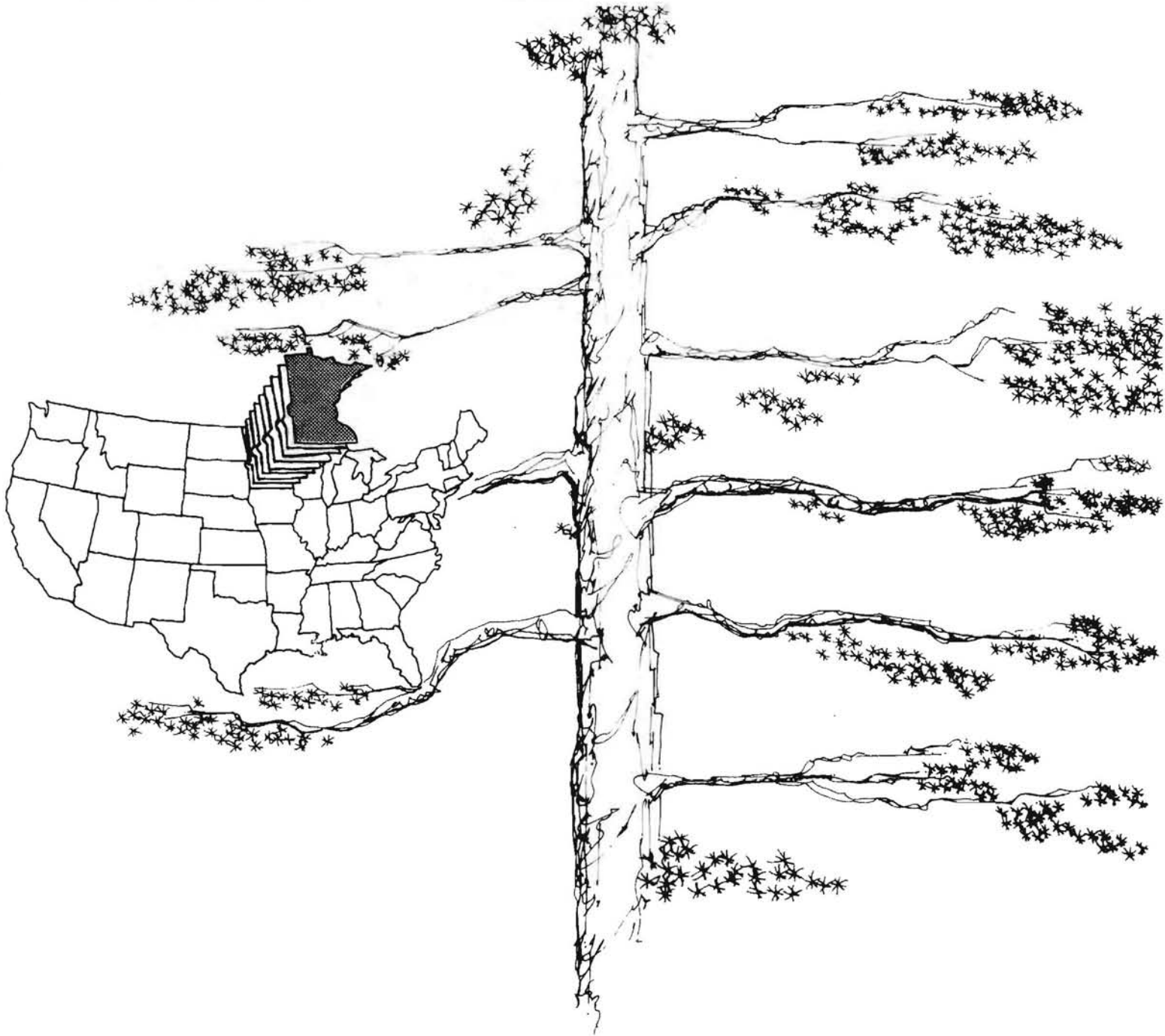


*John Krantz*

# Minnesota's Forest Resources



Department of Natural Resources  
Division of Forestry  
July 1989  
*CK*

500 Lafayette Road - Box 44  
St. Paul, Minnesota 55155-4044

# **MINNESOTA WOOD INDUSTRY - 1987**

## **ECONOMIC IMPACT :**

- Value of Forest Products Manufactured = \$4.4 Billion
- 2nd Largest Manufacturing Industry in Minnesota
- Generates 16% of Dollars of all Manufacturing

