	99.0	25.4	100.0	37.7
U.S.A.						
m^3	533	4 979	481	258 715	-	264 708
Mfbm	226	2 110	204	109 637	-	112 177
%[2]	9.7	27.7	1.0	74.6	-	62.3
TOTAL						
m^3	5 522	17 981	45 322	346 548	9 760	425 133
Mfbm	2 340	7 622	19 207	146 858	4 136	180 163
%[2]	100.0	100.0	100.0	100.0	100.0	100.0

[1] Totals may differ from those in other tables due to rounding.

[2] Calculated as a percentage of the total lumber marketed of that particular type.

[3] Includes 503 m^3 (213 Mfbm) of timber and ties sold to various points in Western Canada.

SOURCE: Appendix E, Tables 1-5

Both truck and rail were used extensively for the transport of lumber, although rail dominated because it was used to move much larger volumes of lumber to more distant markets (Table 37). Trucking was the main mode used to service Canadian markets. It carried 77% of nationally marketed lumber and moved 89% of all lumber sold within Saskatchewan.

Saskatchewan's sawmill industry is primarily a spruce-pine-fir stud producer for the United States housing market. As a result, some of the important factors affecting this industry are those which affect U.S. housing starts and construction (i.e. U.S. interest and mortgage rates), general U.S. economic conditions, and Canada-U.S. dollar exchange rates. Other important factors include freight rates and availability of boxcars. Weather conditions and availability of bush labor in Saskatchewan's forested areas also determine the health of the industry.

WOOD PRESERVATION INDUSTRY

Although this group of six firms had only 5% of forest industry sales it produced a wide range of pressure-treated wood products, mainly for the Saskatchewan market. This market consumed between 50 and 75% of each of the product groups (Table 38). The other western provinces took substantial quantities but eastern Canada purchased nothing. International sales were limited to the United States which took well under 10% of the total.

Based on the number of pieces, fence posts were the most important commodity. Agriculture in general and livestock raising in particular provide this major local demand. Provincial telephone and hydro utilities were the largest consumers of pressure-treated poles, cross arms, and related products.

TABLE 37. SASKATCHEWAN LUMBER MARKETINGS BY LUMBER TYPE AND MODE OF TRANSPORTATION, 1972

Markets	Rough Lumber m^3	Rough Lumber Mfbm	Planed Lumber m^3	Planed Lumber Mfbm	Total Marketings[1] m^3	Total Marketings[1] Mfbm	%
Saskatchewan							
Truck	57 624	24 420	49 945	21 163	107 569	45 583	25.3
Rail	-	-	13 012	5 514	13 012	5 514	3.1
Manitoba							
Truck	-	-	9 091	3 852	9 091	3 852	2.1
Rail	-	-	16 539	7 010	16 539	7 010	3.9
Alberta							
Truck	1 463	620	5 410	2 293	6 873	2 913	1.6
Rail	-	-	6 841	2 899	6 841	2 899	1.6
TOTAL CANADA[2]							
Truck	59 590	25 253	64 446	27 308	124 036	52 561	29.2
Rail	-	-	36 392	15 423	36 392	15 423	8.6
United States							
Truck	1 014	430	11 326	4 800	12 340	5 330	2.9
Rail	-	-	252 367	106 947	252 368	106 948	59.4
TOTAL FOREIGN							
Truck	1 014	430	11 326	4 800	12 340	5 230	2.9
Rail	-	-	252 367	106 947	252 368	106 948	59.4
TOTAL[3]	60 604	25 683	364 531	154 478	425 136	180 161	
%	14.3		85.7				

[1] This table shows total marketings that include inter-mill transfers so as to provide a better breakdown of lumber markets. The inter-mill transfers amounted to about 32 000 m^3 (13 000 Mfbm) in 1972.

[2] Includes 503 m^3 (213 Mfbm) of timber that were shipped to various Canadian markets.

[3] Totals may not compare to those in other tables due to rounding.

SOURCE: Appendix E, Tables 1-5

TABLE 38. MARKETS FOR SASKATCHEWAN'S PRESSURE-TREATED WOOD PRODUCTS IN 1972

Markets	Market Shares						
	Pickets and Fence Posts		Poles, Rails and Other		Lumber and Timbers		
	pieces	(%)	pieces	(%)	m^3	Mfbm	(%)
Saskatchewan	2 331 639	(74)	161 721	(55)	2 860	1 212	(63)
Rest of Western Canada	564 531	(18)	121 076	(41)	1 699	720	(37)
Eastern Canada	-		-		-	-	
TOTAL CANADA	2 896 170	(92)	282 797	(96)	4 559	1 932	(100)
United States	250 086	(8)	11 979	(4)	-	-	
Other Foreign	-		-		-	-	
TOTAL FOREIGN	250 086	(8)	11 979	(4)	-	-	
GRAND TOTAL	3 146 256	(100)	294 776	(100)	4 559	1 932	(100)

SOURCE: Appendix E, Table 8

Only firms that used a pressure treating process were included in the study. Most firms used the oil-borne pentachlorophenol process, and some also used a creosote and oil mixture. Preserved wood products have increased in popularity in recent years especially because of rising replacement costs due to higher wages and other expenses. These processes generally increase the useful lifetime of the product by three to four times at approximately double the untreated cost.

CHAPTER V

EMPLOYMENT IN THE SASKATCHEWAN FOREST INDUSTRY

In 1972 average employment (in terms of full employment equivalents) in Saskatchewan's forest industry was estimated at 1227 persons in manufacturing and 1127 in logging and transportation (Table 39). The actual number of people working in any one month, however, varied throughout the year. For example, the number of persons employed in manufacturing was at its minimum in November (1162 persons) and its maximum in May (1275 persons). In timber harvesting and transportation employment was lowest (661 persons) in May and highest (1557 persons) in February (Appendix F, Tables 1 to 7). The pulp and paper industry (logging and manufacturing combined) provided jobs for 58% of the total labor force of 2354 persons, making it the single most important industry in terms of employment.

Figure 4 shows the seasonality of employment in the Saskatchewan forest industry for logging and manufacturing during 1972. Most of the timber harvesting operations occurred during the winter season, primarily between October and March. Following the traditional pattern of lower employment levels in early spring, employment fell sharply from 1477 persons in March to 699 persons in April and continued to decline until reaching the year's low of 662 in May.

A major reason for logging being mainly a winter activity is that many of the workers who find employment in woodland operations are farmers active in agricultural operations during the summer, while others are small independent contractors whose alternative employment opportunities are hauling gravel, road construction, and so forth.

TABLE 39. EMPLOYMENT IN THE SASKATCHEWAN FOREST INDUSTRY BY INDUSTRY GROUP, 1972

Industry Group		Total Employed[1]		%	Employment Range[2] Low	High
Pulp and Paper:	Logging	704	(1373)	58	554	815
	Mill	669			627	692
Wood Preservation:	Logging	48	(138)	6	26	58
	Plant	90			68	104
Sawmills:						
Class 1	Logging	7	(13)	<1	0	28
	Mill	6			0	24
Class 2	Logging	10	(18)	<1	0	34
	Mill	8			0	34
Class 3	Logging	14	(35)	1	0	44
	Mill	21			0	41
Class 4	Logging	27	(66)	3	3	58
	Mill	39			8	80
Class 5	Logging	317	(711)	30	51	603
	Mill	394			338	419
TOTAL:	Logging	1127	(2354)	100[3]		
	Mill/Plant	1227				

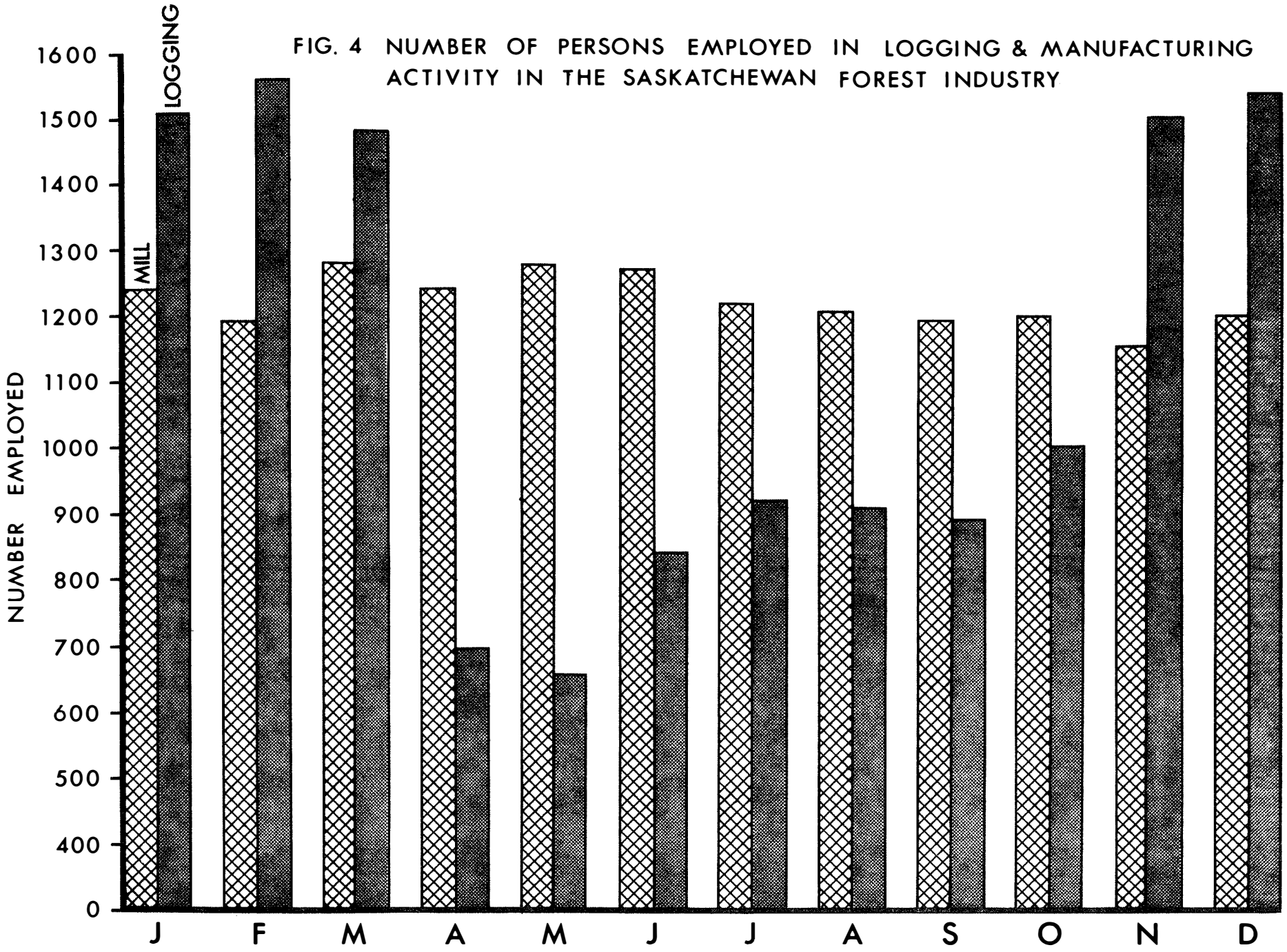
[1] Full employment equivalent--defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

[2] Minimum and maximum employment in 1972

[3] Percentages may not add due to rounding

SOURCE: Appendix F, Tables 1 to 7

FIG. 4 NUMBER OF PERSONS EMPLOYED IN LOGGING & MANUFACTURING ACTIVITY IN THE SASKATCHEWAN FOREST INDUSTRY



Consequently, winter logging operations for these people complement, and in some cases are secondary to these other activities. Compared to the logging industry, employment in primary manufacturing is relatively stable despite the fact that monthly employment levels do fluctuate.

Since Figure 4 depicts total employment in the forest industry, the larger companies which operated year-round tend to mask the seasonality which existed in many of the smaller operations. The size of the labor force and an industry's ability to support year-round employment varied from one industry group to the next and even within a given industry. To illustrate these differences Figure 4 has been disaggregated and the employment data for pulp and paper, wood preserving, and sawmill industries reproduced in Figures 5 to 11.

EMPLOYMENT BY INDUSTRY GROUP

Pulp and Paper Industry[1]

Relative to the other industry groups, employment in the pulp and paper industry was by far the most stable (Figure 5). Opportunity for year-round employment, indoor working conditions, better than average fringe benefits, reasonable working hours and wage levels, and relatively safe working conditions were some of the reasons for this stability. Average employment during 1972 was 669 persons with minimum employment occurring in November (627 persons) and maximum employment in January and June (692 persons). The drop in employment during October resulted from workers striking at the Domtar fiberboard plant in Saskatoon (Figure 5).

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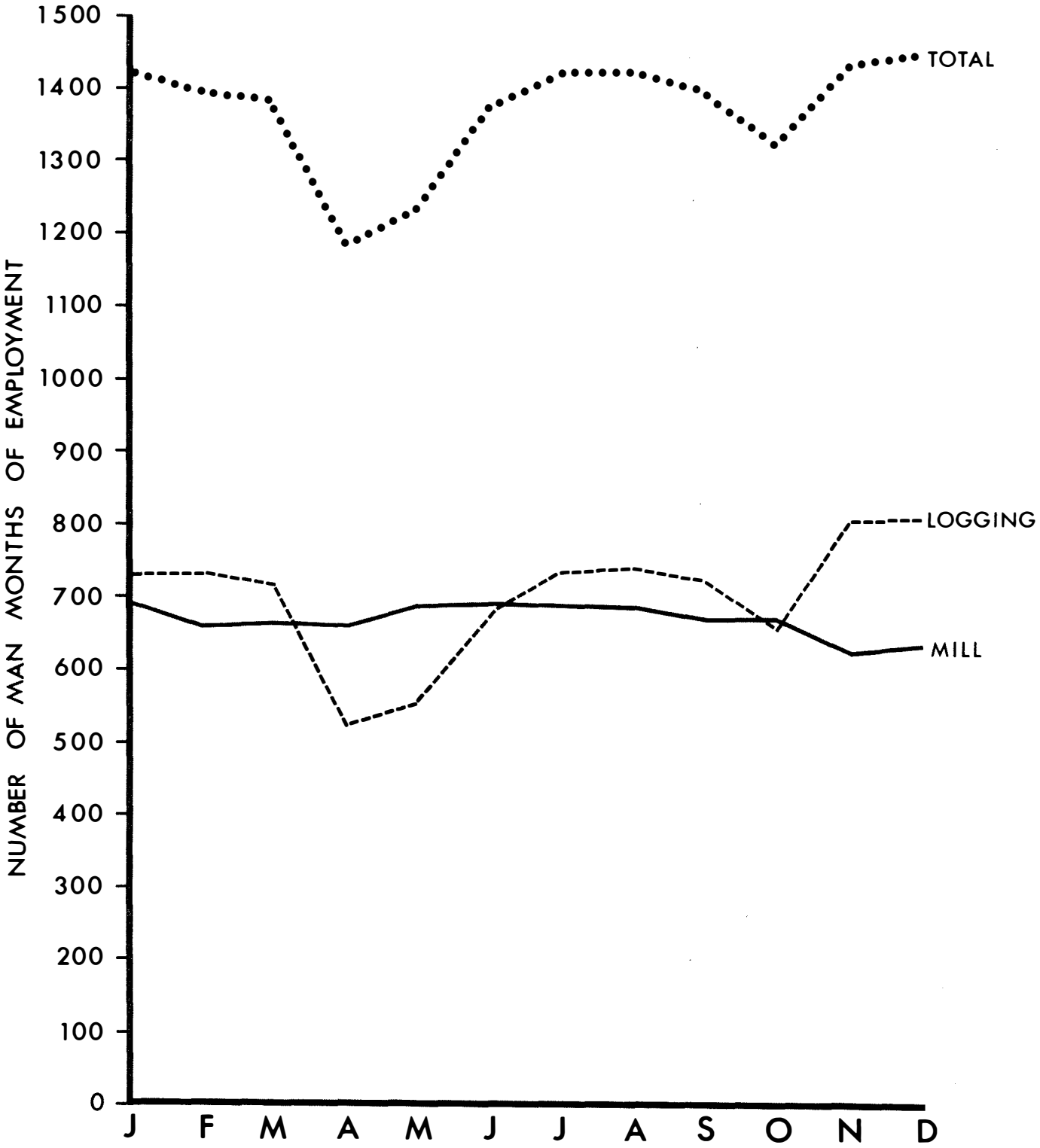
[1] To avoid disclosure of confidential data the MacMillan Bloedel (Sask.) Ltd. "aspenite" plant (SIC 259) has been grouped with the two pulp mills (SIC 271).

FIG. 5 SEASONALITY OF EMPLOYMENT IN THE SASKATCHEWAN PULP & PAPER INDUSTRY



SOURCE: Appendix F, Table 1.

The pulp and paper industry supported the greatest number of jobs in logging--an average of 704 persons, or 63% of the logging industry labor force. High employment year-round was characteristic of this industry. Ninety-seven percent of the labor force worked directly for or contracted to the Prince Albert and Hudson Bay mills.