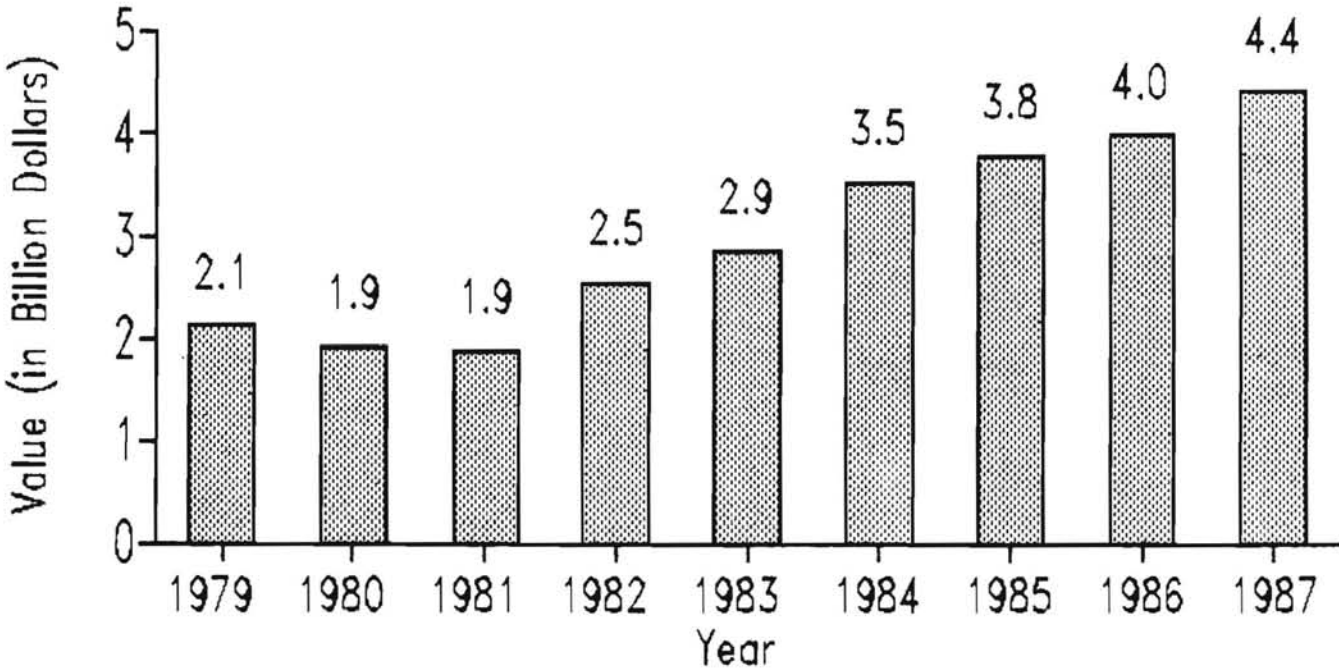
## **EMPLOYMENT :**

- 54,000 Employees
- \$1.6 Billion Payroll

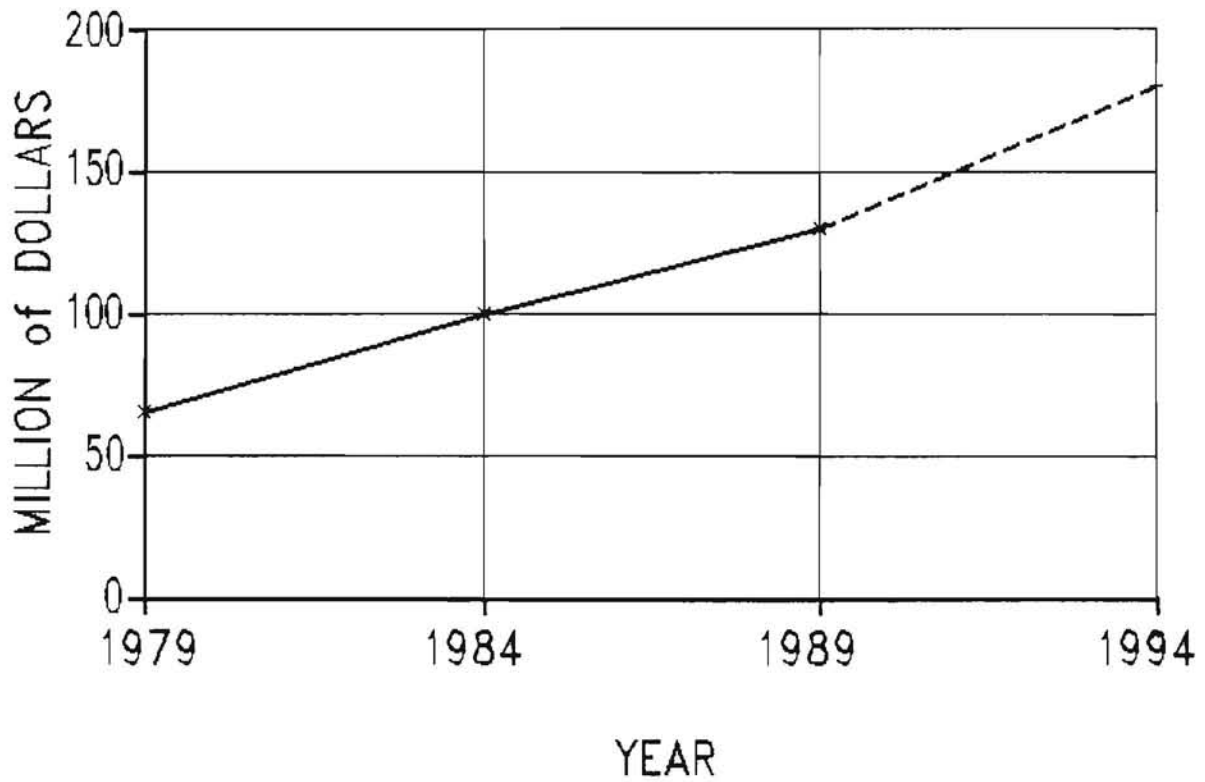
## **INDUSTRY :**

- 8 Pulp & Paper
- 4 Hardboard & Specialty
- 5 Waferboard / OSB
- 900 Sawmills
- Over 850 Secondary

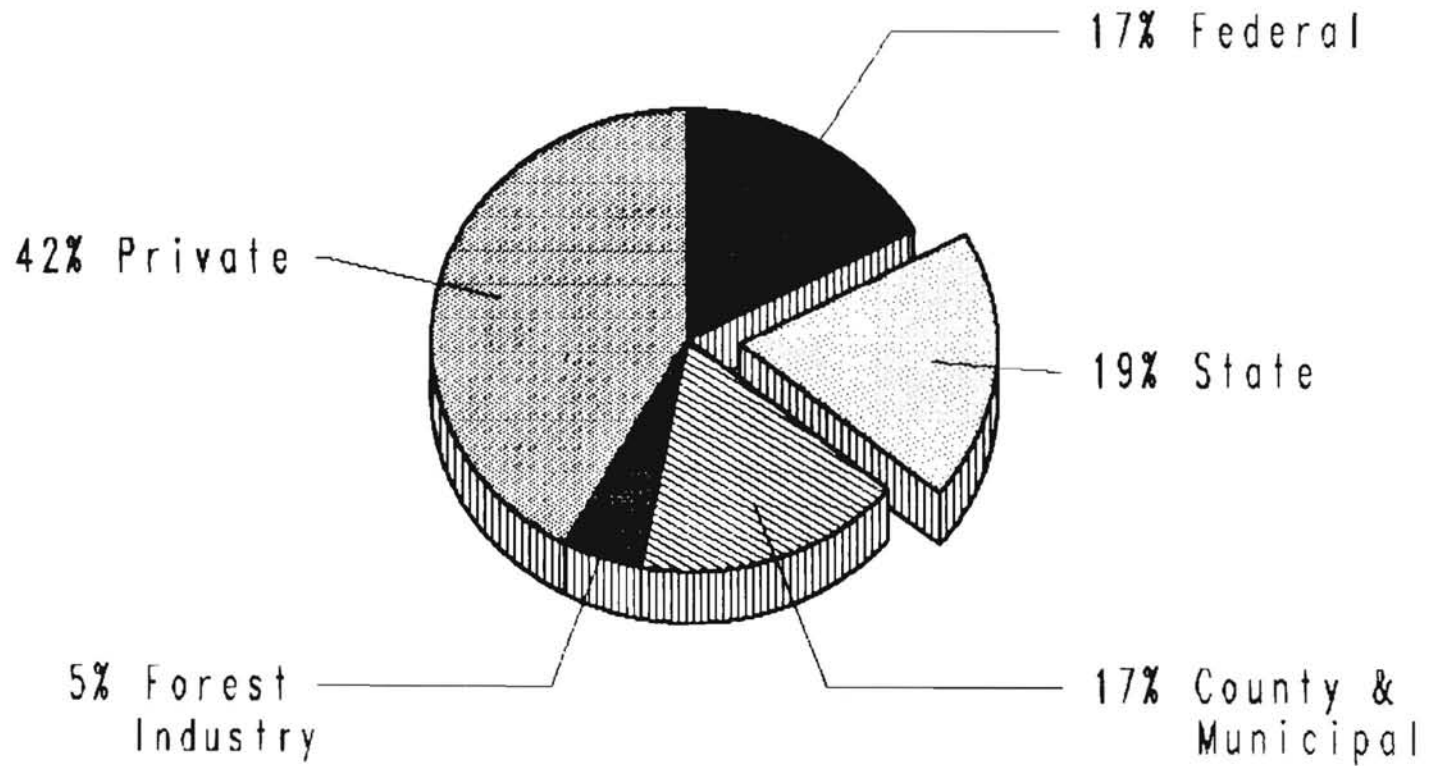
# VALUE of FOREST PRODUCTS MANUFACTURED in Minnesota