Wood Preservation Industry

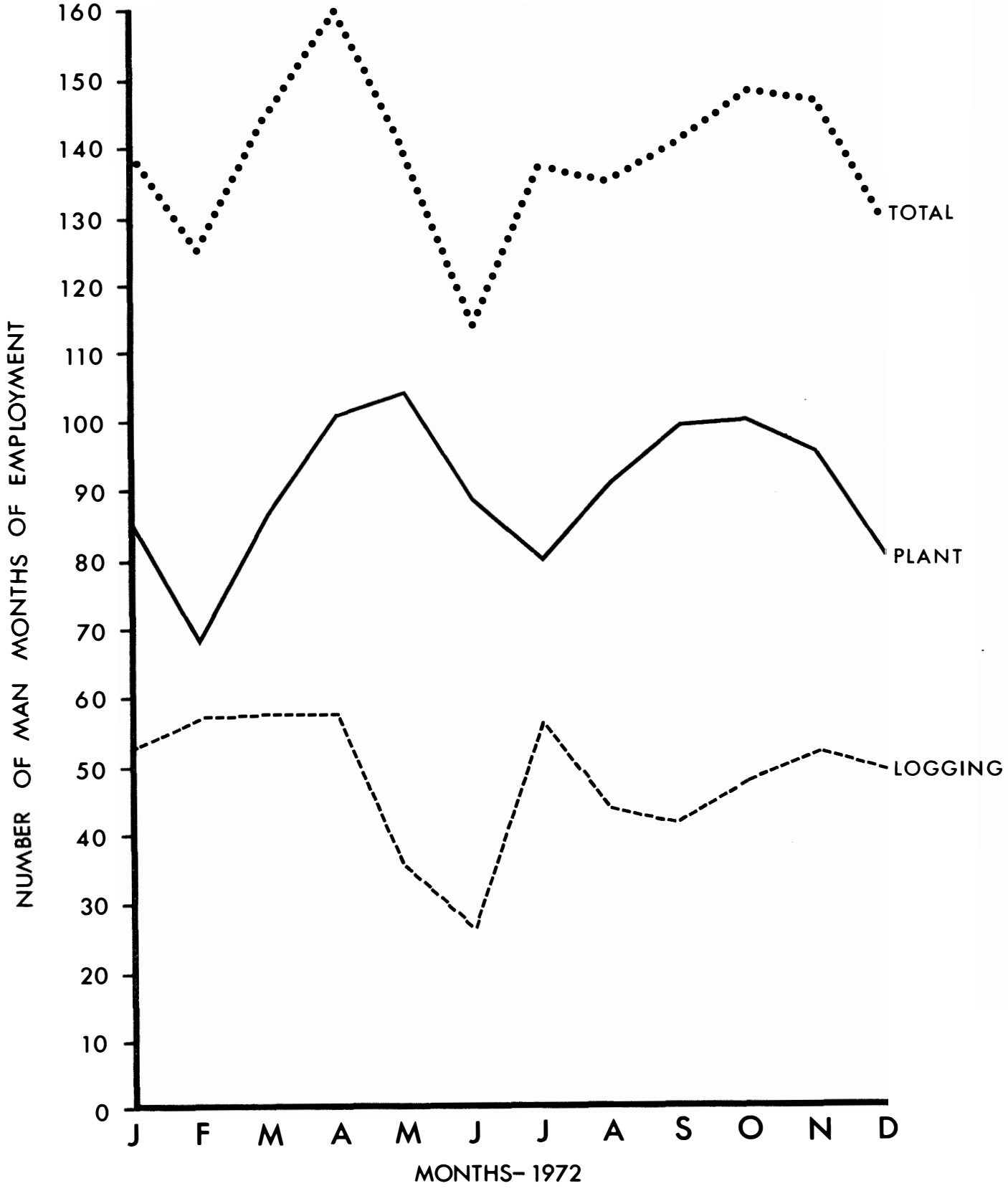
Figure 6 does not depict the typical employment pattern for the Saskatchewan wood preservation industry. The decline in employment commencing in June resulted from a temporary plant closure at Northern Wood Preservers Ltd. followed by a strike at Domtar Chemicals Ltd. during July.

Typical of the industry, however, was the sharp increase in the number of people working in February which continued through late April, and the subsequent decrease in early October. Average employment was 90 persons with a minimum work force of 68 persons in February and a maximum of 104 in May.

Difficulty in treating frozen wood, high costs incurred in heating treating oil, wood supply problems, and size of operation all tend to preclude winter operations. The larger establishments did, however, maintain a minimum staff to carry out miscellaneous jobs such as sorting material, incising, repairing equipment, and bundling.

The wood preservation industry supported an average of 48 persons in timber operations. Typically, employment declined during spring breakup from 58 persons in April to 26 in June.

FIG. 6 SEASONALITY OF EMPLOYMENT IN THE SASKATCHEWAN WOOD PRESERVING INDUSTRY



SOURCE: Appendix F, Table 2.

Sawmill and Planing Mill Industry

Class 5 Sawmills: Figure 7 illustrates the employment pattern for the three establishments comprising this class whose production was equal to or in excess of 11 799 m^3 ($\geq$5000 Mfbm) in 1972. These firms provided year-round employment for approximately 394 persons. Employment was at its minimum in February (338 persons) and its peak of 419 persons in September. In total these mills provided jobs for approximately 32% of the forest industry labor force. The 23% increase in employment from 339 persons in January to 418 in May can be primarily attributed to the start-up of the new dimension mill at Meadow Lake in mid-February.

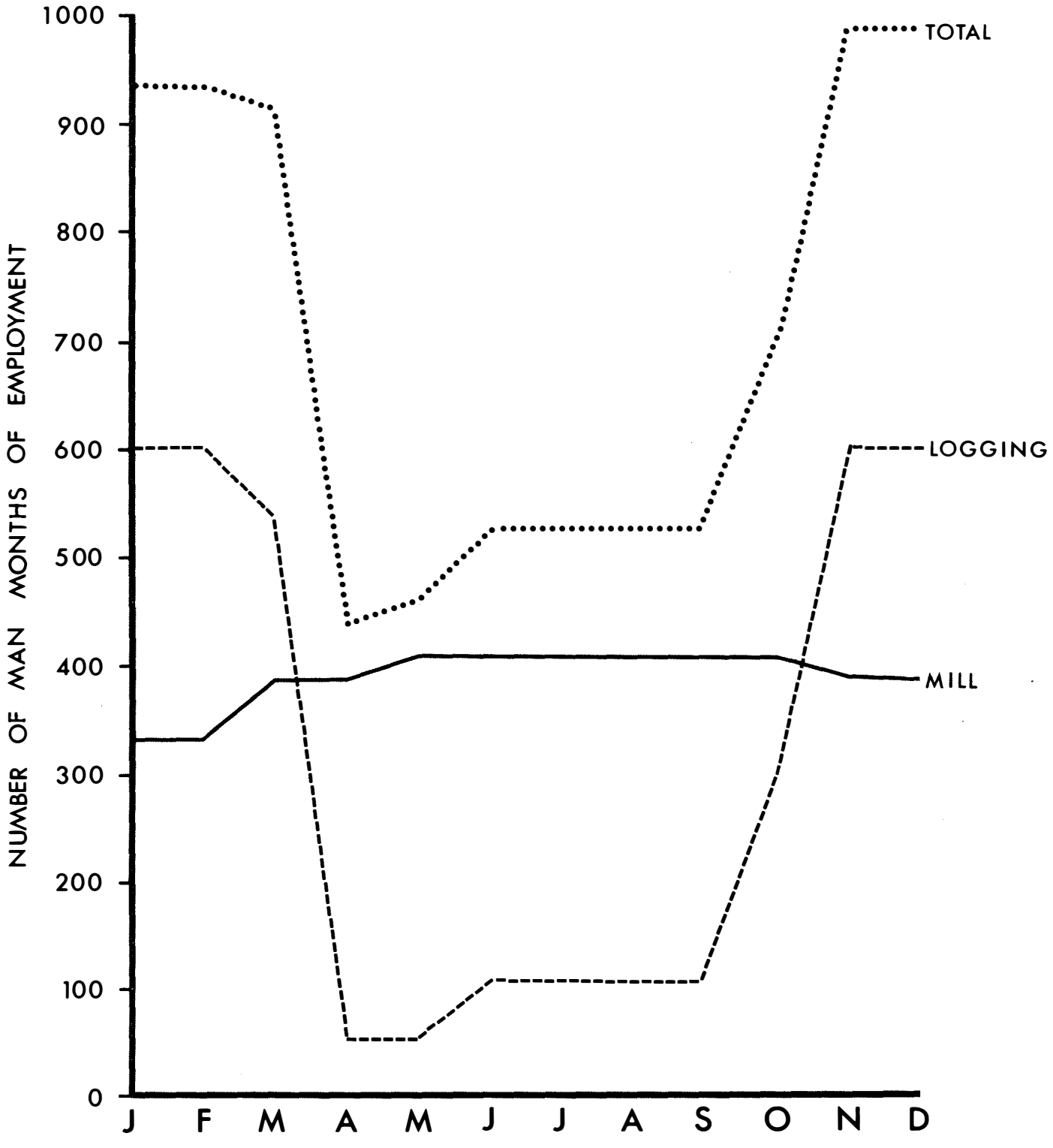
The logging industry supplying sawtimber to these establishments employed an average of 317 persons. Much of the timber harvesting occurred during the first three months of the year and in November and December. The industry's labor force was at its minimum in May and maximum in February at 51 and 603 persons, respectively.

Class 1-4 Sawmills: Figures 8 to 11 provide monthly employment data in logging and lumber production for mill Classes 1-4, respectively. The majority of these mills, 313 in total, are farmer-owned and -operated and secondary to the owner's primary occupation.

Most of the logging and sawing in Class 3 and 4 mills occurred during the winter season, although a few Class 4 mills continued sawing periodically throughout the summer.

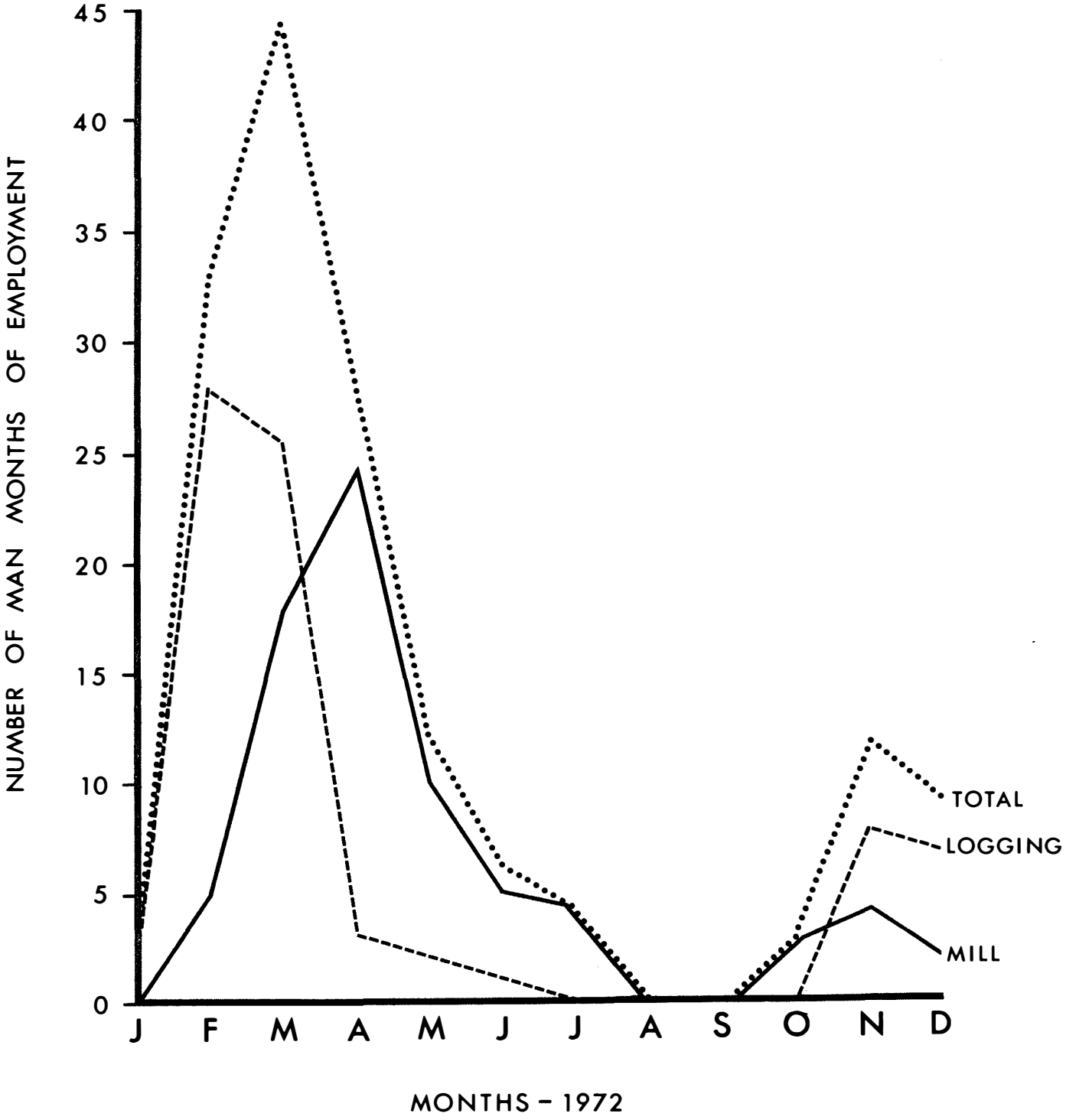
Mills in which production was less than 472 m^3 (200 Mfbm)

FIG. 7 SEASONALITY OF EMPLOYMENT IN SASKATCHEWAN CLASS 5 SAWMILLS



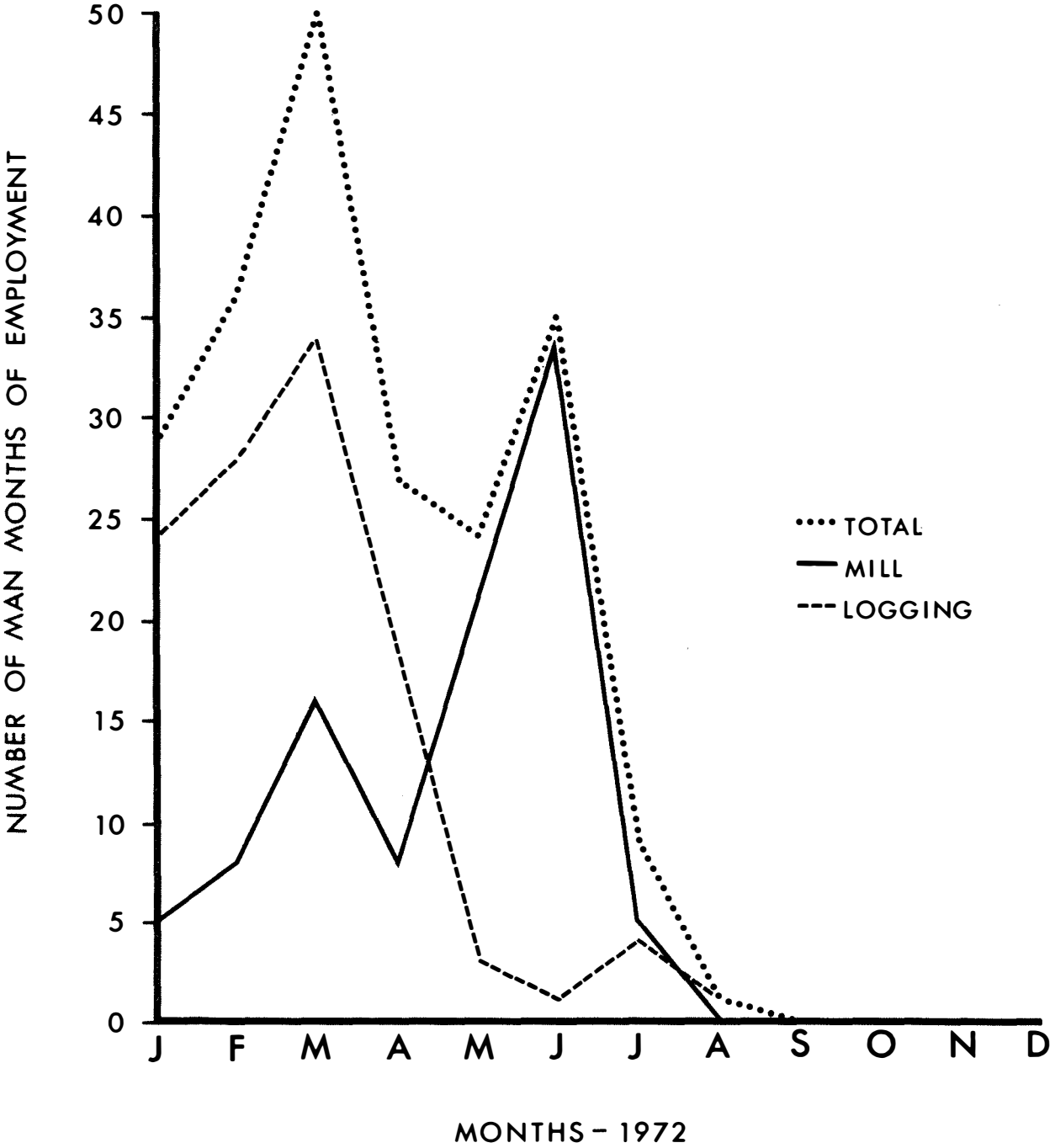
SOURCE: Appendix F, Table 7.

FIG. 8 SEASONALITY OF EMPLOYMENT IN SASKATCHEWAN CLASS 1 SAWMILLS



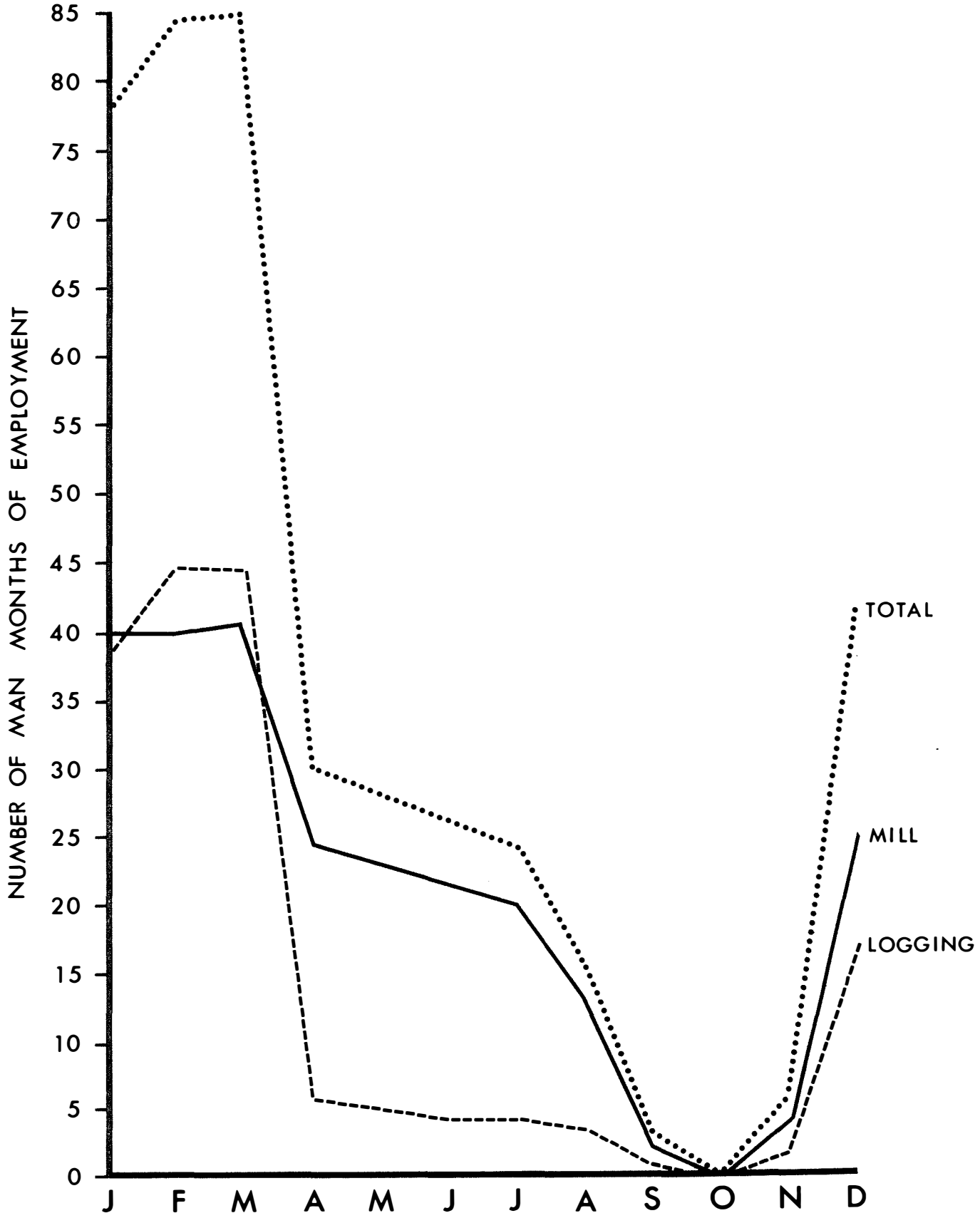
SOURCE: Appendix F, Table 3.

FIG. 9 SEASONALITY OF EMPLOYMENT IN SASKATCHEWAN CLASS 2 SAWMILLS



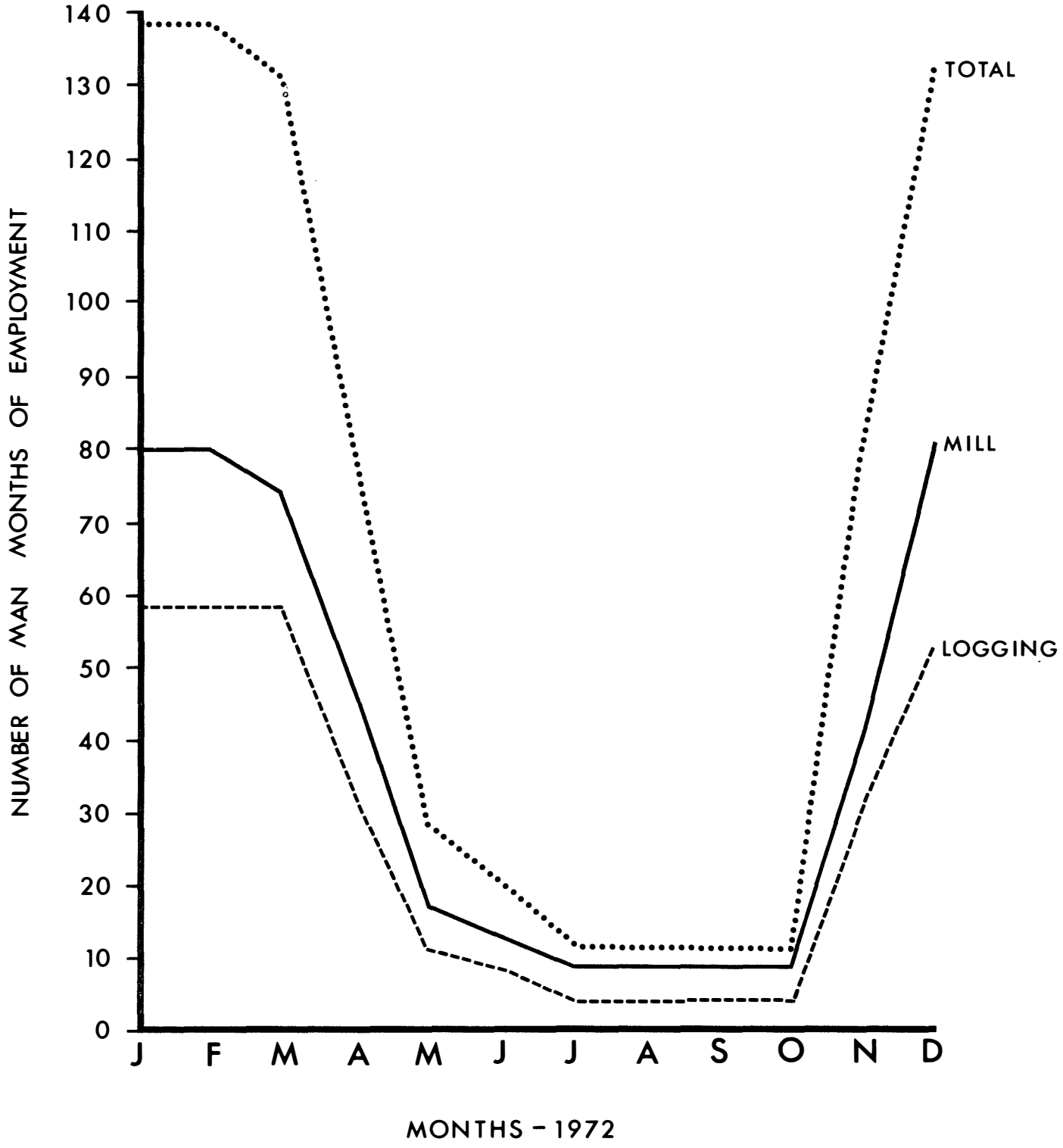
SOURCE: Appendix F, Table 4.

FIG. 10 SEASONALITY OF EMPLOYMENT IN SASKATCHEWAN CLASS 3 SAWMILLS



SOURCE: Appendix F, Table 5.

FIG. 11 SEASONALITY OF EMPLOYMENT IN SASKATCHEWAN CLASS 4 SAWMILLS



SOURCE: Appendix F, Table 6.

(Classes 1 and 2) operated rather erratically, typifying the general nature of small sawmill operations. Most lumber was sawn more or less as the need arose or in anticipation of use within the immediate future, with much of the production used by the owner himself or sold locally.

Approximately 74 persons were employed by Class 1-4 mills. In turn these sawmills provided 58 people with jobs in logging. Total employment in both activities was 132 persons, or approximately 6% of the total forest industry labor force.

NATIVE EMPLOYMENT

The forest industry of Saskatchewan provides some opportunities for employment of native people. Employment is usually found where little in the way of technical experience or skill is required and the job, in many cases, is seasonal. In 1972, 350 jobs, or 15% of the forest industry labor force (logging and manufacturing), were occupied by Indian or Métis people (Table 40).

The pulp and paper industry supported about 45% of the native labor force. Of the 158 natives employed, about 88% were engaged in logging operations while the remainder worked at the mill site.

The sawmill industry employed about 41% of the native work force, the majority at the three large mills (Class 5). Approximately two-thirds of the natives employed by these companies worked in the woods. In the smaller operations, Classes 1-4, 27% of the workers were native people, the majority of whom were employed at the Indian-owned and/or -operated mills at Dillon, Canoe Lake, Stoney Rapids, and Red Earth.

TABLE 40. NATIVE EMPLOYMENT IN THE SASKATCHEWAN FOREST INDUSTRY, 1972

Industry Group		Total Employment	Native Employment[1]	% Native Employment of Industry Total
Pulp and Paper:	Logging	704	139	20
	Mill	669	19	3
Wood Preservation:	Logging	48	35	73
	Plant	90	15	17
Sawmills:				
Class 5	Logging	317	72	23
	Mill	394	35	9
Classes 1-4	Logging	58	15	26
	Mill	74	20	27
TOTAL		2 354	350	15

[1] Defined as the Indian and Métis people of Saskatchewan

SOURCE: N.F.R.C. Wood Industry Survey, 1972

ORGANIZED LABOR IN SASKATCHEWAN'S FOREST INDUSTRY

Table 41 provides a breakdown of the Saskatchewan forest industry (manufacturing only) by industry group showing the total number of production and related workers and those having membership in a trade union. In 1972 the United Paperworkers International Union and the International Woodworkers of America represented 91% of the production workers. The pulp and paper industry was completely unionized, the wood preservation industry 50%, and the sawmill industry 84%. In the latter industry, all of the union members were employed by the three mills comprising Class 5.

FOREST INDUSTRY EMPLOYMENT MULTIPLIERS

Studies have shown that each primary or basic job generally supports an additional non-basic (indirect) job in the same community. This expansion principle is called the employment multiplier. A recent report (Reed and Associates, 1973a) describing the British Columbia forest industry defined basic activities as those which produce goods and services for markets outside the local community. An example of a basic activity would be a pulp and paper mill producing for export markets. Non-basic activities are those which produce goods and services for the local market.

There was no attempt during the course of this study to gather data for purposes of determining employment multipliers for the Saskatchewan forest industry. However, employment multipliers calculated for the basic activity in several other forest-based communities in

TABLE 41. ORGANIZED LABOR IN SASKATCHEWAN'S FOREST INDUSTRY[1], 1972

Industry Group	Total Number Production and Related Workers	Union Membership	Union
Pulp and Paper	537	537	1) United Paper Workers International Union 2) International Woodworkers of America
Wood Preservation	72	36	International Woodworkers of America
Sawmill Industry			
Class 1	2	-	
Class 2	1	-	
Class 3	17	-	
Class 4	35	-	
Class 5	298	298	International Woodworkers of America
TOTAL	962	871	

[1] Manufacturing only

SOURCE: N.F.R.C. Wood Industry Survey, 1972

Canada, including estimated provincial multipliers, were available (Table 42) and were used to estimate industry multipliers for Saskatchewan. Such multipliers afford the opportunity of analyzing the impact of a changed level of employment in the forest industry on the total employment in an area.

Employment multipliers for each industry group in Saskatchewan were estimated with reference to those presented in Table 42. A number of criteria such as structure and size of industry, extent of transportation services required, relative size of the service sector, source of major non-wood materials and supplies, income expenditure pattern of industry employees, were weighed subjectively in determining the appropriate multiplier.

The multipliers estimated for the separate industry groups are shown in Table 43 along with the indirect employment generated. The subjective approach used to determine these multipliers was a relatively expedient and unsophisticated method and the multipliers should be viewed as reasonable approximations only. More precise multipliers for each industry group could be developed by conducting employment surveys in major forest-based communities in the province.

Indirect employment supported by the forest industry in 1972 was 2277 jobs. Sixty-one percent of these jobs resulted from the operation of the pulp and paper industry. Total employment, basic and non-basic, was 4631 jobs. The provincial forest industry multiplier estimated on the basis of the data in Table 43 was 1.97. By definition this means each job in the Saskatchewan forest industry was related with .97 jobs elsewhere, or each new job created at the primary level created .97 additional jobs elsewhere in the province.

TABLE 42. FOREST INDUSTRY EMPLOYMENT MULTIPLIERS

Province	Location	Estimated Multiplier	Basic Activity
Ontario[1]	Dryden	2.01	pulp mill
	Hearst/Kapuskasing	2.13	pulp mill/sawmilling
		2.73*	
British Columbia[2]	Prince George	2.43	pulp and paper
	Okanagan Region	2.49	mixed forest industry
		2.80*	
Nova Scotia[3]		3.20*	sawmill industry
		1.40*	misc. wood products
		3.50*	pulp & paper industry

* Provincial Multipliers

SOURCE: [1] Hedlin, Menzies and Associates, Ltd. 1969. The Ontario Forest Industry. Its Direct and Indirect Contribution to the Economy. Ont. Dep. Lands For.

[2] Reed, F.L.C. and Associates. 1973a. The British Columbia Forest Industry. Its Direct and Indirect Impact on the Economy. B.C. Dep. Lands, For. Water Resour.

[3] Runyon, K.L. et al. 1972. Analysis of the Economic Impact of Sawmills and Pulp and Paper Mills in Nova Scotia. Maritimes Forest Research Centre, Canadian Forestry Service, Inf. Rep. M-X-33.

TABLE 43. DIRECT AND INDIRECT EMPLOYMENT SUPPORTED BY THE SASKATCHEWAN FOREST INDUSTRY

Industry Group	Direct Forest Industry Employment	Industry Multiplier	Indirect Employment	Total Employment
Pulp and Paper	1 373	2.01	1 387	2 760
Wood Preservation	138	1.95	131	269
Sawmill Industry	843	1.90	769	1 592
TOTAL	2 354		2 277	4 631

Estimated Provincial Forest Industry Multiplier 1.97

LABOR PROBLEMS

The forest industry was not without its labor problems in 1972. There was a serious shortage of skilled labor required by the larger companies, and labor turnover was high, particularly among sawmill and wood-preserving workers. The problem was further complicated by the fact that the labor pool from which companies usually drew for their manpower requirements had almost disappeared, mainly because of increased job opportunities elsewhere where working conditions were more favorable. Mechanization of logging operations was one of the more feasible alternatives considered.

CHAPTER VI

PRODUCTION COSTS AND VALUE ADDED OF THE SASKATCHEWAN FOREST INDUSTRY

This chapter describes production costs incurred and value added by output of Saskatchewan's forest industry in 1972. Production cost components identified were wood inputs, salaries and wages, fuel and electricity, materials and supplies, and miscellaneous items which include benefits, property taxes, insurances, leasing and rentals, and other expenses (Appendix G, Table 1).

PRODUCTION COSTS AND INDUSTRY SALES

In 1972 the forest industry shipped products valued at $69 million. Major expenditures incurred in the production of these goods included $21.8 million for wood fiber, $10.8 million for salaries and wages, $3.2 million for fuel and electricity, and $8.5 million for materials and supplies. Wood fiber and salaries and wages combined accounted for almost half of the selling value of goods produced (Table 44).

Products manufactured by the pulp and paper industry were valued at $44 million and accounted for 64% of sales reported by the primary wood-using industries. The major expenditure was wood fiber purchased as roundwood or wood chips. Total cost was $12.4 million, or 28% of the value of all goods sold. Salaries and wages were the second largest expenditure at $6.6 million, or 15% of sales.

Products shipped by the wood preservation industry were valued at $3.5 million, or 5% of forest industry sales. Roundwood inputs in the form of fence posts, poles, rails, piling, and rough lumber products such as bridging timbers and railway ties represented the major

TABLE 44. DISTRIBUTION OF MAJOR PRODUCTION COSTS IN THE SASKATCHEWAN FOREST INDUSTRY[1], 1972

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry		Total[2]	% of Net Sales
			Class 1-4	Class 5		
Number of Firms	3	6	313	3	325	
	----------thousands of dollars----------					
Wood Inputs	12 436	1 480	570	7 337	21 824	31.6
Salaries and Wages	6 602	636	605	2 994	10 837	15.7
Fuel and Electricity	2 715	72	71	356	3 214	4.6
Materials and Supplies	6 082	695	218	1 501	8 496	12.3
Miscellaneous[3]	7 583	222	14	916	8 736	12.6
Residual[4]	8 559	399	122	6 954	16 032	23.2
NET SALES	43 977	3 504	1 600	20 058	69 139	100.0

[1] Manufacturing only.
[2] Totals may not add due to rounding.
[3] Includes company-paid employee benefits, property taxes, insurances, leasing and rentals, and other expenses.
[4] Includes profit, depreciation and other unallocated expenses incurred.