# MN STATE GENERAL FUND TAX REVENUE ATTRIBUTABLE TO FOREST INDUSTRIES



MINNESOTA COMMERCIAL FOREST LAND OWNERSHIP  
- 13.7 Million Acres -

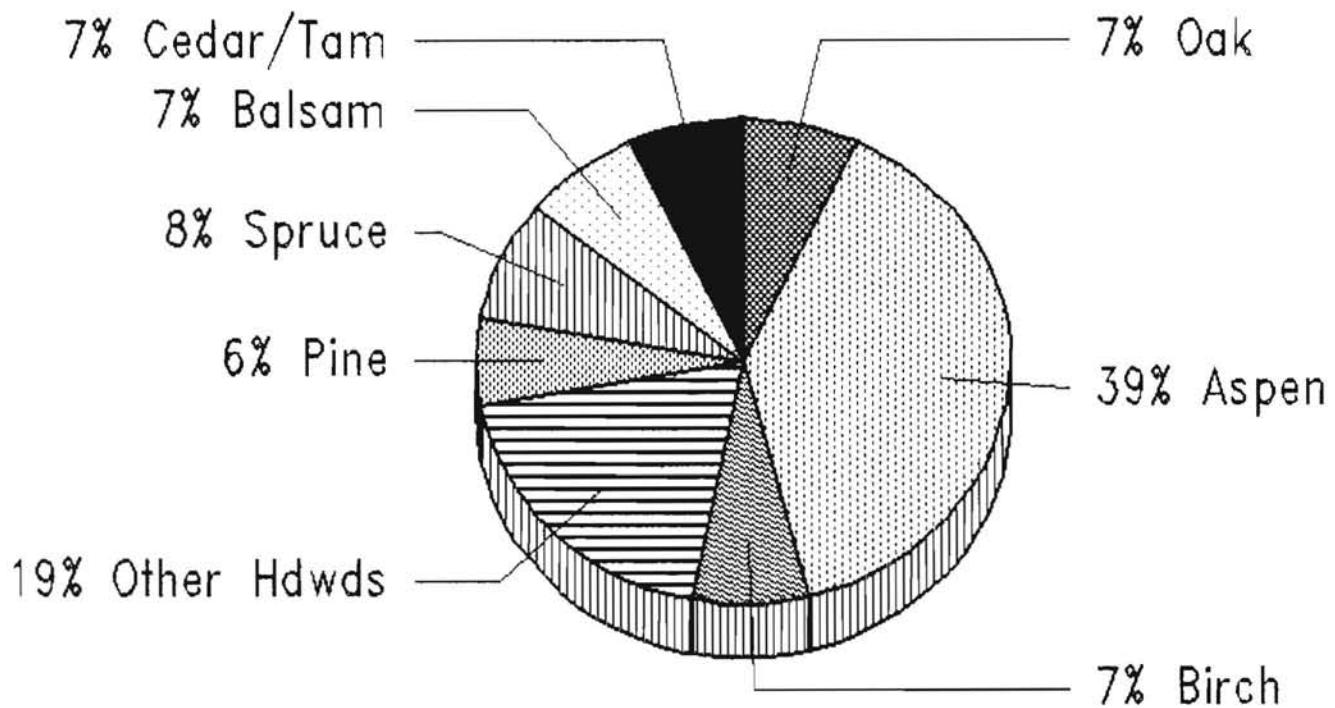


AREA OF COMMERCIAL FOREST LAND  
IN MINNESOTA BY FOREST TYPE

<u>FOREST TYPE</u>	<u>ACRES ( 000's)</u>
1) Jack Pine	504.4
2) Red Pine	246.9
3) White Pine	65.6
4) Balsam Fir	859.1
5) White Spruce	79.2
6) Black Spruce	1,041.8
7) Cedar	498.6
8) Tamarack	465.4
9) Oak	893.9
10) Elm - Ash	738.1
11) Northern Hardwoods	1,283.9
12) Aspen	5,302.3
13) Birch	997.6
14) Balm of Gilead	548.9
15) Non-Forest	169.4
	<hr/>
Total All Types	13,695.1

## MN COMMERCIAL FOREST LAND by COVER TYPE

( 13.7 Million Acres )




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# Minnesota Wood Harvest 1988 Commercial Forest Land

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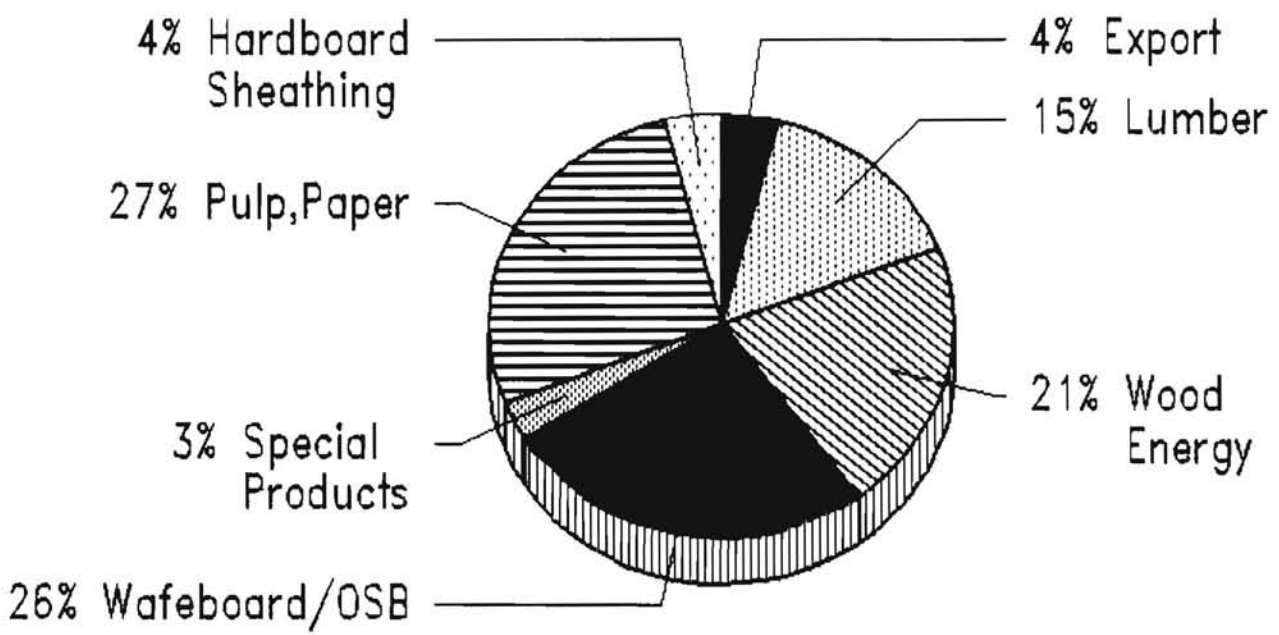
<u>Product</u>	<u>Thousand Cords</u>
Pulp & Paper	910
Waferboard/OSB	905
Hardboard/Sheathing/Other	150
Lumber	500
Special Products	100
Export	125
Energy	700
<b>TOTAL</b>	<u>3,390</u>







# TOTAL WOOD USE by PRODUCT - 1988 (From Minnesota Commercial Forest)

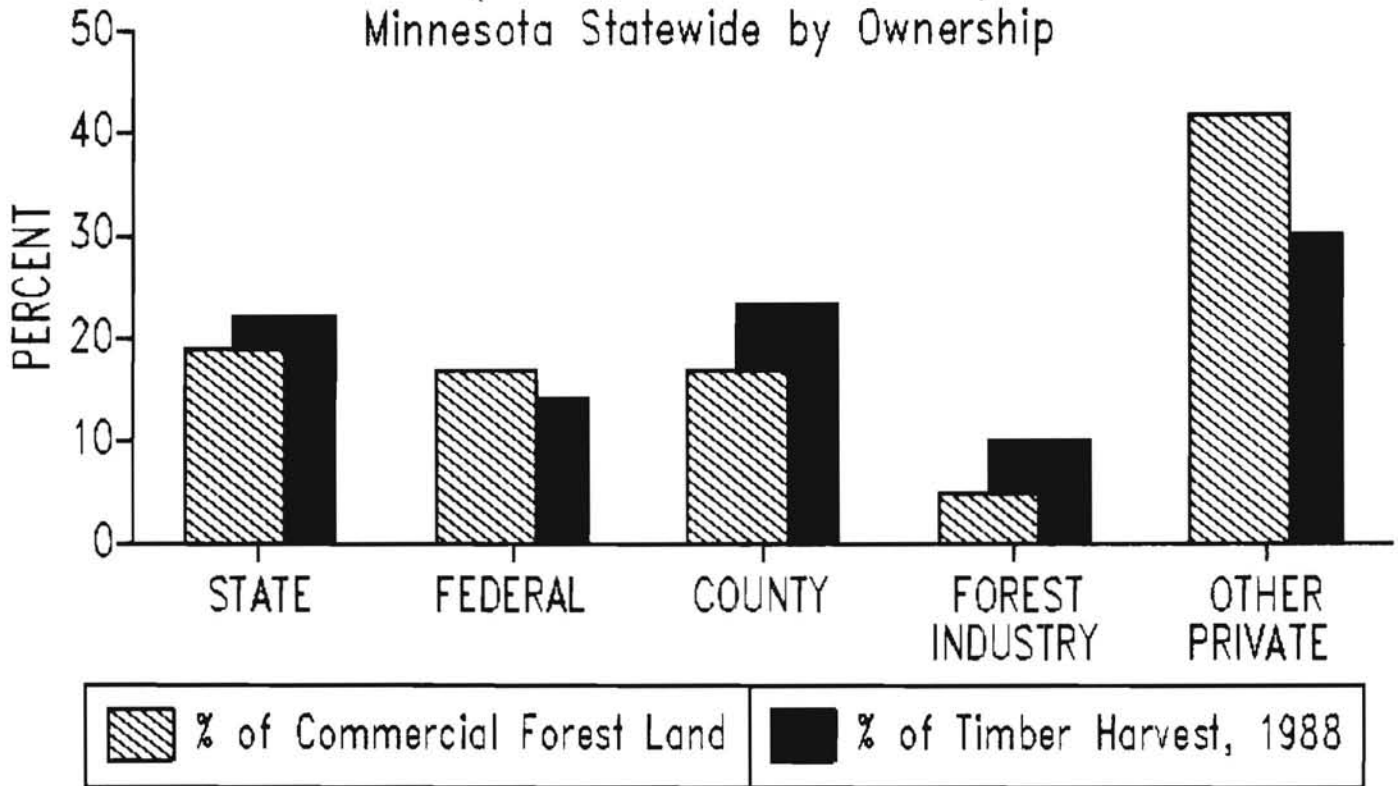


Total: 3.4 Million Cords  
(Includes All Species)