SOURCE: Appendix G, Table 1.

production cost at $1 480 000. Materials and supplies were second at $695 000, followed closely by salaries and wages at $636 000. The three costs combined accounted for $2 811 000, or 80% of the net value of all treated wood products sold.

In the sawmill industry sales for mill Classes 1-4 were valued at $1.6 million, or about 2% of all forest industry sales. Log costs and salaries and wages combined accounted for 73% of the sales dollar.

Total value of products sold by the three large mills (Class 5) was $20 million. Major expenditures, accounting for 74% of sales, were for logs, salaries and wages, and materials and supplies. Relative to other industry groups, Class 5 mills had the lowest wage expenditure per dollar of sales (Table 45).

VALUE ADDED OF OUTPUT

Value added can be roughly defined as the net selling value of shipments, minus the cost of manufacturing materials and supplies, minus the cost of fuel and electricity consumed, plus or minus inventory adjustment. It thus measures the value which has been "added" to brought-in materials and components by the process of production. As such its major components include labor costs (salaries and wages), the cost of capital (interest, rent, depreciation), and the return to the enterprise (profits). It is considered one of the more accurate economic parameters available for comparing the economic importance of industries.

Table 46 shows value added and selling value of shipments for Saskatchewan's primary wood-using industries by industry group for 1972.

TABLE 45. DISTRIBUTION OF MAJOR PRODUCTION COSTS AS A PERCENTAGE OF NET SALES IN THE SASKATCHEWAN FOREST INDUSTRY, 1972

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry	
			Classes 1-4	Class 5
Number of Firms	3	6	313	3
	%	%	%	%
Wood Inputs	28.3	42.2	35.6	36.6
Salaries and Wages	15.0	18.2	37.8	14.9
Fuel and Electricity	6.2	2.1	4.5	1.8
Materials and Supplies	13.8	19.8	13.6	7.5
Miscellaneous	17.2	6.3	0.9	4.5
Residual	19.5	11.4	7.6	34.7
TOTAL	100.0	100.0	100.0	100.0
Net Sales ($000's)	$43 977	$3 504	$1 600	$20 058

SOURCE: Table 44

TABLE 46. VALUE ADDED AND SALES IN THE SASKATCHEWAN FOREST INDUSTRY, 1972

Industry Group	No. of Firms	Value Added by Manufacturing Activity	Selling Value of Shipments	% Value Added of Selling Value	Gross Selling Value[1]
		$ 000's			$000's
Pulp and Paper Industry	3	22 743	43 977	51.7	54 302
Wood Preservation Industry	6	1 257	3 504	35.9	3 827
Sawmill and Planing Mill Industry	316	11 605	21 658	53.6	26 130
Logging	62	7 678	19 695	39.0	-
TOTAL	387	43 283	88 834	48.7	

[1] Includes sales taxes, excise duties and taxes, outward transportation charges, sales discounts, sales allowances, and so forth.

SOURCE: Appendix G, Table 1.
Statistics Canada. Logging, 1972. Cat. No. 25-201. Annual.

An aggregate value for logging is included. Value added by the primary wood-using industries (including logging) to the gross provincial product was $43.3 million. Of this, the pulp and paper industry created $22.7 million, the sawmill and planing mill industry $11.6 million, and logging $7.7 million. Value added by the wood preservation industry was relatively small at $1.3 million, or 3% of the total.

Value added by the manufacturing sector in 1972 was $244 million, or 7% of the gross domestic product. The Wood Industries share of total value added by the manufacturing sector was $24 million or 9.7%, placing it second in importance among the 20 industry groups, bettered only by the Food and Beverage Industries (Table 6).

For reasons of confidentiality, Statistics Canada did not publish "value added by manufacturing activity" for the paper and allied industries in 1972. However, value added by manufacturing activity for the paper and allied industries[1] as estimated by the N.F.R.C. Wood Industry Survey, corrected for the inclusion of the waferboard plant, places the industry about fifth in importance behind the food and beverage, wood, printing and publishing and allied, and petroleum and coal products industries.

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[1] It is recognized that value added as used here is a minimum value since the N.F.R.C. Wood Industry Survey, 1972 did not include all establishments classified under Major Group 10--Paper and Allied Industries.

CHAPTER VII

THE ECONOMIC CONTRIBUTION OF SASKATCHEWAN'S FOREST INDUSTRY

The forest industry is one of Saskatchewan's leading industries in its contributions to the manufacturing economy. In 1972 net sales of the primary wood-using industry accounted for 11% of all manufacturing sales, 8% of employment, 9% of salaries and wages, and 15% of value added of the respective totals for the manufacturing sector. Beyond these direct and measurable contributions are the contributions to other industries and sectors of the economy having economic ties with the forest industry.

Saskatchewan's forest resource is presently underutilized. The allowable annual cut from provincial crown land of softwoods, estimated at 5.7 million m^3 (203 million ft^3), is almost three times the 1972 harvest of 2.0 million m^3 (71 million ft^3); that of hardwoods is about nine times the 1972 cut of 481 000 m^3 (17 million ft^3). Although the allowable cut is based on the full utilization of all stands, the indicated magnitude of the surplus volume of softwoods and hardwoods suggests considerable scope for expansion of the forest industry.

In 1972 Saskatchewan's forest industry was comprised of 325 firms of which fewer than 10 operated year-round. Generally, the industry is non-integrated and scattered throughout the commercial forest. The majority of the small sawmills (313 in total) operated sporadically throughout the year, produced about 15% of total lumber production, and paid the lowest wages. Planning for the development of new industry and/or the expansion of existing industry should consider vertical and

horizontal integration of operations. Such integration would not only offer more of the better paying jobs, provide stable employment, and achieve better utilization of roundwood inputs, but would also allow the entrepreneur and province to reap the benefits of producing the highest value product from the resource.

CONTRIBUTION OF SASKATCHEWAN'S FOREST INDUSTRY TO THE PROVINCIAL ECONOMY

The contribution of the forest industry to the provincial economy has been measured in terms of employment, salaries and wages, products, markets, costs, and value added. In 1972, 2354 full-time equivalent jobs were provided in Saskatchewan by the primary wood-using industry including logging activity. With secondary employment of 2277 jobs, total employment of 4631 was significant. Forest industry also provided employment to significant numbers of native people in their own environment. In 1972, 350 or 15% of the jobs in logging and manufacturing combined were filled by native people. More than 85% of the native labor force was employed in the pulp and paper and sawmilling industries.

Export of forest products earned foreign exchange for the province. In 1972 the 325 primary wood-using establishments generated a conservatively estimated $54 million in foreign exchange earnings. Pulp and paper exports were the most important, with 88% of the kraft pulp being exported to other countries, most of it to the United States. In addition 63% of the lumber was shipped to the United States.

Total payroll of the primary wood-using industries in 1972 was $10.8 million. For every dollar of net sales, $.16 was returned to

employees in payment for work performed. The pulp and paper industry had the largest payroll at $6.6 million, followed by the sawmill industry at $3.6 million. The forest industry payroll accounted for 9% of the total for the manufacturing sector.

Since policy-makers and resource managers are concerned about efficient resource use the relationships in Table 47 are of considerable interest. The wood preservation industry returns the largest amount per cubic metre of wood input of gross and net sales, value added, salaries and wages, and employment. In second place is the pulp and paper industry. Certainly other factors such as markets and wood input characteristics would have to be considered, but given the dangerous aspects of sawmilling as reflected by the high workmen's compensation premiums, one could argue the case for processing wood through wood preservation and pulp and paper industries.

SASKATCHEWAN'S TIMBER RESOURCE--PRESENT AND FUTURE

Increasing world population and industrialization will result in increasing demand for timber and related products. Since Canada is the leading timber exporting nation in the world (U.S. Department of Agriculture, 1973), increases in international demand, especially in the United States, will have a direct effect on the Canadian forest industry. Industrial expansion can be expected to concentrate in those regions having the largest supplies of economically available timber. In 1972 Canada's timber harvest was 124 million m^3 (4380 million ft^3), or 55% of its economic allowable annual cut (Table 48). Based on the economic

TABLE 47. INTER-INDUSTRY COMPARISONS OF SELECTED ECONOMIC MEASURES, 1972

Measures	Sawmill Industry	Pulp and Paper Industry	Wood Preservation Industry
Per m^3 (cunit) of Wood Input			
Gross Sales	$ 31 ($87)	$38 ($108)	$54 ($152)
Net Sales	$ 25 ($72)	$31 ($ 88)	$49 ($140)
Value Added	$ 14 ($38)	$16 ($ 45)	$18 ($ 50)
Salaries and Wages	$ 4 ($12)	$ 5 ($ 13)	$ 9 ($ 25)
Employment[1] (man hours)	1.14 (3.23)	.98 (2.77)	2.64 (7.45)
Per Employee [1,2]			
Gross Sales	$55 834	$81 169	$42 523
Net Sales	$46 278	$65 735	$38 938
Value Added	$24 797	$33 995	$13 967
Salaries and Wages	$ 7 722	$ 9 868	$ 7 071
Wood Input--m^3 (cunits)	1 825 (644)	2 126 (751)	789 (279)

[1] Mill employment only

[2] Man year basis

SOURCE: N.F.R.C. Wood Industry Survey, 1972

TABLE 48. CANADA'S TIMBER HARVEST, 1972[1], AS A PERCENT OF GROSS PHYSICAL AND ECONOMIC ALLOWABLE CUT BY REGION

thousands of m^3
(millions of cubic feet)

Region	Gross Physical A.A.C.			Economic A.A.C.[2]		
	Softwood	Hardwood	Total	Softwood	Hardwood	Total
British Columbia	94 040	850	94 890	83 110	425	83 535
	(3 321)	(30)	(3 351)	(2 935)	(15)	(2 950)
%[3]	59.7	36.1	59.5	67.6	72.1	67.6
Prairie Provinces	29 449	17 273	46 722	20 615	12 091	32 706
	(1 040)	(610)	(1 650)	(728)	(427)	(1 155)
%[3]	28.9	5.0	20.1	41.3	7.1	28.6
Ontario	37 746	36 614	74 360	20 331	23 107	43 438
	(1 333)	(1 293)	(2 626)	(718)	(816)	(1 534)
%[3]	36.5	9.8	23.3	67.8	15.5	40.0
Quebec	52 018	11 667	63 685	38 228	6 853	45 081
	(1 837)	(412)	(2 249)	(1 350)	(242)	(1 592)
%[3]	43.3	45.7	43.7	58.9	77.7	61.7
Atlantic Provinces	18 378	6 145	24 523	16 141	5 380	21 521
	(649)	(217)	(866)	(570)	(190)	(760)
%[3]	62.5	25.0	53.1	71.2	28.6	60.5
TOTAL	231 631	72 549	304 180	178 425	47 856	226 281
	(8 180)	(2 562)	(10 742)	(6 301)	(1 690)	(7 991)
%[3]	48.5	16.0	40.8	63.0	24.2	54.8

[1] Excluding Yukon and Northwest Territories

[2] The allowable annual cut on areas now physically accessible or becoming so which could be utilized under present (1972) cost price levels for lumber and plywood and somewhat improved prices for pulp and newsprint.

[3] 1972 actual production as a percent of gross physical and economic allowable annual cut.

SOURCE: Council of Forest Industries of British Columbia. 1972. Canada's Forest Resource and Forest Products Potential. Vancouver, B.C. 1972.

Statistics Canada. 1974. Logging, 1972. Cat. No. 25-201. Annual.

allowable cut and the 1972 harvest (Table 49) Canada's surplus of economically available timber was 102 million m^3 (3611 million ft^3) annually. British Columbia, Ontario, and Prairie regions combined shared about equally in 75% of this surplus. However, they have very different mixes of softwoods and hardwoods. For example, British Columbia has almost all of its surplus timber in softwoods, Ontario is dominated by hardwoods, and the Prairie region has almost equal quantities of each type. Thus it appears that the Prairie region has the potential timber supplies to support an expanded forest industry of national as well as regional importance.

Saskatchewan's 1972 timber harvest of 2.6 million m^3 (93.3 million ft^3) was about 28% of the Prairie total. Provincial crown lands accounted for 95% of the production and other lands 5%. Production from provincial crown lands represented 35% of its softwood and 11% of its hardwood allowable cut (Table 29). Based on the province's allowable cut and the 1972 harvest, the forest industry could harvest an additional 7.8 million m^3 (274 million ft^3) annually. Full utilization of Saskatchewan's surplus timber could support a forest industry three times the present size. However, distribution of timber types, remoteness of stands, quality of timber, low yield capability of some forest land, and allocation of timber production areas to other uses seem to preclude development to this level. It does not, however, prevent expansion of the forest industry to some level below the allowable cut, nor does it prevent expansion to a level above it should Saskatchewan's forests be managed at higher levels of productivity than at present.

TABLE 49. SURPLUS TIMBER AVAILABLE FOR INDUSTRIAL EXPANSION BY REGION

Region	Canadian Timber Harvest, 1972			Estimated Surplus Timber, 1972			Relative Share of Surplus Timber		
	Softwood	Hardwood	Total[1]	Softwood	Hardwood	Total[1]	Softwood	Hardwood	Total
	------thousands of m^3--------			------thousands of m^3--------			----------%----------		
	----(millions of ft^3)--------			-----(millions of ft^3)-------					
British Columbia	56 152	312	56 464	26 958	113	27 071	40.8	0.3	26.5
	(1 983)	(11)	(1 994)	(952)	(4)	(956)			
Prairie Provinces	8 495	850	9 345	12 120	11 242	23 361	18.4	31.0	22.8
	(300)	(30)	(330)	(428)	(397)	(825)			
Ontario	13 790	3 568	17 358	6 541	19 539	26 080	9.9	53.9	25.5
	(487)	(126)	(613)	(231)	(690)	(921)			
Quebec	22 512	5 324	27 836	15 716	1 529	17 245	23.8	4.2	16.9
	(795)	(188)	(983)	(555)	(54)	(609)			
Atlantic Provinces	11 497	1 529	13 026	4 644	3 851	8 495	7.0	10.6	8.3
	(406)	(54)	(460)	(164)	(136)	(300)			
Canada	112 418	11 610	124 028	66 006	36 246	102 252	99.9	100.0	100.0
	(3 970)	(410)	(4 380)	(2 331)	(1 280)	(3 611)			

[1]Totals may not add due to rounding

SOURCE: Council of Forest Industries of British Columbia. 1972. Canada's Forest Resource and Forest Products Potential, Vancouver, B.C., 1972.

Statistics Canada, 1974. Logging, 1972. Cat. No. 25-201. Annual.

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APPENDIXES

APPENDIX A

SELECTED METRIC (SI) UNITS AND CONVERSION FACTORS

Canadian Unit	Metric (SI)
1 in.	2.54 cm
1 mile	1.609 34 km
1 acre	0.404 686 ha
1 sq mile	2.589 99 km^2
1 cord (85 cubic feet solid wood)	2.406 928 m^3
1 cu ft	0.028 316 8 m^3
1 cunit (100 ft^3 of solid wood)	2.831 68 m^3
1 ton (2000 lb)	0.907 185 t
1 cord per acre	8.956 47 m^3 (stacked)/ha
1 cu ft per acre	0.069 972 5 m^3/ha
1000 board ft	2.359 737 m^3
1 bone dry unit wood chips (2400 lb)	1.088 622 t
1 sq ft of sheet product (½" basis)	1.179 868 6 m^2 (1 mm basis)

SOURCE: Environment Canada, 1974. Selected Metric (SI) Units and Conversion Factors for Canadian Forestry. Canadian Forestry Service, November, 1974.

APPENDIX B

LUMBER PRODUCTION BY SIZE CLASS FOR SASKATCHEWAN SAWMILLS, 1972

Class Size[1] m^3	Class Size[1] MFBM	No. of Sawmills	Production m^3	Production MFBM	Class Output as a Percent of Total Production %
0 - 4 719	0 - 2 000	42	2 296	973	0.584
4 722 - 7 079	2 001 - 3 000	7	413	175	0.105
7 082 - 9 439	3 001 - 4 000	59	1 912	827	0.496
9 441 - 11 799	4 001 - 5 000	59	590	250	0.150
11 801 - 14 158	5 001 - 6 000	38	1 453	604	0.362
14 161 - 18 878	6 001 - 8 000	49	7 259	3 076	1.846
18 880 - 23 597	8 001 - 10 000	25	2 069	877	0.526
23 600 - 35 396	10 001 - 15 000	13	4 007	1 698	1.019
35 398 - 58 993	15 001 - 25 000	15	14 498	6 144	3.686
58 996 - 106 188	25 001 - 45 000	6	22 682	9 612	5.767
106 191 - 424 753	45 001 - 180 000	3	336 114[2]	142 431[2]	85.458
TOTAL		316	393 293[2]	166 667[2]	

[1] Size classes are defined in terms of the potential production in cubic metres (board feet) of a sawmill operating for one 8-hour shift.

[2] Represents total production of rough board and dimension lumber, timbers and railway ties. Does not include output of miscellaneous products. Output from the largest class has been adjusted for sales of rough sawn lumber flowing to it from smaller lumber producers.

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX C

TABLE 1. AREA OF PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY BROAD COVER TYPES AND DENSITY CLASSES BY BLOCK

COVER TYPE	DENSITY CLASS[1]	BLOCK I	BLOCK II (acres)	BLOCK III	TOTAL
		B L O C K			
Softwood	Understocked	238,501	252,410	339,406	830,317
	Inadequately Stocked	825,245	996,034	985,538	2,806,817
	Well Stocked	967,958	1,474,342	1,135,795	3,578,095
	Overstocked	616,217	1,545,749	1,038,843	3,200,809
	TOTAL	2,647,921	4,268,535	3,499,582	10,416,038
Mixedwood	Understocked	175,568	69,878	132,944	378,390
	Inadequately Stocked	419,078	270,441	287,302	976,821
	Well Stocked	418,786	456,119	352,487	1,227,392
	Overstocked	183,772	190,680	114,737	489,189
	TOTAL	1,197,204	987,118	887,470	3,071,792
Hardwood	Understocked	166,723	52,374	138,068	357,165
	Inadequately Stocked	476,316	226,870	320,575	1,023,761
	Well Stocked	488,208	420,013	634,907	1,543,128
	Overstocked	352,480	475,568	1,141,653	1,969,701
	TOTAL	1,483,727	1,174,825	2,235,203	4,893,755
Potentially Productive		554,582	424,739	1,189,508	2,168,819
TOTAL PRODUCTIVE COMMERCIAL FOREST LAND		5,883,434	6,855,207	7,811,763	20,550,404

[1] Based on per cent of tree crown closure: understocked <30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked >71%.

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 2. **AREA OF PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY BROAD COVER TYPES AND HEIGHT CLASSES BY BLOCK**

COVER TYPE	HEIGHT CLASS	BLOCK I	BLOCK II (acres)	BLOCK III	TOTAL
		B L O C K			
Softwood	1 to 30 feet	698,682	1,372,106	1,388,321	3,459,109
	31 to 50 feet	1,543,518	2,203,247	1,625,075	5,371,840
	51 to 70 feet	330,564	658,764	447,304	1,436,632
	71+ feet	75,157	34,418	38,882	148,457
	TOTAL	2,647,921	4,268,535	3,499,582	10,416,038
Mixedwood	1 to 30 feet	287,362	378,195	272,566	938,123
	31 to 50 feet	249,738	255,579	162,027	667,344
	51 to 70 feet	398,119	283,633	280,524	962,276
	71+ feet	261,985	69,711	172,353	504,049
	TOTAL	1,197,204	987,118	887,470	3,071,792
Hardwood	1 to 30 feet	231,515	349,192	705,229	1,285,936
	31 to 50 feet	429,208	493,091	852,002	1,774,301
	51 to 70 feet	583,266	286,844	571,000	1,441,110
	71+ feet	239,738	45,698	106,972	392,408
	TOTAL	1,483,727	1,174,825	2,235,203	4,893,755
Potentially Productive		554,582	424,729	1,189,508	2,168,819
TOTAL PRODUCTIVE COMMERCIAL FOREST LAND		5,883,434	6,855,207	7,811,763	20,550,404

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 3A. GROSS MERCHANTABLE SOFTWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND HEIGHT CLASSES BY BLOCK

SPECIES & HEIGHT CLASS	BLOCK I	BLOCK II	BLOCK III	TOTAL
		B L O C K		
		(thousands of cubic feet)		
White Spruce				
1 - 30 feet	9,859	14,697	10,699	35,255
31 - 50 feet	157,209	167,605	105,405	430,219
51 - 70 feet	539,880	381,821	394,374	1,316,075
71+ feet	422,646	140,390	258,430	821,466
TOTAL	1,129,594	704,513	768,908	2,603,015
Black Spruce				
1 - 30 feet	70,736	91,774	49,554	212,064
31 - 50 feet	1,005,159	1,230,111	477,570	2,712,840
51 - 70 feet	207,343	261,222	118,992	587,557
71+ feet	21,275	6,346	11,017	38,638
TOTAL	1,304,513	1,589,453	657,133	3,551,099
Jack Pine				
1 - 30 feet	85,232	164,518	133,685	383,435
31 - 50 feet	461,619	832,470	815,061	2,109,150
51 - 70 feet	215,242	862,254	584,160	1,661,656
71+ feet	14,775	18,824	19,439	53,038
TOTAL	776,868	1,878,066	1,552,345	4,207,279
Balsam Fir				
1 - 30 feet	1,036	1,187	171	2,394
31 - 50 feet	15,913	15,492	9,487	40,892
51 - 70 feet	38,294	26,832	31,001	96,127
71+ feet	35,541	11,896	20,291	67,728
TOTAL	90,784	55,407	60,950	207,141
Tamarack				
1 - 30 feet	5,031	6,887	6,133	18,051
31 - 50 feet	24,862	35,511	25,159	85,532
51 - 70 feet	5,568	6,858	4,486	16,912
71+ feet	610	201	366	1,177
TOTAL	36,071	49,457	36,144	121,672
TOTAL ALL SPECIES	3,337,830	4,276,896	3,075,480	10,690,206

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

TABLE 3B. GROSS MERCHANTABLE HARDWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND HEIGHT CLASSES BY BLOCK

SPECIES & HEIGHT CLASS	BLOCK I	BLOCK II	BLOCK III	TOTAL
		B L O C K		
		(thousands of cubic feet)		
White Poplar				
1 - 30 feet	32,983	62,220	43,609	138,812
31 - 50 feet	353,659	486,149	622,520	1,462,328
51 - 70 feet	1,097,935	739,956	1,184,102	3,021,993
71+ feet	545,790	200,492	435,625	1,181,907
TOTAL	2,030,367	1,488,817	2,285,856	5,805,040
Black Poplar				
1 - 30 feet	4,725	5,284	17,503	27,512
31 - 50 feet	60,092	61,711	88,129	209,932
51 - 70 feet	225,387	90,839	141,278	457,504
71+ feet	271,797	31,183	73,201	376,181
TOTAL	562,001	189,017	320,111	1,071,129
White Birch				
1 - 30 feet	5,768	7,910	6,175	19,853
31 - 50 feet	75,266	75,310	38,139	188,715
51 - 70 feet	90,915	57,869	65,908	214,692
71+ feet	46,012	10,286	21,546	77,844
TOTAL	217,961	151,375	131,768	501,104
Green Ash				
1 - 30 feet	-	-	-	-
31 - 50 feet	452	-	-	452
51 - 70 feet	2,681	-	-	2,681
71+ feet	2,854	-	-	2,854
TOTAL	5,987	-	-	5,987
Manitoba Maple				
1 - 30 feet	1,664	-	-	1,664
31 - 50 feet	5,708	-	-	5,708
51 - 70 feet	11,720	-	-	11,720
71+ feet	21,070	-	-	21,070
TOTAL	40,162	-	-	40,162
White Elm				
1 - 30 feet	268	-	-	268
31 - 50 feet	2,807	-	-	2,807
51 - 70 feet	9,551	-	-	9,551
71+ feet	22,596	-	-	22,596
TOTAL	35,222	-	-	35,222
TOTAL ALL SPECIES	2,891,700	1,829,209	2,737,735	7,458,644

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 4A. GROSS MERCHANTABLE SOFTWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND DENSITY CLASSES BY BLOCK

SPECIES & DENSITY CLASS[1]	BLOCK I	BLOCK II	BLOCK III	TOTAL
		B L O C K		
		(thousands of cubic feet)		
White Spruce				
Understocked	79,032	21,251	39,641	139,924
Inad. Stocked	433,660	202,611	260,710	896,981
Well Stocked	458,703	367,383	377,478	1,203,564
Overstocked	158,199	113,268	91,079	362,546
TOTAL	1,129,594	704,513	768,908	2,603,015
Black Spruce				
Understocked	46,851	17,243	15,785	79,879
Inad. Stocked	345,105	264,389	142,720	752,214
Well Stocked	543,291	636,201	279,243	1,458,735
Overstocked	369,266	671,620	219,385	1,260,271
TOTAL	1,304,513	1,589,453	657,133	3,551,099
Jack Pine				
Understocked	42,298	66,144	91,835	200,277
Inad. Stocked	204,205	364,885	359,101	928,191
Well Stocked	298,519	689,640	532,655	1,520,814
Overstocked	231,846	757,397	568,754	1,557,997
TOTAL	776,868	1,878,066	1,552,345	4,207,279
Balsam Fir				
Understocked	4,497	770	1,260	6,527
Inad. Stocked	35,667	13,370	18,175	67,212
Well Stocked	38,500	31,563	32,897	102,960
Overstocked	12,120	9,704	8,618	30,442
TOTAL	90,784	55,407	60,950	207,141
Tamarack				
Understocked	2,744	2,199	2,551	7,494
Inad. Stocked	12,527	17,292	14,444	44,263
Well Stocked	13,136	15,477	12,673	41,286
Overstocked	7,664	14,489	6,476	28,629
TOTAL	36,071	49,457	36,144	121,672
TOTAL ALL SPECIES	3,337,830	4,276,896	3,075,480	10,690,206

[1] Based on per cent of tree crown closure: understocked <30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked >71%.

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

TABLE 4B. GROSS MERCHANTABLE HARDWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND DENSITY CLASSES BY BLOCK

SPECIES & DENSITY CLASS[1]	BLOCK I	BLOCK II (thousands of cubic feet)	BLOCK III	TOTAL
		B L O C K		
White Poplar				
Understocked	104,997	24,032	55,076	184,105
Inad. Stocked	533,850	259,374	367,213	1,160,437
Well Stocked	803,964	716,216	944,993	2,465,173
Overstocked	587,556	489,195	918,574	1,995,325
TOTAL	2,030,367	1,488,817	2,285,856	5,805,040
Black Poplar				
Understocked	66,367	8,758	18,524	93,649
Inad. Stocked	295,678	61,245	98,272	455,195
Well Stocked	126,253	71,452	113,262	310,967
Overstocked	73,703	47,562	90,053	211,318
TOTAL	562,001	189,017	320,111	1,071,129
White Birch				
Understocked	15,592	3,804	4,940	24,336
Inad. Stocked	85,941	42,426	46,321	174,688
Well Stocked	82,082	70,838	49,809	202,729
Overstocked	34,346	34,307	30,698	99,351
TOTAL	217,961	151,375	131,768	501,104
Green Ash				
Understocked	248	-	-	248
Inad. Stocked	2,853	-	-	2,853
Well Stocked	2,189	-	-	2,189
Overstocked	697	-	-	697
TOTAL	5,987	-	-	5,987
Manitoba Maple				
Understocked	4,263	-	-	4,263
Inad. Stocked	25,868	-	-	25,868
Well Stocked	7,119	-	-	7,119
Overstocked	2,912	-	-	2,912
TOTAL	40,162	-	-	40,162
White Elm				
Understocked	3,430	-	-	3,430
Inad. Stocked	21,593	-	-	21,593
Well Stocked	9,606	-	-	9,606
Overstocked	593	-	-	593
TOTAL	35,222	-	-	35,222
TOTAL ALL SPECIES	2,891,700	1,829,209	2,737,735	7,458,644

Based on per cent of tree crown closure: understocked <30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked >71%.

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 5A. GROSS MERCHANTABLE SOFTWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND HEIGHT CLASSES IN THREE SIZE CLASSES BY BLOCK

SPECIES & HEIGHT CLASS	BLOCK I 4"-7" d.b.h.	BLOCK I 8"-9" d.b.h.	BLOCK I 10"+ d.b.h.	BLOCK II 4"-7" d.b.h.	BLOCK II 8"-9" d.b.h.	BLOCK II 10"+ d.b.h.	BLOCK III 4"-7" d.b.h.	BLOCK III 8"-9" d.b.h.	BLOCK III 10"+ d.b.h.	TOTAL
					(thousands of cubic feet)					
White Spruce										
1 - 30 ft.	5,241	1,614	3,004	8,120	2,070	4,507	6,413	641	3,645	35,255
31 - 50 ft.	75,769	32,028	49,412	84,655	32,128	50,822	49,707	16,928	38,770	430,219
51 - 70 ft.	179,524	121,744	238,612	131,232	87,943	162,646	140,907	91,183	162,284	1,316,075
71+ ft.	52,637	53,857	316,152	20,272	19,803	100,315	38,811	35,986	183,633	821,466
TOTAL	313,171	209,243	607,180	244,279	141,944	318,290	235,838	144,738	388,332	2,603,015
Black Spruce										
1 - 30 ft.	65,416	4,376	944	84,355	5,845	1,574	47,682	800	1,072	212,064
31 - 50 ft.	842,437	130,689	32,033	1,060,811	139,667	29,633	421,853	48,035	7,682	2,712,840
51 - 70 ft.	129,006	51,412	26,925	179,928	56,347	24,947	82,726	25,352	10,914	587,557
71+ ft.	7,391	5,755	8,129	2,597	1,681	2,068	3,817	3,401	3,799	38,638
TOTAL	1,044,250	192,232	68,031	1,327,691	203,540	58,222	556,078	77,588	23,467	3,551,099
Jack Pine										
1 - 30 ft.	72,967	6,313	5,952	139,589	11,536	13,393	109,606	10,502	13,577	383,435
31 - 50 ft.	319,921	86,283	55,415	669,763	100,856	61,851	690,541	79,187	45,333	2,109,150
51 - 70 ft.	73,399	63,787	78,056	368,804	262,916	230,534	229,423	177,044	177,693	1,661,656
71+ ft.	942	2,332	11,501	2,038	4,787	11,999	1,767	4,662	13,010	53,038
TOTAL	467,229	158,715	150,924	1,180,194	380,095	317,777	1,031,337	271,395	249,613	4,207,279
Balsam Fir										
1 - 30 ft.	787	17	232	1,187	-	-	171	-	-	2,394
31 - 50 ft.	9,392	3,681	2,840	10,467	2,093	2,932	6,515	974	1,998	40,892
51 - 70 ft.	18,452	9,386	10,456	12,724	6,817	7,291	14,781	8,232	7,988	96,127
71+ ft.	11,396	5,977	18,168	3,969	2,467	5,460	6,952	4,064	9,275	67,728
TOTAL	40,027	19,061	31,696	28,347	11,377	15,683	28,419	13,270	19,261	207,141
Tamarack										
1 - 30 ft.	5,026	4	1	6,870	12	5	6,126	5	2	18,051
31 - 50 ft.	17,637	4,720	2,505	25,734	6,845	2,932	17,135	5,697	2,327	85,532
5I - 70 ft.	3,052	1,500	1,016	3,298	2,271	1,289	2,305	1,476	705	16,912
71+ ft.	138	116	356	22	63	116	69	117	180	1,177
TOTAL	25,853	6,340	3,878	35,924	9,191	4,342	25,635	7,295	3,214	121,672
TOTAL ALL SPECIES	1,890,530	585,591	861,709	2,816,435	746,147	714,314	1,877,307	514,286	683,887	10,690,206

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

TABLE 5B. GROSS MERCHANTABLE HARDWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND HEIGHT CLASSES IN THREE SIZE CLASSES BY BLOCK

SPECIES & HEIGHT CLASS	BLOCK I 4"-7" d.b.h.	BLOCK I 8"-9" d.b.h.	BLOCK I 10"+ d.b.h.	BLOCK II 4"-7" d.b.h.	BLOCK II 8"-9" d.b.h.	BLOCK II 10"+ d.b.h.	BLOCK III 4"-7" d.b.h.	BLOCK III 8"-9" d.b.h.	BLOCK III 10"+ d.b.h.	TOTAL
					(thousands of cubic feet)					
White Poplar										
1 - 30 ft.	26,006	2,644	4,333	54,229	1,883	6,108	28,103	2,589	12,917	138,812
31 - 50 ft.	257,736	55,504	40,419	373,438	66,094	46,617	544,451	42,623	35,446	1,462,328
51 - 70 ft.	454,244	333,172	310,519	302,465	231,105	206,386	517,840	366,605	299,657	3,021,993
71+ ft.	56,196	103,964	385,630	24,622	48,298	127,572	50,800	98,845	285,980	1,181,907
TOTAL	794,182	495,284	740,901	754,754	347,380	386,683	1,141,194	510,662	634,000	5,805,040
Black Poplar										
1 - 30 ft.	1,264	341	3,120	2,334	165	2,785	2,107	313	15,083	27,512
31 - 50 ft.	30,633	14,781	14,678	36,394	14,822	10,495	59,894	16,769	11,466	209,932
51 - 70 ft.	50,244	44,254	130,889	24,493	22,581	43,765	43,100	34,425	63,753	457,504
71+ ft.	15,153	19,872	236,772	3,977	6,862	20,344	7,874	13,674	51,653	376,181
TOTAL	97,294	79,248	385,459	67,198	44,430	77,389	112,975	65,181	141,955	1,071,129
White Birch										
1 - 30 ft.	5,189	358	221	7,020	788	102	5,086	1,089	-	19,853
31 - 50 ft.	59,930	11,039	4,297	61,223	9,945	4,142	29,242	5,731	3,166	188,715
51 - 70 ft.	43,554	15,731	31,630	30,385	12,101	15,383	33,136	13,567	19,205	214,692
71+ ft.	9,869	7,263	28,880	3,730	2,519	4,037	7,301	5,530	8,715	77,844
TOTAL	118,542	34,391	65,028	102,358	25,353	23,664	74,765	25,917	31,086	501,104
Green Ash										
1 - 30 ft.	-	-	-	-	-	-	-	-	-	-
31 - 50 ft.	183	235	34	-	-	-	-	-	-	452
51 - 70 ft.	1,475	317	889	-	-	-	-	-	-	2,681
71+ ft.	1,795	598	461	-	-	-	-	-	-	2,854
TOTAL	3,453	1,150	1,384	-	-	-	-	-	-	5,987
Manitoba Maple										
1 - 30 ft.	743	495	426	-	-	-	-	-	-	1,664
31 - 50 ft.	2,942	1,962	804	-	-	-	-	-	-	5,708
51 - 70 ft.	5,984	3,989	1,747	-	-	-	-	-	-	11,720
71+ ft.	9,765	6,510	4,795	-	-	-	-	-	-	21,070
TOTAL	19,434	12,956	7,772	-	-	-	-	-	-	40,162
White Elm										
1 - 30 ft.	174	94	-	-	-	-	-	-	-	268
31 - 50 ft.	534	287	1,986	-	-	-	-	-	-	2,807
51 - 70 ft.	1,685	907	6,959	-	-	-	-	-	-	9,551
71+ ft.	3,889	2,094	16,613	-	-	-	-	-	-	22,596
TOTAL	6,282	3,382	25,558	-	-	-	-	-	-	35,222
TOTAL ALL SPECIES	1,039,187	626,411	1,226,102	924,310	417,163	487,736	1,328,934	601,760	807,041	7,458,644