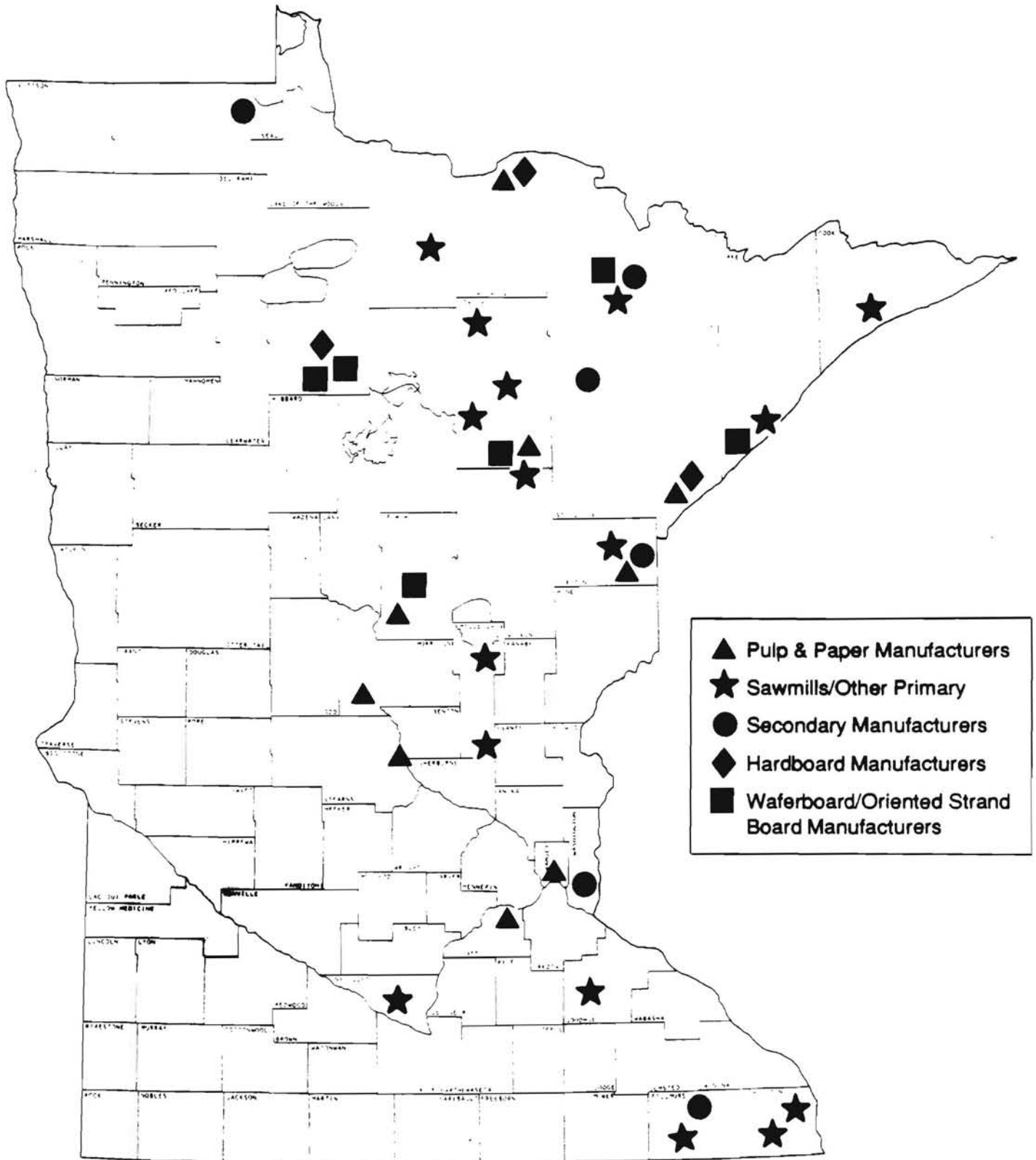
## COMMERCIAL FOREST LAND OWNERSHIP VS. AMOUNT of TIMBER HARVESTED

(does not include fuelwood)

Minnesota Statewide by Ownership



# Minnesota's Largest Forest Products Producers 1987 - 1990



- ▲ Pulp & Paper Manufacturers
- ★ Sawmills/Other Primary
- Secondary Manufacturers
- ◆ Hardboard Manufacturers
- Waferboard/Oriented Strand Board Manufacturers

Source: DNR, Division of Forestry. 1998

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## Minnesota Pulp and Paper

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- 1988 -

<u>Firm</u>	<u>Wood Use (Cords)</u>	<u>Product</u>
Blandin Paper Co. Grand Rapids	125,000	Magazines, Catalogs
Boise Cascade Int'l Falls	280,000	Business & Xerox
Carlyle Industries (Hennepin Paper) Little Falls	20,000	Construction & Specialty
Champion Int'l Sartell	135,000	Magazines, Catalogs
Lake Superior Paper Duluth	130,000	Advertising Supplements
Potlatch Corp. (2) Brainerd & Cloquet	340,000	Business & Printing
Waldorf Corp. St. Paul	Recycled Paper	Cardboard & Corrugated Boxes

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## Minnesota Waferboard/OSB

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- 1988 -

<u>Firm</u>	<u>Wood Use (Cords)</u>	<u>Product</u>
Blandin Grand Rapids	245,000	OSB - "Blandex Select"
Louisiana-Pacific Two Harbors	90,000	Waferboard - Siding "Inner Seal"
Northwood Bemidji	220,000	Waferboard - "Norboard"
Potlatch Bemidji	175,000	OSB - "Oxboard"
Potlatch Cook	175,000	OSB - "Oxboard"

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## Minnesota Hardboard and Specialty

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- 1988 -

<u>Firm</u>	<u>Wood Use (Cords)</u>	<u>Product</u>
<b>Certainteed Corp. Shakopee</b>	<b>25,000</b>	<b>Roofing Felt</b>
<b>Int'l Biltrite Int'l Falls</b>	<b>15,000</b>	<b>Sheathing</b>
<b>Superwood Corp. Duluth</b>	<b>100,000</b>	<b>Industrial Hardboard</b>
<b>Superwood Corp. Bemidji</b>	<b>30,000</b>	<b>Industrial Hardboard</b>

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## Minnesota - New and Expanding Pulpwood Using Industries

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1979 - 1985

<u>Company</u>		<u>Additional Wood Use</u>	<u>Capital Investment (millions \$)</u>
Potlatch	Paper	30,000 cords	100
Potlatch	OSB	170,000 cords	40
Potlatch	OSB	170,000 cords	40
Northwood Panelwood	Waferboard	220,000 cords	45
Champion Int'l	Paper	60,000 cords	250
Blandin	OSB	220,000 cords	50
Louisiana Pacific	Waferboard	90,000 cords	30
		<hr/> 960,000 cords	<hr/> \$555 million

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## Minnesota - New and Expanding Pulpwood Using Industries

---

1986 - 1990

<u>Company</u>		<u>Additional Wood Use</u>	<u>Capital Investment (millions \$)</u>
Blandin	Paper	138,000 cords	350
Potlatch	Paper	None	100
Lake Superior Paper Ind.	Paper	120,000 cords	404
Int'l Biltrite	Sheathing	50,000 cords	12
		<hr/> 308,000 cords	<hr/> \$866 million



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## Minnesota - New and Expanding Pulpwood Using Industries

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1991 - 1995

<u>Company</u>		<u>Additional Wood Use</u>	<u>Capital Investment (millions \$)</u>
Boise Cascade	Paper	340,000 cords	525
*Blandin #7	Paper	150,000 cords	300
*Lake Superior Paper Ind. #2	Paper	230,000 cords	525
*Potlatch	Paper	420,000 cords	400
MacMillan Bloedel	PSL**	150,000 cords	70
Potlatch	OSB	160,000 cords	35
		<hr/> 1,450,000 cords	<hr/> \$1.855 billion