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

TABLE 6A. GROSS MERCHANTABLE SOFTWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND DENSITY CLASSES IN THREE SIZE CLASSES BY BLOCK

SPECIES & DENSITY CLASS[1]	BLOCK I 4"-7" d.b.h.	BLOCK I 8"-9" d.b.h.	BLOCK I 10"+ d.b.h.	BLOCK II 4"-7" d.b.h.	BLOCK II 8"-9" d.b.h.	BLOCK II 10"+ d.b.h.	BLOCK III 4"-7" d.b.h.	BLOCK III 8"-9" d.b.h.	BLOCK III 10"+ d.b.h.	TOTAL
	(thousands of cubic feet)									
White Spruce										
Understocked	11,300	11,136	56,596	3,781	3,576	13,894	6,228	6,440	26,973	139,924
Inad. Stocked	71,061	67,190	295,409	42,171	36,392	124,048	48,157	42,502	170,051	896,981
Well Stocked	146,906	99,896	211,901	132,777	83,633	150,973	129,250	82,010	166,218	1,203,564
Overstocked	83,904	31,021	43,274	65,550	18,343	29,375	52,203	13,786	25,090	362,546
TOTAL	313,171	209,243	607,180	244,279	141,944	318,290	235,838	144,738	388,332	2,603,015
Black Spruce										
Understocked	30,449	11,959	4,443	11,785	3,879	1,579	10,352	3,575	1,858	79,879
Inad. Stocked	252,812	62,015	30,278	200,712	46,204	17,473	107,446	25,114	10,160	752,214
Well Stocked	434,659	83,417	25,215	518,064	92,456	25,681	237,098	33,811	8,334	1,458,735
Overstocked	326,330	34,841	8,095	597,130	61,001	13,489	201,182	15,088	3,115	1,260,271
TOTAL	1,044,250	192,232	68,031	1,327,691	203,540	58,222	556,078	77,588	23,467	3,551,099
Jack Pine										
Understocked	17,764	10,654	13,880	27,198	17,806	21,140	39,605	23,512	28,718	200,277
Inad. Stocked	100,982	48,816	54,407	156,879	93,728	114,278	178,825	82,074	98,202	928,191
Well Stocked	171,498	67,170	59,851	377,447	173,405	138,788	314,609	117,689	100,357	1,520,814
Overstocked	176,985	32,075	22,786	618,670	95,156	43,571	498,298	48,120	22,336	1,557,997
TOTAL	467,229	158,715	150,924	1,180,194	380,095	317,777	1,031,337	271,395	249,613	4,207,279
Balsam Fir										
Understocked	2,167	730	1,600	544	124	102	821	153	286	6,527
Inad. Stocked	12,027	8,425	15,215	4,698	3,415	5,257	5,751	4,375	8,049	67,212
Well Stocked	18,801	7,222	12,477	16,479	5,610	9,474	15,755	6,875	10,267	102,960
Overstocked	7,032	2,684	2,404	6,626	2,228	850	6,092	1,867	659	30,442
TOTAL	40,027	19,061	31,696	28,347	11,377	15,683	28,419	13,270	19,261	207,141
Tamarack										
Understocked	1,405	521	818	1,332	621	246	1,477	720	354	7,494
Inad. Stocked	8,451	2,701	1,375	11,571	3,903	1,818	9,128	3,778	1,538	44,263
Well Stocked	9,327	2,552	1,257	10,870	3,139	1,468	9,170	2,399	1,104	41,286
Overstocked	6,670	566	428	12,151	1,528	810	5,860	398	218	28,629
TOTAL	25,853	6,340	3,878	35,924	9,191	4,342	25,635	7,295	3,214	121,672
TOTAL ALL SPECIES	1,890,530	585,591	861,709	2,816,435	746,147	714,314	1,877,307	514,286	683,887	10,690,206

[1] Based on per cent of tree crown closure: understocked <30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked >71%.

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

TABLE 6B. GROSS MERCHANTABLE HARDWOOD VOLUMES ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY SPECIES AND DENSITY CLASSES IN THREE SIZE CLASSES BY BLOCK

SPECIES & DENSITY CLASS[1]	BLOCK I 4"-7" d.b.h.	BLOCK I 8"-9" d.b.h.	BLOCK I 10"+ d.b.h.	BLOCK II 4"-7" d.b.h.	BLOCK II 8"-9" d.b.h.	BLOCK II 10"+ d.b.h.	BLOCK III 4"-7" d.b.h.	BLOCK III 8"-9" d.b.h.	BLOCK III 10"+ d.b.h.	TOTAL
					(thousands of cubic feet)					
White Poplar										
Understocked	22,130	20,705	62,162	8,558	5,693	9,781	19,759	10,732	24,585	184,105
Inad. Stocked	125,295	101,708	306,847	93,590	59,929	105,855	107,392	71,445	188,376	1,160,437
Well Stocked	324,770	229,125	250,069	314,317	198,734	203,165	367,966	261,674	315,353	2,465,173
Overstocked	321,987	143,746	121,823	338,289	83,024	67,882	646,077	166,811	105,686	1,995,325
TOTAL	794,182	495,284	740,901	754,754	347,380	386,683	1,141,194	510,662	634,000	5,805,040
Black Poplar										
Understocked	5,630	6,014	54,723	1,348	1,269	6,141	2,810	2,235	13,479	93,649
Inad. Stocked	30,594	29,556	235,528	14,619	12,762	33,864	22,176	19,092	57,004	455,195
Well Stocked	30,120	25,328	70,805	25,352	19,656	26,444	39,738	31,411	42,113	310,967
Overstocked	30,950	18,350	24,403	25,879	10,743	10,940	48,251	12,443	29,359	211,318
TOTAL	97,294	79,248	385,459	67,198	44,430	77,389	112,975	65,181	141,955	1,071,129
White Birch										
Understocked	6,500	2,855	6,237	2,444	728	632	2,440	929	1,571	24,336
Inad. Stocked	31,331	13,100	41,510	21,124	8,136	13,166	17,670	9,248	19,403	174,688
Well Stocked	56,103	12,094	13,885	51,677	11,381	7,780	33,500	8,386	7,923	202,729
Overstocked	24,608	6,342	3,396	27,113	5,108	2,086	21,155	7,354	2,189	99,351
TOTAL	118,542	34,391	65,028	102,358	25,353	23,664	74,765	25,917	31,086	501,104
Green Ash										
Understocked	186	62	-	-	-	-	-	-	-	248
Inad. Stocked	1,629	543	681	-	-	-	-	-	-	2,853
Well Stocked	1,115	371	703	-	-	-	-	-	-	2,189
Overstocked	523	174	-	-	-	-	-	-	-	697
TOTAL	3,453	1,150	1,384	-	-	-	-	-	-	5,987
Manitoba Maple										
Understocked	2,413	1,609	241	-	-	-	-	-	-	4,263
Inad. Stocked	12,440	8,293	5,135	-	-	-	-	-	-	25,868
Well Stocked	3,081	2,054	1,984	-	-	-	-	-	-	7,119
Overstocked	1,500	1,000	412	-	-	-	-	-	-	2,912
TOTAL	19,434	12,956	7,772	-	-	-	-	-	-	40,162
White Elm										
Understocked	1,239	667	1,524	-	-	-	-	-	-	3,430
Inad. Stocked	3,232	1,740	16,621	-	-	-	-	-	-	21,593
Well Stocked	1,601	862	7,143	-	-	-	-	-	-	9,606
Overstocked	210	113	270	-	-	-	-	-	-	593
TOTAL	6,282	3,382	25,558	-	-	-	-	-	-	35,222
TOTAL ALL SPECIES	1,039,187	626,411	1,226,102	924,310	417,163	487,736	1,328,934	601,760	807,041	7,458,644

[1] Based on per cent of tree crown closure: understocked <30%; inadequately stocked 31-50%; well stocked 51-70%; overstocked >71%.

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 7. GROSS MERCHANTABLE CUBIC FOOT VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY BROAD COVER TYPES AND BLOCK

	B L O C K			
COVER TYPE	BLOCK I	BLOCK II	BLOCK III	TOTAL
		(thousands of cubic feet)		
Softwood	2,557,215	3,921,642	2,555,566	9,034,423
Mixedwood	2,028,485	1,069,139	1,155,056	4,252,680
Hardwood	2,643,830	1,115,324	2,102,593	4,861,747
TOTAL ALL TYPES	6,229,530	6,106,105	5,813,215	18,148,850

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 8. GROSS MERCHANTABLE CUBIC FOOT VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY BROAD COVER TYPES AND THREE SIZE CLASSES BY BLOCK

COVER TYPE	BLOCK I			BLOCK II			BLOCK III			TOTAL
	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	4"-7" d.b.h.	8"-9" d.b.h.	10"+ d.b.h.	
	(thousands of cubic feet)									
Softwood	1,647,399	446,460	463,356	2,705,770	682,302	533,570	1,731,560	423,835	400,171	9,034,423
Mixedwood	633,528	380,312	1,014,645	461,046	243,884	364,209	382,678	248,201	524,177	4,252,680
Hardwood	648,790	385,230	609,810	573,929	237,124	304,271	1,092,003	444,010	566,580	4,861,747
TOTAL ALL TYPES	2,929,717	1,212,002	2,087,811	3,740,745	1,163,310	1,202,050	3,206,241	1,116,046	1,490,928	18,148,850

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 9. GROSS MERCHANTABLE CUBIC FOOT VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY MAJOR COVER TYPES AND BLOCK

MAJOR COVER TYPE	BLOCK I	BLOCK II	BLOCK III	TOTAL
		B L O C K		
		(thousands of cubic-feet)		
S wS	533,928	296,689	312,354	1,142,971
S bS	1,324,579	1,737,970	683,438	3,745,987
S jP	694,659	1,882,049	1,552,531	4,129,239
S tL	4,049	4,934	7,243	16,226
TOTAL	2,557,215	3,921,642	2,555,566	9,034,423
SH spr.	662,033	321,737	328,062	1,311,832
SH jp	183,993	171,289	130,197	485,479
HS spr.	1,118,153	425,162	594,440	2,137,755
HS jp	64,306	150,951	102,357	317,614
TOTAL	2,028,485	1,069,139	1,155,056	4,252,680
H	1,643,380	1,115,324	2,102,593	4,861,747
TOTAL ALL TYPES	6,229,530	6,106,105	5,813,215	18,148,850

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX C

TABLE 10. GROSS MERCHANTABLE CUBIC FOOT VOLUMES OF PRIMARY GROWING STOCK ON PRODUCTIVE COMMERCIAL FOREST LAND IN SASKATCHEWAN BY MAJOR COVER TYPES AND THREE SIZE CLASSES BY BLOCK

MAJOR COVER TYPE	BLOCK I 4"-7" d.b.h.	BLOCK I 8"-9" d.b.h.	BLOCK I 10"+ d.b.h.	BLOCK II 4"-7" d.b.h.	BLOCK II 8"-9" d.b.h.	BLOCK II 10"+ d.b.h.	BLOCK III 4"-7" d.b.h.	BLOCK III 8"-9" d.b.h.	BLOCK III 10"+ d.b.h.	TOTAL
	(thousands of cubic feet)									
S wS	145,435	115,135	273,358	82,985	69,148	144,556	84,136	70,818	157,400	1,142,971
S bS	1,009,916	203,940	110,723	1,352,904	251,346	133,720	542,186	91,838	49,414	3,745,987
S jP	488,772	126,755	79,132	1,265,978	360,960	255,111	1,099,522	259,909	193,100	4,129,239
S tL	3,276	630	143	3,903	848	183	5,716	1,270	257	16,226
TOTAL	1,647,399	446,460	463,356	2,705,770	682,302	533,570	1,731,560	423,835	400,171	9,034,423
SH spr.	194,801	125,542	341,690	119,324	72,405	130,008	85,960	64,844	177,258	1,311,832
SH jp	84,588	28,921	70,484	97,858	35,797	37,634	69,154	26,507	34,536	485,479
HS spr.	315,329	212,259	590,665	159,822	102,046	163,294	172,091	133,963	288,386	2,137,755
HS jp	38,810	13,690	11,806	84,042	33,636	33,273	55,473	22,887	23,997	317,614
TOTAL	633,528	380,312	1,014,645	461,046	243,884	364,209	382,678	248,201	524,177	4,252,680
H	648,790	385,230	609,810	573,929	237,124	304,271	1,092,003	444,010	566,580	4,861,747
TOTAL ALL TYPES	2,929,717	1,212,002	2,087,811	3,740,745	1,163,310	1,202,050	3,206,241	1,116,046	1,490,928	18,148,850

Source: Forestry Branch, Saskatchewan Department of Natural Resources. December, 1972.

APPENDIX D

TABLE 1. ALLOWABLE ANNUAL CUT OF CONIFEROUS AND DECIDUOUS GROWING STOCK, SASKATCHEWAN[1]

Species	Rotation (years)	Gross Merchantable Volume Block I	Block II	Block III	Allowable Annual Cut Block I	Block II	Block III	Total A.A.C.
				000's m^3				
Coniferous								
White Spruce	75	31 986	19 950	21 773	853	532	581	1 966
Black Spruce	100	36 940	45 008	18 608	739	900	372	2 011
Jack Pine	70	21 998	53 181	43 957	629	1 519	1 256	3 404
Balsam Fir	60	2 571	1 569	1 726	86	52	58	196
Tamarack	90	1 021	1 400	1 023	23	31	23	77
TOTAL		94 517	121 108	87 088	2 330	3 034	2 290	7 654
				Deduction for non-recoverable sound wood 25%				1 913
					Allowable Annual Cut			5 741
Deciduous								
White Poplar	70	57 493	42 159	64 728	1 643	1 205	1 849	4 697
Black Poplar	70	15 914	5 352	9 065	455	153	259	867
White Birch	70	6 172	4 286	3 731	176	122	107	405
Others	100	2 305	-	-	46	-	-	46
TOTAL		81 884	51 797	77 524	2 320	1 480	2 215	6 015
				Deduction for non-recoverable sound wood 25%				1 504
					Allowable Annual Cut			4 511

[1] See Appendix D Table 1A for Canadian equivalent measures

APPENDIX D

TABLE 1A. ALLOWABLE ANNUAL CUT OF CONIFEROUS AND DECIDUOUS GROWING STOCK, SASKATCHEWAN

Species	Rotation (years)	Gross Merchantable Volume			Allowable Annual Cut			Total A.A.C.
		Block I	Block II	Block III	Block I	Block II	Block III	
		000 000's ft^3						
Coniferous								
White Spruce	75	1 130	704	769	30	19	21	70
Black Spruce	100	1 304	1 589	657	26	32	13	71
Jack Pine	70	777	1 878	1 552	22	54	44	120
Balsam Fir	60	91	55	61	3	2	2	7
Tamarack	90	36	50	36	1	1	1	3
TOTAL		3 338	4 276	3 075	82	108	81	271
				Deduction for non-recoverable sound wood 25%				68
					Allowable Annual Cut			203
Deciduous								
White Poplar	70	2 030	1 489	2 286	58	43	65	166
Black Poplar	70	562	189	320	16	5	9	30
White Birch	70	218	151	132	6	4	4	14
Others	100	81	-	-	2	-	-	2
TOTAL		2 891	1 829	2 738	82	52	78	212
				Deduction for non-recoverable sound wood 25%				53
					Allowable Annual Cut			159

APPENDIX E

TABLE 1. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (<118 m^3)[1], 1972

Species	Size Group		Total Production		Rough Lumber Marketings Saskatchewan			
					Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM
Board Lumber 2.54 cm (1")								
Spruce	2.54 x 10.16	1x4	184	78	184	78	-	-
	2.54 x 15.24	1x6	165	70	165	70	-	-
	2.54 x 20.32 to 30.48	1x8 to 12	123	52	123	52	-	-
Pine	2.54 x 10.16	1x4	33	14	33	14	-	-
	2.54 x 15.24	1x6	28	12	28	12	-	-
	2.54 x 20.32	1x8	24	10	24	10	-	-
	TOTAL[2]		557	236	557	236	-	-
Dimension Lumber 5.08 cm (2")								
Spruce	5.08 x 10.16	2x4	769	326	769	326	-	-
	5.08 x 15.24	2x6	1 272	539	1 272	539	-	-
	5.08 x 20.32 to 30.48	2x8 to 12	1 461	619	1 461	619	-	-
Pine	5.08 x 10.16	2x4	120	51	120	51	-	-
	5.08 x 15.24	2x6	118	50	118	50	-	-
	5.08 x 20.32 to 30.48	2x8 to 12	85	36	85	36	-	-
	TOTAL[2]		3 825	1 621	3 825	1 621	-	-
Timber 7.62 cm+ (3"+)								
Spruce	15.24 x 15.24	6x6	17	7	17	7	-	-
	15.24 x 20.32	6x8	17	7	17	7	-	-
Ties			278	118	278	118	-	-
	TOTAL[2]		312	132	312	132	-	-

[1] Equivalent to <50 MFBM

[2] Totals may not add due to rounding

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 2. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (118-470 m^3)[1], 1972

Species	Size Group		Total Production		Rough Lumber Marketings Saskatchewan				Planed Lumber Marketings Saskatchewan			
					Truck		Rail		Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Board Lumber 2.54 cm (1")												
Spruce	2.54 x 10.16	1x4	132	56	97	41	-	-	35	15	-	-
	2.54 x 15.24	1x6	149	63	118	50	-	-	31	13	-	-
	2.54 x 20.32	1x8	130	55	106	45	-	-	24	10	-	-
Pine	2.54 x 10.16	1x4	7	3	7	3	-	-	-	-	-	-
	2.54 x 15.24	1x6	7	3	7	3	-	-	-	-	-	-
	2.54 x 20.32	1x8	7	3	7	3	-	-	-	-	-	-
Poplar	2.54 x 10.16	1x4	21	9	21	9	-	-	-	-	-	-
	2.54 x 15.24	1x6	123	52	123	52	-	-	-	-	-	-
	2.54 x 20.32	1x8	7	3	7	3	-	-	-	-	-	-
TOTAL[2]			583	247	493	209	-	-	90	38	-	-

[1] Equivalent to 50-199 MFBM

[2] Totals may not add due to rounding

TABLE 2. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (118-470 m^3)[1], 1972 (Cont.)