\*Under study

\*\*Parallel Strand Lumber

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## Minnesota - New and Expanding Wood Using Industries

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### -Sawmills & Secondary Industries-

<u>1979-1989</u>		<u>Additional Wood Use</u>	<u>Capital Investment (millions \$)</u>
Hedstrom Lumber	Lumber	9 Million BF	\$1.5
Rajala Timber	Lumber & Kiln	5 Million BF	\$1.5
Midwest Timber	Lumber	2-1/2 Million BF	\$1
Woodcraft Industries	Cabinet Parts	5 Million BF	\$8
Marvin Windows	Windows	---	--
Valley Forest Resources	Lumber	5 Million BF	--
Diamond Brands	Veneer	2-1/2 Million BF	\$1
Lakewood Industries	Veneer	9 Million BF	\$8

Many Others

## Minnesota

### **New & Expanding Wood Using Industries**

<u>Period</u>	<u>Capital Investment (\$ millions)</u>	<u>Additional Wood Use</u>
1979-1985	\$555	1.0 million cords
1986-1990	\$866	.3 million cords
1991-1995	\$1,835	1.4 million cords
<b>Totals</b>	<u><b>\$3.256 billion</b></u>	<u><b>2.7 million cords</b></u>

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# World Class Minnesota Mills

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1996<sup>5</sup>

Blandin Paper #7

Potlatch Paper

Lake Superior Paper Industries #2

MacMillan Bloedel (<sup>OK</sup>OSB) (PSL)

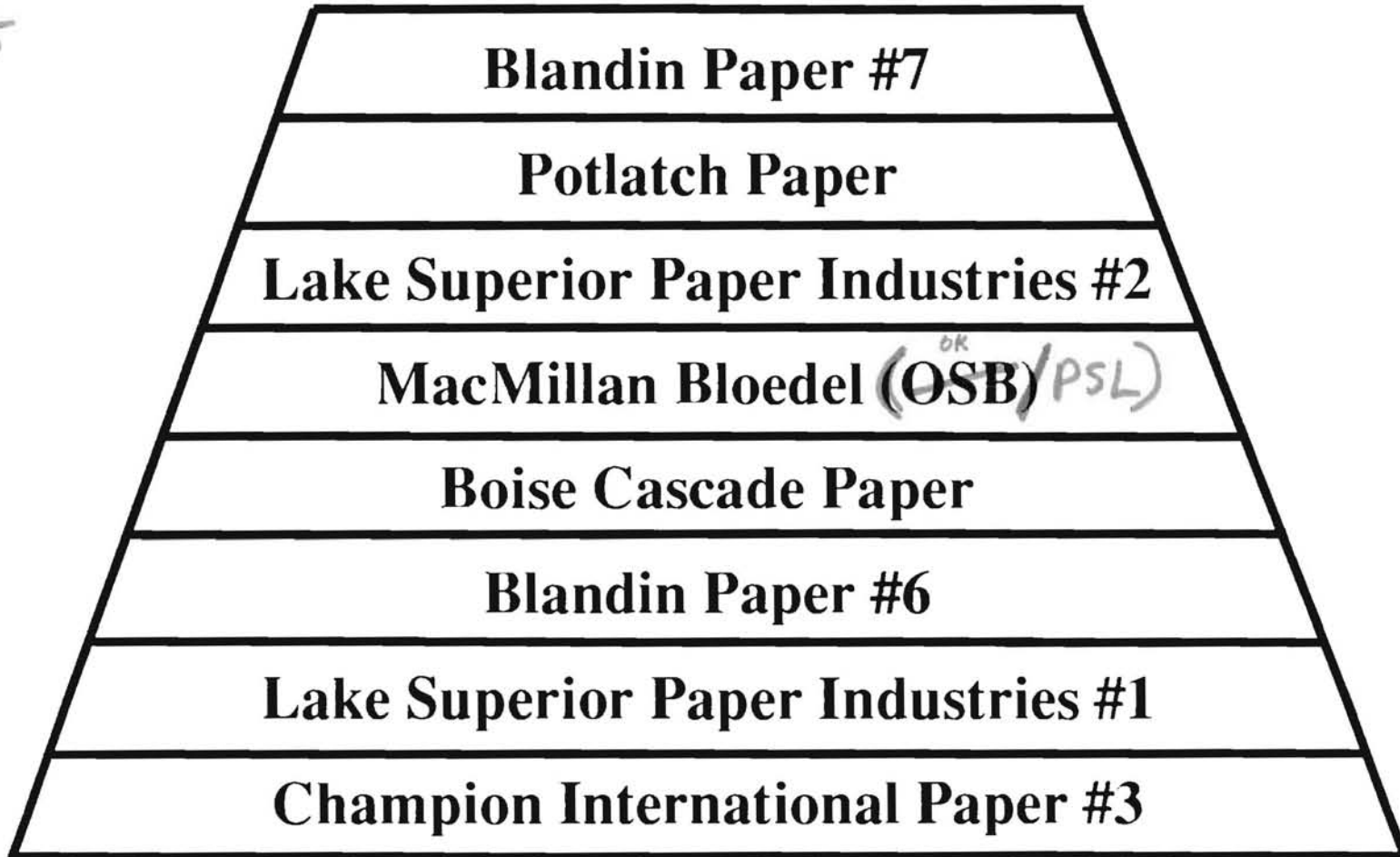
Boise Cascade Paper

Blandin Paper #6

Lake Superior Paper Industries #1

1982

Champion International Paper #3



~~MINNESOTA WOOD HARVEST AND USE~~  
~~- CURRENT AND PROJECTED -~~

<u>PRODUCT</u>	1988 <u>CURRENT</u> (CORDS)	1992 <u>PROJECTED</u> (CORDS)	1995 <u>PROJECTED</u> (CORDS)
PULP & PAPER <sup>*(1)</sup>	1,022,000	1,660,000	2,230,000
WAFERBOARD/OSB	905,000	1,215,000	1,215,000
HARDBOARD/ SHEATHING, ETC. <sup>*(1)</sup>	170,000	200,000	200,000
LUMBER	620,000	620,000	650,000
SPECIAL PRODUCTS	100,000	115,000	130,000
EXPORT	140,000	150,000	170,000
<sup>(2)</sup> *RESIDENTIAL FUEL	1,000,000	1,000,000	1,100,000
<sup>(2)</sup> *COMMERCIAL FUEL	<u>650,000</u>	<u>1,000,000</u>	<u>1,200,000</u>
TOTAL	4,607,000	5,960,000	6,895,000

\*These totals include about 1,500,000 cords  
of mill and forest residue which is not considered  
growing stock.

*\*<sup>(1)</sup> includes some residue chips (115,000 cord equivalents)*

# Current and Projected Wood Harvest - Minnesota Statewide - (in thousand cords)



<u>Species</u>	<u>1988</u>	<u>1990</u>	<u>1992</u>	<u>1995</u>
Aspen	<del>1870</del> 1738	<del>2000</del>	<del>2620</del> 2488	<del>2805</del> 2680
Spruce	<del>147</del> 162	<del>163</del>	<del>198</del> 228	<del>218</del> 248
Balsam	<del>178</del> 181	<del>205</del>	<del>315</del> 343	<del>345</del> 373
Balm	<del>48</del> 49	<del>50</del>	<del>100</del> 94	<del>100</del> 121
Birch	<del>172</del> 138	<del>190</del>	<del>190</del> 143	<del>300</del> 303
Pine	<del>270</del> 351	<del>270</del>	<del>270</del> 351	<del>345</del> 431
Tamarack	<del>14</del> 11	<del>14</del>	<del>14</del> 11	<del>14</del> 11
Basswood	<del>14</del> 32	<del>18</del>	<del>20</del> 32	<del>70</del> 90
Maple	<del>41</del> 64	<del>35</del>	<del>35</del> 64	<del>110</del> 146

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## Recommended Harvest and Actual Harvest - Minnesota 1988 -

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(thousand cords) X

	<u>Recommended Harvest</u>	<u>Actual Harvest</u>	
Aspen	1,970	<del>1,870</del>	1,740
Birch	500	<del>170</del>	140
Balsam Poplar	260	50	50
Other Hardwoods	700	<del>670</del>	570
Pine	435	<del>270</del>	350
Spruce	215	145	160
Balsam	340	<del>175</del>	180
Other Softwoods	<u>170</u>	<u>40</u>	<u>20</u>
TOTAL	4,590	<del>3,390</del>	<u>3,210</u>

MINNESOTA ANNUAL ALLOWABLE CUT AND HARVEST, 1987  
 -STATEWIDE, ALL OWNERSHIPS -

<u>SPECIES</u>	<u>ALLOWABLE CUT</u>	<u>HARVEST</u>	<u>SURPLUS (DEFICIT)</u>
ASPEN	1,963,000	1,842,000	121,000
BIRCH	503,000	163,000	340,000
BALSAM	340,000	118,000	222,000
BALM	261,000	43,000	218,000
SPRUCE	215,000	107,000	108,000
JACK PINE	210,000	139,000	71,000
RED PINE (NORWAY)	158,000	103,000	55,000
ASH	152,000	81,000	71,000
RED OAK	147,000	254,000	(107,000)
ELM	118,000	196,000	(78,000)
BASSWOOD	106,000	14,000	92,000
CEDAR	100,000	16,000	84,000
WHITE OAK	98,000	74,000	24,000
MAPLE	89,000	41,000	48,000
TAMARACK	70,000	11,000	59,000
WHITE PINE	67,000	31,000	36,000
COTTONWOOD	<u>N/A</u>	<u>10,000</u>	<u>N/A</u>
	4,597,000	3,243,000	1,354,000



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**Minnesota Projected Wood Availability**  
**Statewide - 1995**  
**(in thousand cords)**

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**II. Using modified recommended harvest which includes annual recommended harvest plus the accumulated surplus liquidated over 15 years.**

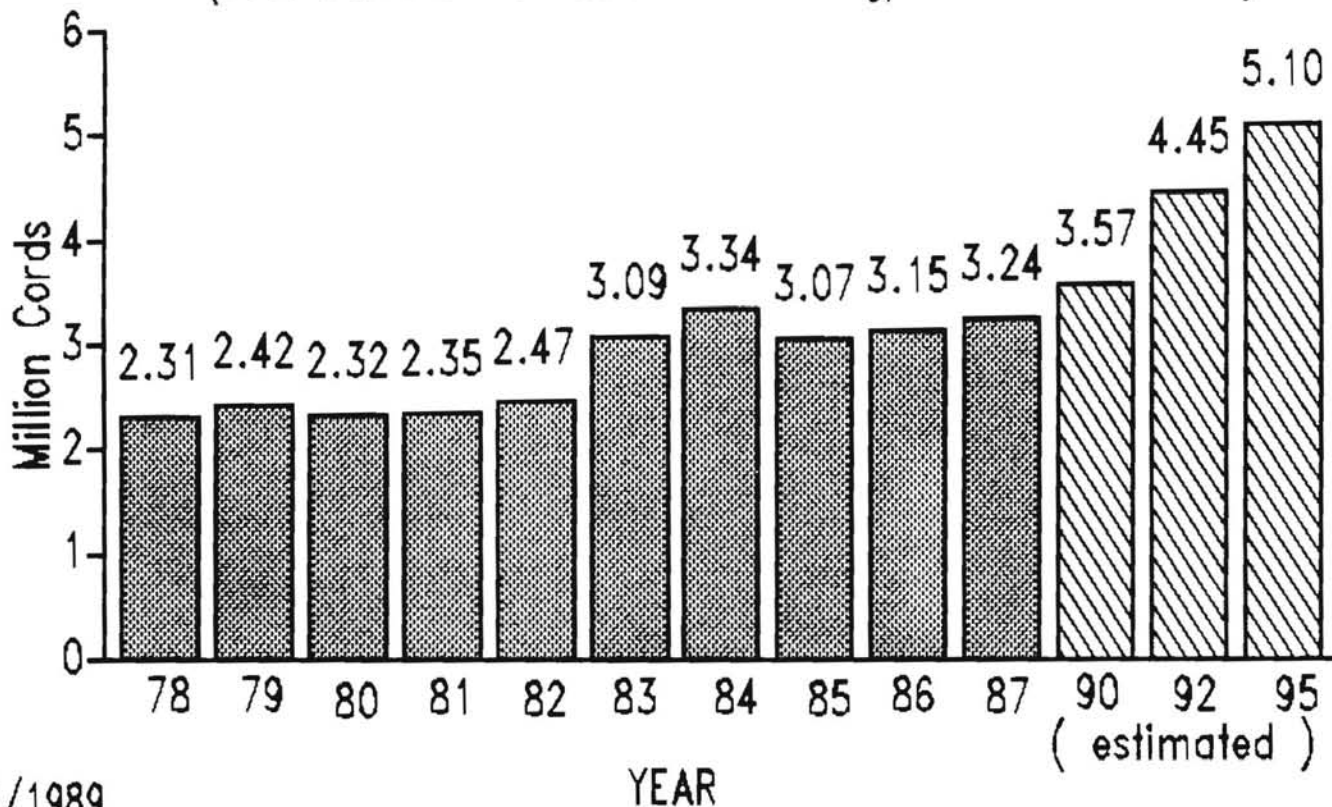
<b><u>Species</u></b>	<b><u>Recommended Harvest</u></b>	<b><u>Actual Harvest</u></b>	<b><u>Annual Surplus</u></b>
<b>Aspen</b>	<b>2340</b>	<b>2800</b>	<b>(460) *</b>
<b>Balm of Gilead</b>	<b>404</b>	<b>100</b>	<b>304</b>
<b>Birch</b>	<b>743</b>	<b>300</b>	<b>443</b>
<b>Balsam</b>	<b>485</b>	<b>345</b>	<b>140</b>
<b>Spruce</b>	<b>268</b>	<b>218</b>	<b>50</b>
<b>Pine</b>	<b>515</b>	<b>345</b>	<b>170</b>
<b>Tamarack</b>	<b>97</b>	<b>14</b>	<b>83</b>

**\* Based on this harvest level, the accumulated surplus will be liquidated by approximately 1998.**

7

## TOTAL WOOD HARVEST in MINNESOTA

— from Commercial Forest Land —  
(Does Not Include Residue for Energy & Wood Products)