Species	Size Group		Total Production		Rough Lumber Marketings Saskatchewan				Planed Lumber Marketings Saskatchewan			
					Truck		Rail		Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Dimension Lumber 5.08 cm (2")												
Spruce	5.08 x 10.16	2x4	908	385	760	322	-	-	149	63	-	-
	5.08 x 15.24	2x6	982	416	767	325	-	-	215	91	-	-
	5.08 x 20.32	2x8	415	176	276	117	-	-	139	59	-	-
Pine	5.08 x 10.16	2x4	40	17	40	17	-	-	-	-	-	-
	5.08 x 15.24	2x6	153	65	153	65	-	-	-	-	-	-
	5.08 x 20.32	2x8	17	7	17	7	-	-	-	-	-	-
Poplar	5.08 x 10.16	2x4	1 756	744	1 756	744	-	-	-	-	-	-
	5.08 x 15.24	2x6	1 772	751	1 772	751	-	-	-	-	-	-
	5.08 x 20.32	2x8	116	49	116	49	-	-	-	-	-	-
TOTAL[2]			6 159	2 610	5 656	2 397			503	213		

[1] Equivalent to 50-199 MFBM

[2] Totals may not add due to rounding

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 3. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (472-2 357 m^3)[1], 1972

Board Lumber 2.54 cm (1") Species Size Group			Total Production		Rough Lumber Marketings Saskatchewan				Planed Lumber Marketings Saskatchewan			
					Truck		Rail		Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	2.54 x 10.16	1x4	455	193	163	69	-	-	293	124	-	-
	2.54 x 15.24	1x6	439	186	153	65	-	-	286	121	-	-
	2.54 x 20.32	1x8	283	120	71	30	-	-	212	90	-	-
Pine	2.54 x 10.16	1x4	151	64	151	64	-	-	-	-	-	-
	2.54 x 15.24	1x6	109	46	109	46	-	-	-	-	-	-
	2.54 x 20.32	1x8	90	38	90	38	-	-	-	-	-	-
Poplar	2.54 x 10.16	1x4	-	-	-	-	-	-	-	-	-	-
	2.54 x 15.24	1x6	-	-	-	-	-	-	-	-	-	-
	2.54 x 20.32	1x8	7	3	7	3	-	-	-	-	-	-
Tamarack	2.54 x 10.16	1x4	-	-	-	-	-	-	-	-	-	-
	2.54 x 15.24	1x6	5	2	5	2	-	-	-	-	-	-
	2.54 x 20.32	1x8	5	2	5	2	-	-	-	-	-	-
	TOTAL[2]		1 544	654	753	319	-	-	791	335	-	-

[1] Equivalent to 200-999 MFBM

[2] Totals may not add due to rounding

APPENDIX E

TABLE 3. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (472- 2 357 m^3)[1], 1972 (Cont.)

Dimension Lumber 5.08 cm (2") Species	Size Group		Total Production		Rough Lumber Marketings Saskatchewan				Planed Lumber Marketings Saskatchewan			
					Truck		Rail		Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	5.08 x 10.16	2x4	3 639	1 542	2 891	1 225	-	-	748	317	-	-
	5.08 x 15.24	2x6	1 447	613	951	403	-	-	496	210	-	-
	5.08 x 20.32 to 30.48	2x8 to 12	2 414	1 023	1 803	764	-	-	611	259	-	-
Pine	5.08 x 10.16	2x4	732	310	732	310	-	-	-	-	-	-
	5.08 x 15.24	2x6	458	194	458	194	-	-	-	-	-	-
	5.08 x 20.32 to 25.40	2x8 to 10	385	163	385	163	-	-	-	-	-	-
Poplar	5.08 x 10.16	2x4	335	142	335	142	-	-	-	-	-	-
	5.08 x 15.24	2x6	109	46	109	46	-	-	-	-	-	-
	5.08 x 20.32 to 25.40	2x8 to 10	47	20	47	20	-	-	-	-	-	-
Tamarack	5.08 x 10.16	2x4	9	4	9	4	-	-	-	-	-	-
	5.08 x 15.24	2x6	14	6	14	6	-	-	-	-	-	-
	5.08 x 20.32 to 25.40	2x8 to 10	50	21	50	21	-	-	-	-	-	-
	TOTAL[2]		9 637	4 084	7 782	3 298	-	-	1 855	786	-	-

[1] Equivalent to 200-999 MFBM

[2] Totals may not add due to rounding

TABLE 3. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (472- 2 357 m^3)[1], 1972 (Cont.)

Species	Timber 7.62+ cm (3+") Size Group cm	inches	Total Production m^3	MFBM	Rough Lumber Marketings Saskatchewan Truck m^3	MFBM	Rail m^3	MFBM	Planed Lumber Marketings Saskatchewan Truck m^3	MFBM	Rail m^3	MFBM
Spruce	7.62 x 7.62 to 10.16	3x3 to 4	5	2	5	2	-	-	-	-	-	-
	10.16 x 10.16 to 15.24	4x4 to 6	193	82	193	82	-	-	-	-	-	-
	15.24 x 15.24	6x6	113	48	113	48	-	-	-	-	-	-
Pine	10.16 x 10.16 to 15.24	4x4 to 6	125	53	125	53	-	-	-	-	-	-
	15.24 x 15.24	6x6	76	32	76	32	-	-	-	-	-	-
Poplar	10.16 x 10.16 to 15.24	4x4 to 6	-	-	-	-	-	-	-	-	-	-
	15.24 x 15.24	6x6	2	1	2	1	-	-	-	-	-	-
Tamarack	7.62 x 7.62 to 10.16	3x3 to 4	2	1	2	1	-	-	-	-	-	-
	10.16 x 10.16	4x4	-	-	-	-	-	-	-	-	-	-
Ties			1 038	440	1 038	440	-	-	-	-	-	-
	TOTAL[2]		1 555	659	1 555	659	-	-	-	-	-	-

[1] Equivalent to 200-999 MFBM

[2] Totals may not add due to rounding

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 4. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (2 360-11 799 m^3)[1], 1972

Species	Board Lumber 2.54 cm (1") Group Size		Total Production		Rough Lumber Marketings					
					Saskatchewan Truck		Alberta Truck		U.S.A. Truck	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	2.54 x 10.16	1x4	668	283	651	276	12	5	5	2
	2.54 x 15.24	1x6	727	308	677	287	35	15	14	6
	2.54 x 20.32	1x8	604	256	590	250	9	4	5	2
	2.54 x 25.40	1x10	24	10	24	10	-	-	-	-
Pine	2.54 x 10.16	1x4	370	157	215	91	45	19	111	47
	2.54 x 15.24	1x6	1 062	450	616	261	127	54	319	135
	2.54 x 20.32	1x8	264	112	153	65	31	13	80	34
	TOTAL[2]		3 719	1 576	2 926	1 240	260	110	533	226

[1] Equivalent to 1 000 - 4 999 MFBM

[2] Totals may not add due to rounding

TABLE 4. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (2 360-11 799 m^3)[1], 1972 (Cont.)

Dimension Lumber 5.08 cm (2") Species	Group Size		Total Production		Rough Lumber Marketings					
					Saskatchewan Truck		Alberta Truck		U.S.A. Truck	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	5.08 x 10.16	2x4	5 817	2 465	5 779	2 449	26	11	12	5
	5.08 x 15.24	2x6	7 822	3 315	7 709	3 267	80	34	33	14
	5.08 x 20.32	2x8	5 043	2 137	5 024	2 129	14	6	5	2
	5.08 x 25.40 to 30.48	2x10 to 12	5 770	2 445	5 770	2 445	-	-	-	-
Pine	5.08 x 10.16	2x4	795	337	463	196	238	101	94	40
	5.08 x 15.24	2x6	2 388	1 012	1 385	587	717	304	286	121
	5.08 x 20.32	2x8	425	180	245	104	127	54	52	22
	TOTAL[2]		28 060	11 891	26 375	11 177	1 203	510	481	204

[1] Equivalent to 1 000 - 4 999 MFBM

[2] Totals may not add due to rounding

APPENDIX E

TABLE 4. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (2 360-11 999 m^3)[1], 1972 (Cont.)

Species	Timber 7.62 cm+ (3"+) Group Size		Total Production		Rough Lumber Marketing Saskatchewan	
					Truck	
	cm	inches	m^3	MFBM	m^3	MFBM
Spruce	10.16 x 10.16 to 20.32	4x4 to 8	425	180	425	180
	15.24 x 15.24 to 20.32	6x6 to 8	211	90	211	90
	20.32 x 20.32	8x8	59	25	59	25
Ties			538	228	538	228
	TOTAL[2]		1 234	523	1 234	523

[1] Equivalent to 1 000-4 999 MFBM

[2] Totals may not add due to rounding

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 5. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (≥11 799 m^3)[1], 1972

Species	Board Lumber 2.54 cm (1") Group Size		Total Production[2] for Class 5		Total Quantity Marketed		Planed Lumber Marketings													
							Saskatchewan				Manitoba				Alberta				U.S.A.	
							Truck		Rail		Truck		Rail		Truck		Rail		Truck	Rail
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3 MFBM	m^3 MFBM
Spruce	2.54 x 10.16	1x4	3 891	1 649	4 674	1 981	1 607	681	-	-	219	93	330	140	146	62	142	60	57 24	2 173 921
	2.54 x 15.24	1x6	3 632	1 539	4 389	1 860	2 357	999	-	-	330	140	496	210	142	60	210	89	85 36	769 326
	2.54 x 20.32 to 30.48	1x8 to 12	6 633	2 811	7 314	3 099	3 927	1 664	-	-	550	233	825	350	234	99	352	149	142 60	1 284 544
Pine	2.54 x 10.16	1x4	446	189	446	189	26	11	-	-	2	1	2	1	14	6	2	1	- -	399 169
	2.54 x 15.24	1x6	47	20	44	19	26	11	-	-	2	1	5	2	2	1	2	1	- -	7 3
	2.54 x 20.32 to 30.48	1x8 to 12	78	33	81	35	42	18	-	-	7	3	9	4	2	1	5	2	2 1	14 6
Poplar	2.54 x 10.16	1x4	26	11	26	11	14	6	-	-	2	1	2	1	-	-	2	1	- -	5 2
	2.54 x 15.24	1x6	38	16	39	17	21	9	-	-	2	1	5	2	2	1	2	1	- -	7 3
	2.54 x 20.32 to 30.48	1x8 to 12	64	27	68	29	38	16	-	-	5	2	7	3	2	1	2	1	2 1	12 5
Balsam Fir	2.54 x 10.16	1x4	21	9	21	9	-	-	-	-	-	-	-	-	-	-	-	-	- -	21 9
	TOTAL[3]		14 876	6 304	17 100	7 249	8 058	3 415	-	-	1 119	475	1 681	713	544	231	719	305	288 122	4 691 1 988

[1] Equivalent to ≥5 000 MFBM

[2] Total production differs from total marketings due to the transfer of rough lumber from Class 1, 2, 3, and 4 mills to Class 5 mills for planing. This procedure alleviates the problem of double counting within the sawmill and planing mill industry.

[3] Totals may not add due to rounding

APPENDIX E

TABLE 5. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (≥11 799 m^3)[1], 1972

Dimension lumber 5.08 cm (2") Species	Group Size		Total Production[2] for Class 5		Total Quantity Marketed		Planed Lumber Marketings															
							Saskatchewan				Manitoba				Alberta				U.S.A.			
							Truck		Rail		Truck		Rail		Truck		Rail		Truck		Rail	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	5.08 x 5.08 to 7.62	2x2 to 3	32 308	13 691	32 308	13 691	765	324	1 659	703	444	188	1 036	439	257	109	415	176	1 260	534	26 472	11 218
	5.08 x 10.16	2x4	207 574	87 965	215 720	91 417	9 524	4 036	9 401	3 984	3 179	1 347	6 864	2 909	2 461	1 043	2 773	1 175	7 306	3 096	174 212	73 827
	5.08 x 15.24	2x6	12 176	5 160	20 480	8 679	10 996	4 660	-	-	1 541	653	2 310	979	656	278	984	417	399	169	3 594	1 523
	5.08 x 20.32 to 30.48	2x8 to 12	17 604	7 460	29 251	12 396	15 709	6 657	-	-	2 199	932	3 299	1 398	934	396	1 404	595	571	242	5 135	2 176
Pine	5.08 x 5.08 to 7.62	2x2 to 3	5 867	2 486	5 867	2 486	139	59	293	124	78	33	184	78	50	21	73	31	222	94	4 828	2 046
	5.08 x 10.16	2x4	38 997	16 526	38 997	16 526	946	401	1 659	703	451	191	1 048	444	460	195	420	178	1 260	534	32 753	13 880
	5.08 x 15.24	2x6	218	93	218	93	118	50	-	-	17	7	24	10	7	3	9	4	5	2	38	16
	5.08 x 20.32 to 30.48	2x8 to 12	315	132	315	132	168	71	-	-	24	10	35	15	9	4	17	7	5	2	57	24
Poplar	5.08 x 10.16	2x4	-	-	77	33	40	17	-	-	5	2	9	4	2	1	5	2	2	1	14	6
	5.08 x 15.24	2x6	179	76	179	76	97	41	-	-	14	6	21	9	5	2	9	4	2	1	31	13
	5.08 x 20.32 to 30.48	2x8 to 12	257	109	257	109	137	58	-	-	19	8	28	12	9	4	12	5	7	3	45	19
Balsam Fir	5.08 x 7.62	2x3	33	14	33	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	14
	5.08 x 10.16	2x4	488	207	488	207	9	4	-	-	-	-	-	-	14	6	-	-	-	-	465	197
	TOTAL[3]		316 015	133 919	344 190	145 858	38 648	16 378	13 012	5 514	7 970	3 377	14 858	6 297	4 866	2 062	6 121	2 594	11 038	4 678	247 677	104 959

[1] Equivalent to ≥5 000 MFBM

[2] Total production differs from total marketings by the amount of rough lumber transferred from Class 1, 2, 3, and 4 mills to Class 5 mills for planing. This procedure alleviates double counting within the sawmill and planing mill industry.

[3] Totals may not add due to rounding

APPENDIX E

TABLE 5. PRODUCTION, MARKETS, AND MODE OF TRANSPORTATION FOR SASKATCHEWAN SAWMILLS (≥11 799 m^3)[1], 1972 (Cont.)