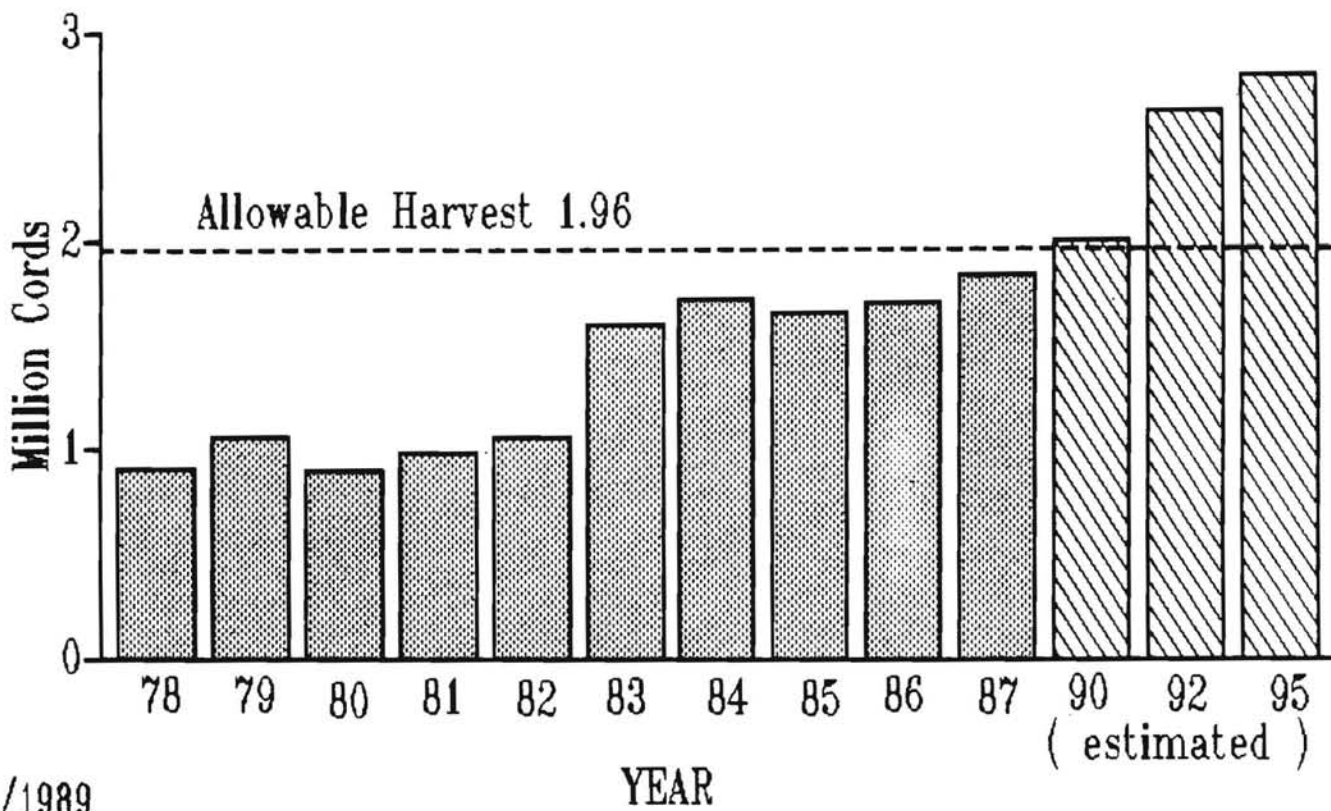


5/1989

X

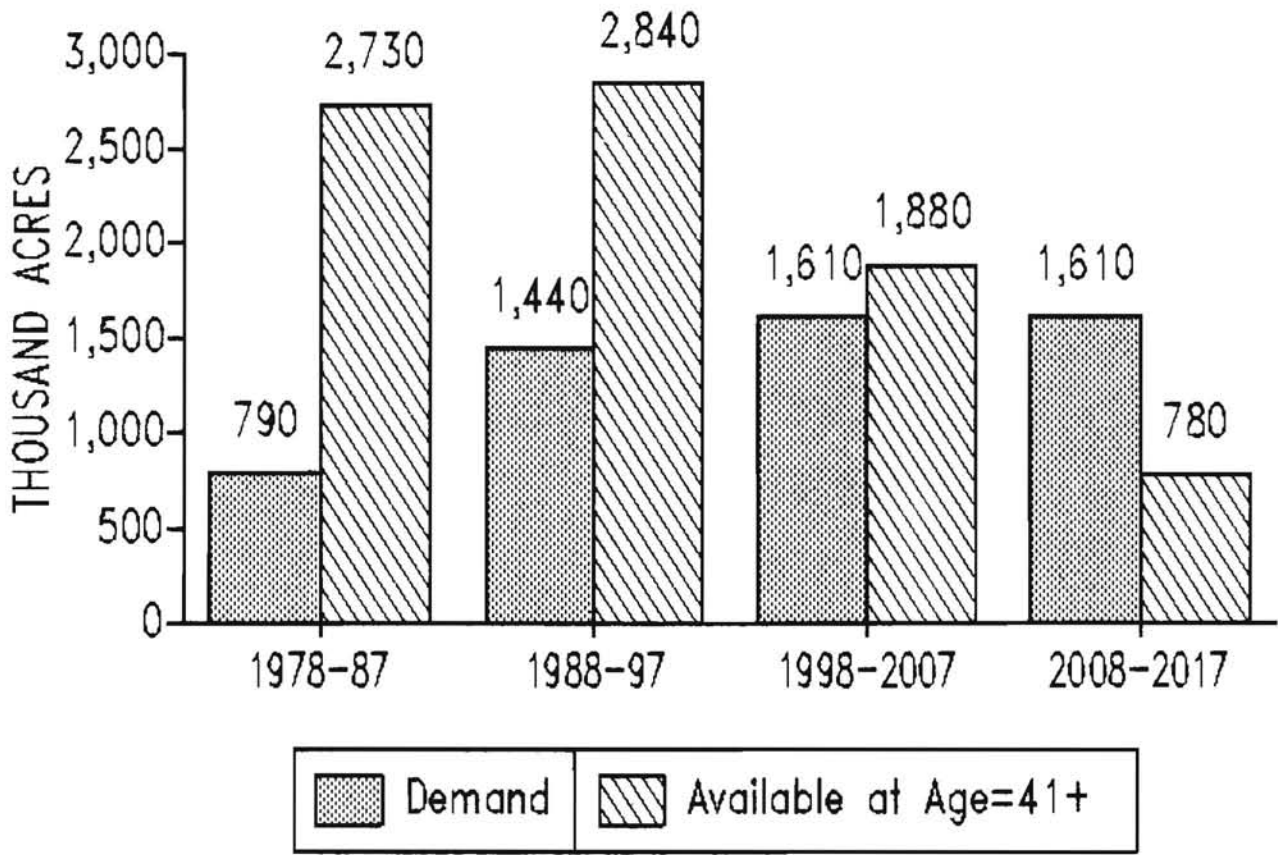
### ASPEN HARVEST from MINNESOTA

(includes pulpwood, sawtimber & energy chips)

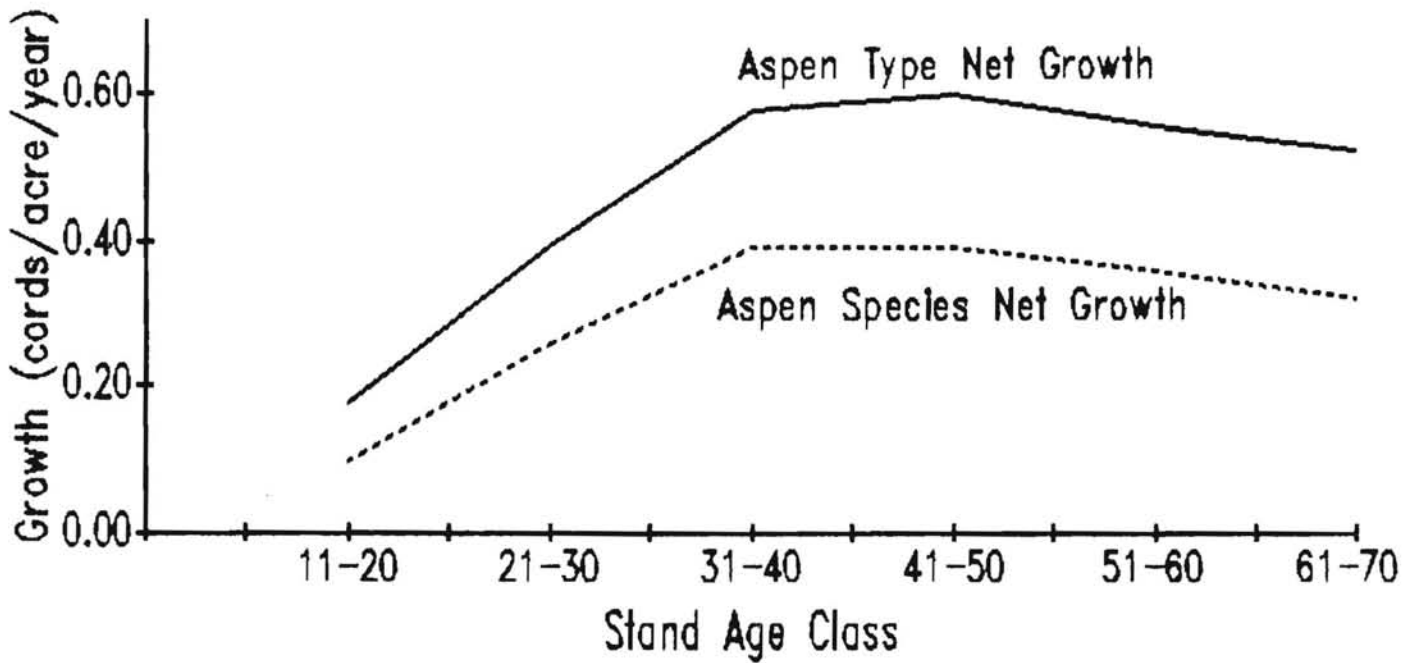


X (3)