Species	Timber 10.16 cm+ (4"+) Group Size		Total Production		Total Marketings		Rough Lumber Marketings			
							Saskatchewan		Rest of Canada	
							Truck		Truck	
	cm	inches	m^3	MFBM	m^3	MFBM	m^3	MFBM	m^3	MFBM
Spruce	10.16 x 10.16 to 20.32	4x4 to 8	3 655	1 549	4 080	1 729	3 672	1 556	408	173
	15.24 x 15.24 to 20.32 x 20.32	6x6 to 8x8	184	78	453	192	408	173	45	19
Pine	10.16 x 10.16 to 20.32	4x4 to 8	453	192	453	192	408	173	45	19
	15.24 x 15.24 to 20.32 x 20.32	6x6 to 8x8	50	21	50	21	45	19	5	2
Ties			875	371	1 623	688	1 623	688	-	-
	TOTAL[2]		5 217	2 211	6 659	2 822	6 156	2 609	503	213

[1] Equivalent to ≥5 000 MFBM

[2] Totals may not add due to rounding

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 6. QUANTITY SOLD, MILL VALUE, AND MARKETS FOR MISCELLANEOUS PRODUCTS[1] OF SASKATCHEWAN'S SAWMILLS, 1972

Industry Groups	No. of firms	Product	Product Unit	Quantity	Value F.O.B. Mill	Saskatchewan	Rest of Western Canada	U.S.A.
Sawmill Industry	316	chips	tonnes	79 165		79 165	-	-
			(B.D.U.'s)	(72 720)		(72 720)	-	-
		pulpwood	m^3	40 913		38 313	-	2 599
			(cords)	(16 998)		(15 918)	-	(1 080)
		poles	pieces	27 475		24 727	2 748	-
		fence posts	pieces	143 235		128 911	11 459	2 865
		pilings	pieces	2 554		2 426	128	-
					$1 976 294			

[1] Value of miscellaneous sales added to the rest of the forest industry will result in double counting as many of these products were sold to other wood industries in Saskatchewan.

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 7. QUANTITY SOLD, MILL VALUE, AND MARKETS FOR SASKATCHEWAN'S PULP AND WAFERBOARD INDUSTRIES, 1972

Industry Group	No. of Firms	Product	Product Unit	Quantity	Value F.O.B. Mill	Saskatchewan	Rest of Western Canada	Eastern Canada	U.S.A.	Other
Pulp & Paper Mills	3	fiberboard	m^2 (1 mm basis)	25 957 133		4 672 284	21 284 849	-	-	-
			sq. ft. (1/2 in. basis)	22 000 000		3 960 000	18 040 000	-	-	-
		kraft pulp	tonnes	198 673		-	23 841	-	139 071	35 761
			air dry tons	219 000		-	26 280	-	153 300	39 420
		waferboard	m^2 (1 mm basis)	109 727 733		-	50 474 757[1]	44 988 371	14 264 605	-
			sq. ft. (1/16 in. basis)	744 000 000		-	342 240 000[1]	305 040 000	96 720 000	-
					$43 976 800					

[1] Saskatchewan included in "Rest of Western Canada".

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX E

TABLE 8. QUANTITY SOLD, MILL VALUE, AND MARKETS FOR SASKATCHEWAN'S WOOD PRESERVING INDUSTRY, 1972

Industry Group	No. of Firms	Product	Product Unit	Quantity	Value F.O.B. Mill	Saskatchewan	Rest of Western Canada	U.S.A.
Wood Preserving	6	pickets	pieces	130 050		130 050	-	-
		fence posts	pieces	3 016 206		2 201 589	564 531	250 086
		poles	pieces	203 321		138 734	52 608	11 979
		lumber & timber	m^3	4 559		2 860	1 699	-
			(MFBM)	(1 932)		(1 212)	(720)	-
		rails	pieces	17 107		17 107	-	-
		pulpwood	m^3	23 658		23 658	-	-
			(cords)	(9 829)		(9 829)	-	-
		other	pieces	74 348		5 880	68 468	-
					$3 504 388			

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 1. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S PULP AND PAPER INDUSTRY[1], 1972

Months	Logging[2]		Logging[3]		Mill		Total
	Hourly	Salaried	Hourly	Salaried	Hourly	Salaried	
	Number Employed[4]						
January	1	8	519	204	553	139	1 424
February	1	8	526	204	526	132	1 397
March	1	8	524	184	532	132	1 381
April	1	8	394	127	526	132	1 188
May	1	8	416	129	546	136	1 236
June	1	8	527	151	559	133	1 379
July	1	8	551	179	550	137	1 426
August	1	8	559	179	550	131	1 428
September	1	8	561	161	540	130	1 401
October	1	8	486	159	545	128	1 327
November	1	8	603	199	499	128	1 438
December	1	8	602	204	512	127	1 454
Total Man-Months	12	96	6 268	2 080	6 438	1 585	16 479
Total Man-Years	1	8	522	173	537	132	1 373
Total Man-Hours	2 080	16 637	1 086 244	360 464	1 115 705	274 681	2 855 811

[1] There are only two firms classified under SIC 271 in the pulp and paper industry in Saskatchewan. To provide confidentiality of data the MacMillan Bloedel waferboard plant at Hudson Bay has been included with this industry group.

[2] Employment provided by the firm's own logging division.

[3] Employment provided by wood contractors and suppliers.

[4] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 2. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S WOOD PRESERVATION INDUSTRY, 1972

Months	Logging[1]		Logging[2]		Plant		Total
	Hourly	Salaried	Hourly	Salaried	Hourly	Salaried	
	Number Employed[3]						
January	2	-	43	8	68	19	140
February	-	1	47	9	50	18	125
March	4	-	47	7	68	19	143
April	4	-	47	7	80	21	159
May	7	1	22	5	83	21	139
June	5	-	17	4	71	17	114
July	4	-	45	8	63	17	137
August	4	-	34	6	75	16	135
September	4	-	33	5	82	17	141
October	4	-	39	5	84	16	148
November	4	1	42	5	80	15	147
December	1	-	42	6	66	14	129
Total Man-Months	43	3	458	75	870	210	1 659
Total Man-Years	4	.25	38	6	72	18	138.25
Total Man-Hours	7 452	520	79 371	12 998	150 771	36 393	287 505

[1] Employment provided by the firm's own logging division. 'Hourly' includes day workers, piece workers and hourly paid.

[2] Employment provided by independent contract loggers and other wood suppliers.

[3] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 3. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVELS IN SASKATCHEWAN'S CLASS 1 SAWMILLS, 1972

Months	Logging by Sawmill		Logging by Contractors		Mill			Total[3]
	Hourly	Salaried	Hourly	Salaried[1]	Hourly	Salaried	Other[2]	
	Number Employed[4]							
January	2	1	-	-	-	-	-	3
February	1	8	19	-	-	5	-	33
March	-	7	19	-	-	8	10	44
April	-	2	1	-	-	14	10	27
May	-	1	1	-	-	9	1	12
June	-	-	1	-	-	4	1	6
July	-	-	-	-	-	3	1	4
August	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	3	-	3
November	2	1	5	-	1	3	-	12
December	2	1	4	-	1	1	-	9
Total Man-Months	7	21	50	-	2	50	23	153
Total Man-Years	.58	1.75	4.16	-	.16	4.16	1.92	12.75
Total Man-Hours	1 213	3 640	8 667		347	8 667	3 987	26 520

[1] Data not available.

[2] Unpaid labor equivalent for exchange of work in custom sawing.

[3] Totals may not add due to rounding.

[4] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 4. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S CLASS 2 SAWMILLS, 1972

Months	Logging by Sawmill		Logging by Contractors		Mill		Total
	Hourly	Salaried	Hourly	Salaried[1]	Hourly	Salaried	
	Number Employed[2]						
January	-	24	-	-	1	4	29
February	-	28	-	-	2	6	36
March	5	29	-	-	3	13	50
April	-	19	-	-	-	8	27
May	-	3	-	-	-	21	24
June	-	1	-	-	-	34	35
July	-	4	-	-	-	5	9
August	-	1	-	-	-	-	1
September	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-
Total Man-Months	5	109	-	-	6	91	211
Total Man-Years	.42	9.08	-	-	.50	7.58	17.58
Total Man-Hours	867	18 893	-	-	1 040	15 773	36 573

[1] Data not available.

[2] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 5. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S CLASS 3 SAWMILLS, 1972

Months	Logging by Sawmill		Logging by Contractors		Mill			Total
	Hourly	Salaried	Hourly	Salaried[1]	Hourly	Salaried	Other[2]	
	Number Employed[3]							
January	25	4	9	-	32	7	1	78
February	31	4	9	-	32	7	1	84
March	31	4	9	-	33	7	1	85
April	3	1	1	-	18	6	-	29
May	2	2	1	-	17	6	-	28
June	3	1	-	-	17	6	-	27
July	2	-	2	-	16	4	-	24
August	2	-	1	-	11	2	-	16
September	-	-	1	-	-	1	-	2
October	-	-	-	-	-	-	-	-
November	1	-	1	-	3	1	-	6
December	8	1	8	-	21	3	1	42
Total Man-Months	108	17	42	-	200	50	4	421
Total Man-Years	9	1.42	3.50	-	16.66	4.17	.25	35
Total Man-Hours	18 716	2 946	7 279	-	34 660	8 665	693	72 959

[1] Data not available.

[2] Unpaid labor equivalent for exchange of work in custom sawing.

[3] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 6. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S CLASS 4 SAWMILLS, 1972

Months	Logging by Sawmill		Logging by Contractors		Mill		Total[2]
	Hourly	Salaried	Hourly	Salaried[1]	Hourly	Salaried	
	Number Employed[3]						
January	31	*	27	-	71	9	138
February	31	*	27	-	71	9	138
March	31	*	27	-	66	8	132
April	18	*	14	-	41	5	78
May	2	*	10	-	15	2	29
June	1	*	7	-	11	2	21
July	-	-	4	-	7	1	12
August	-	-	3	-	8	1	12
September	-	-	4	-	7	1	12
October	-	-	3	-	8	2	13
November	18	*	13	-	42	5	78
December	26	*	27	-	71	9	133
Total Man-Months	158	1	166	-	418	54	797
Total Man-Years	13.16	.083	13.83	-	34.83	4.50	66.42
Total Man-Hours	27 387	173	28 773	-	72 453	9 360	138 146

* 1 man-month spread equally over the months indicated.

[1] Data not available.

[2] Totals may not add due to rounding.

[3] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX F

TABLE 7. ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN SASKATCHEWAN'S CLASS 5 SAWMILLS, 1972

Months	Logging by Sawmill		Logging by Contractors		Mill		Total
	Hourly	Salaried	Hourly	Salaried[1]	Hourly	Salaried	
	Number Employed[2]						
January	97	6	498	-	243	96	940
February	98	6	499	-	242	96	941
March	97	6	437	-	289	96	925
April	-	6	46	-	288	97	437
May	-	6	45	-	322	96	469
June	-	6	108	-	322	96	532
July	-	6	107	-	322	96	531
August	-	6	108	-	322	97	533
September	-	6	107	-	322	96	531
October	-	6	294	-	321	97	718
November	97	6	498	-	289	96	986
December	97	6	499	-	289	97	988
Total Man-Months	486	72	3 246	-	3 571	1 156	8 531
Total Man-Years	40.50	6	270.50	-	297.58	96.33	710.91
Total Man-Hours	84 224	12 478	562 532	-	618 854	200 335	1 478 423

[1] Data not available.

[2] Full employment equivalent - defined as a person working 8 hours/day, 5 days/week, 52 weeks/year (2080 hours/year; 173.3 hours/month).

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX G

TABLE 1. SELLING VALUE OF SHIPMENTS, COSTS, AND VALUE ADDED FOR THE SASKATCHEWAN FOREST INDUSTRY[1], 1972

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry	Total
Number of Firms	3	6	316	325
Gross Sales	54 302 000	3 827 069	26 130 347	84 259 416
Net Sales (F.O.B. Mill)	43 976 800	3 504 388	21 658 082	69 139 270
Fuel & Electricity	2 715 484	71 936	426 999	3 214 419
Materials & Supplies (includes maint. & repairs)	6 082 048	695 181	1 718 851	8 496 080
Wood Inputs (roundwood & semi processed)	12 436 454	1 480 234	7 906 987	21 823 675
Value Added by Manufacturing Activity	22 742 814	1 257 037	11 605 245	35 605 096
Depreciation	7 087 176	117 287	1 221 949	8 426 412
Mill Wages Paid	5 108 000	429 617	2 435 421	7 973 038
Mill Salaries Paid	1 493 879	206 783	1 163 259	2 863 921
Company Paid Employee Benefits	757 505	51 173	478 043	1 286 721
Local Municipal Taxes	174 374	9 709	114 845	298 928
Insurances	233 755	25 131	71 942	330 828
Leasing and Rentals	427 246	2 800	9 932	439 978
Other Expenses	5 990 546	133 573	255 282	6 379 401
Unallocated Residuals and Profits	1 470 333	280 964	5 854 572	7 605 869

[1] Does not include logging operations as an industry. The cost of roundwood delivered to the mill or plant is included in "Wood Inputs".

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX G

TABLE 2. SELLING VALUE OF SHIPMENTS, COSTS, AND VALUE ADDED FOR SASKATCHEWAN SAWMILLS AND PLANING MILLS[1], 1972

	Class 1	Class 2	Class 3	Class 4	Class 5
Number of Firms	102	181	19	11	3
Gross Sales	158 703	223 287	452 152	804 103	24 492 102
Net Sales (F.O.B. Mill)	153 782	216 154	438 557	791 440	20 058 149
Fuel & Electricity	8 282	5 732	12 485	44 604	355 896
Materials & Supplies (includes maint. & repairs)	17 218	8 749	38 921	152 673	1 501 290
Wood Inputs (roundwood & semi processed)	97 757	69 953	143 374	258 705	7 337 198
Value Added by Manufacturing Activity	30 525	131 720	243 777	335 458	10 863 765
Depreciation	6 052	14 211	35 664	66 220	1 099 802
Mill Wages Paid	1 088	1 421	81 394	205 965	2 145 553
Mill Salaries Paid[2]	23 385	116 088	117 781	57 974	848 031
Company Paid Employee Benefits	-	-	1 558	-	476 485
Local Municipal Taxes	-	-	53	507	114 285
Insurances	-	-	832	707	70 403
Leasing and Rentals	-	-	2 527	-	7 405
Other Expenses	-	-	3 968	4 085	247 229
Unallocated Residuals and Profits[2]	-	-	-	-	5 854 572

[1] Does not include logging operations as an industry. The cost of roundwood delivered to the mill or plant is included in "Wood Inputs".

[2] Most mills producing less than 11 799 m^3 (5 000 MFBM) are operated by the owner. His salary is the residual income or profit after all expenses and has been included under the heading "mill salaries paid".

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX H

TABLE 1. CONSUMPTION OF WOOD AND SEMI-PROCESSED WOOD FIBRE BY SASKATCHEWAN'S FOREST INDUSTRY BY PRODUCT TYPE AND QUANTITY, 1972

Industry Group	No. Firms	Product Type	Product Unit (Canadian)	Quantity	Volume[1] ft^3 (000's)	Volume[1] m^3 (000's)
Pulp and Paper	3	pulpwood	cords	536 551	45 607	1 291
		wood chips	cords	54 500	4 633	131
					50 240	1 423
Wood Preservation	6	pickets and fence posts	pieces	2 967 858	1 439	41
		poles and piling	pieces	25 692	462	13
		rails	pieces	12 107	12	-
		lumber and timber	MFBM	1 846	369	10
		other	pieces	70 548	229	6
					2 511	71
Sawmill Industry						
Class 1	102	sawlogs	cords	4 186	356	10
Class 2	181	sawlogs	cords	6 021	512	14
Class 3	19	sawlogs	cords	11 364	966	27
Class 4	11	sawlogs	cords	29 453	2 504	71
Class 5	3	sawlogs	cords	261 291	22 210	629
		rough lumber	MFBM	17 986	3 597	102
					30 145	854

[1] Roundwood equivalent. May not add due to rounding.

SOURCE: N.F.R.C. Wood Industry Survey, 1972

APPENDIX I

TABLE 1. STANDARD INDUSTRIAL CLASSIFICATION LISTINGS FOR FOREST INDUSTRIES, 1970

	Industry Number (SIC No.)	
DIVISION 2 - FORESTRY		
Major Group 1 - Logging		
* Logging	031	
Major Group 2 - Forestry Services		
Forestry Services	039	
DIVISION 5 - MANUFACTURING INDUSTRIES		
Major Group 8 - Wood Industries		
Sawmills, Planing Mills and Shingle Mills	251	
a) Shingle Mills		2511
*b) Sawmills and Planing Mills (except Shingle Mills)		2513
Veneer and Plywood Mills	252	
Sash, Door and Other Millwork Plants	254	
a) Sash, Door and Other Millwork Plants n.e.s.		2541
b) Hardwood Flooring Plants		2542
c) Manufacturers of Pre-fabricated Buildings (Wood Frame Construction)		2543
Wooden Box Factories	256	
Coffin and Casket Industry	258	
Miscellaneous Wood Industries	259	
* a) Wood Preservation Industry		2591
b) Wood Handles and Turning Industry		2592
* c) Manufacturers of Particle Board		2593
d) Miscellaneous Wood Industries, n.e.s.		2599
Major Group 10 - Paper and Allied Industries		
* Pulp and Paper Mills	271	
Asphalt Roofing Manufacturers	272	
Paper Box and Bag Manufacturers	273	
a) Folding Carton and Set-up Box Manufacturers		2731
b) Corrugated Box Manufacturers		2732
c) Paper and Plastic Bag Manufacturers		2733
Miscellaneous Paper Converters	274	

* Those industries included in the N.F.R.C. Saskatchewan Wood Industry Survey, 1972.

SOURCE: Statistics Canada. 1970. Standard Industrial Classification Manual - Revised 1970. Information Canada: Ottawa, Occasional, Catalogue No. 12 - 501, December, 1970. pp. 17, 18, 47, 48.