### ASPEN TYPE ACREAGE : PROJECTED DEMAND & SUPPLY Minnesota Statewide ( all Ownerships )

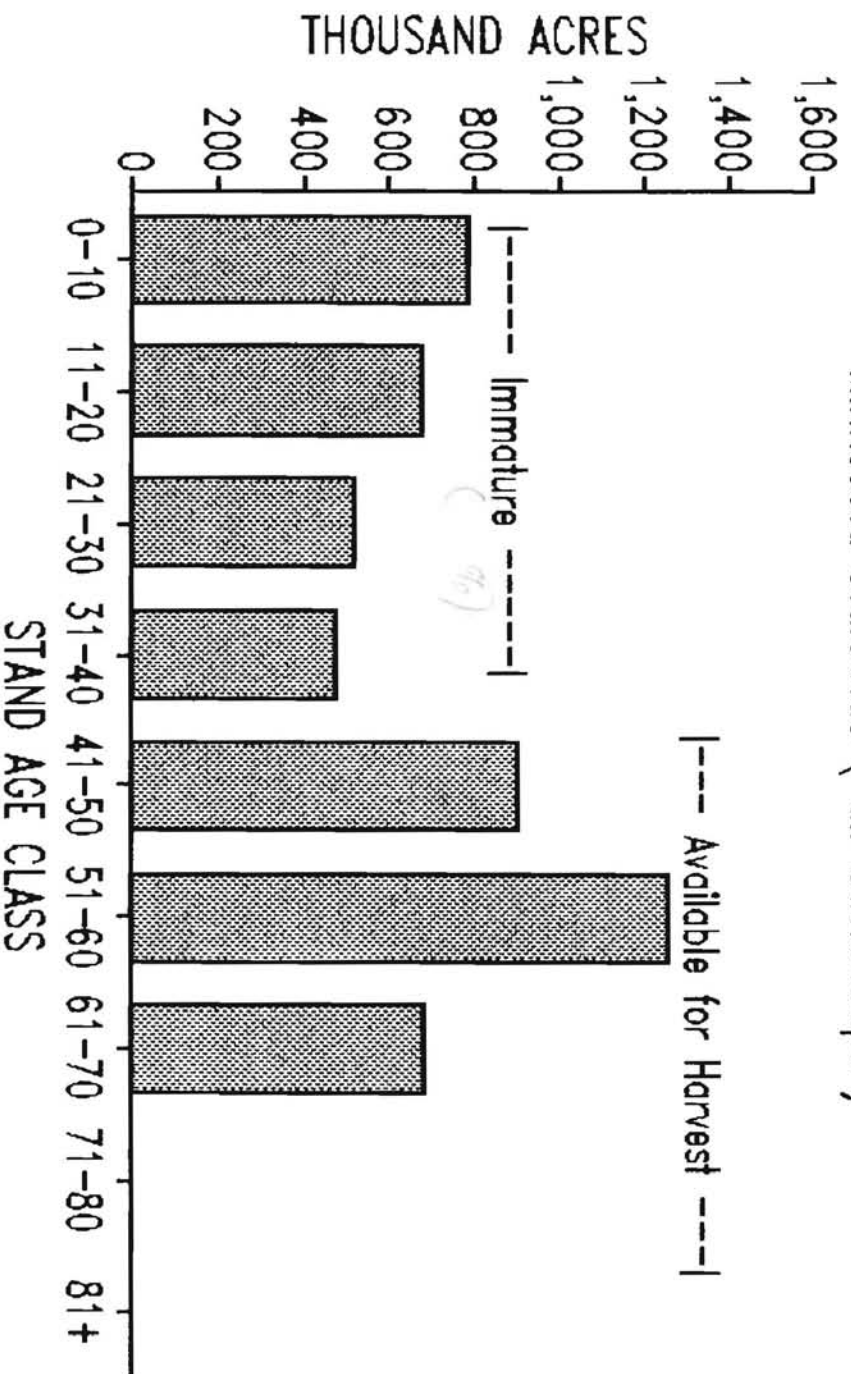


ASPEN TYPE ANNUAL GROWTH by STAND AGE CLASS  
(Includes Growing Stock Trees only) 11/15/88  
Based on Mn 1977 Permanent Plots (except National Forest)



## ASPEN AGE DISTRIBUTION - (1987)

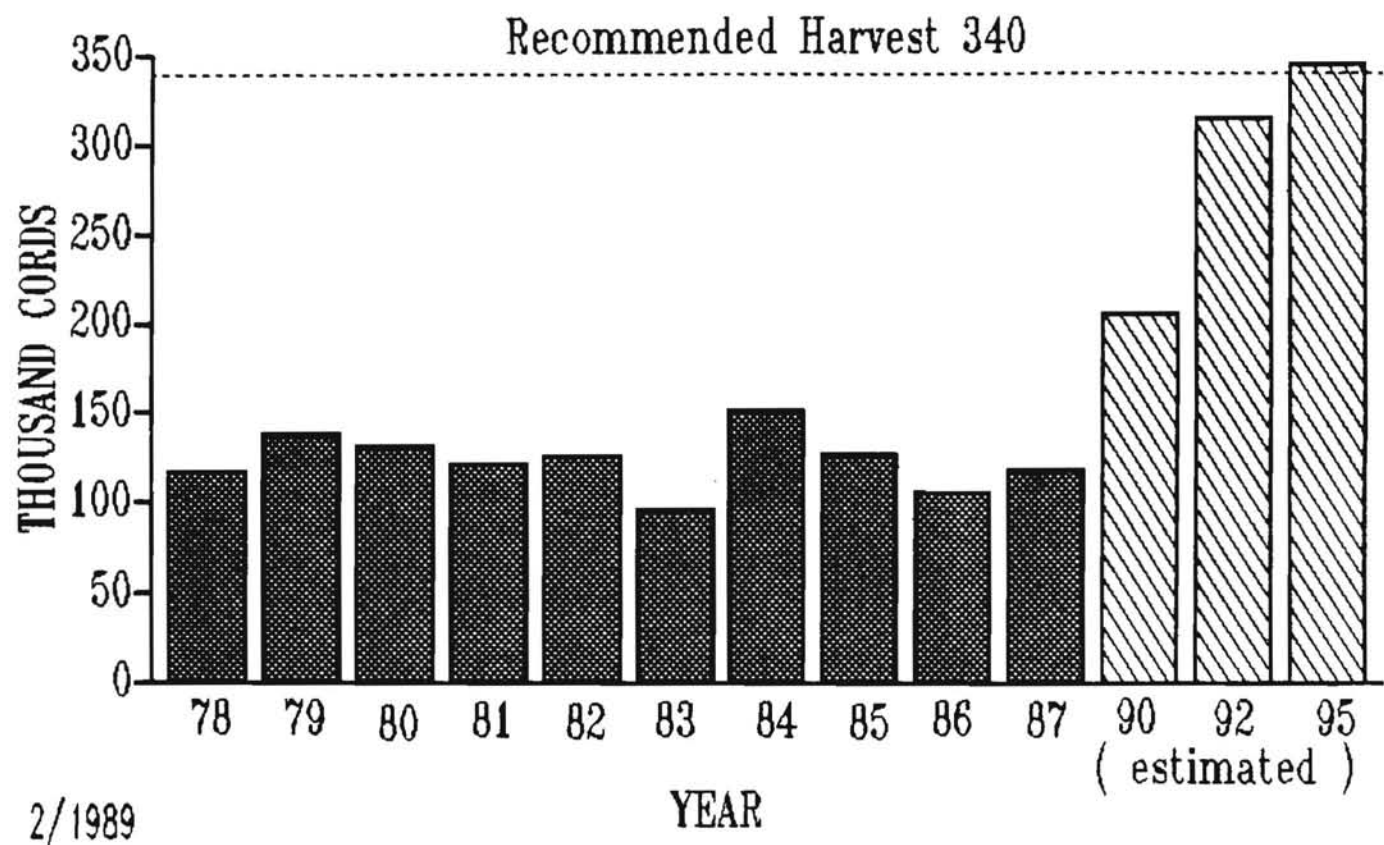
Minnesota Statewide ( all Ownerships )



4

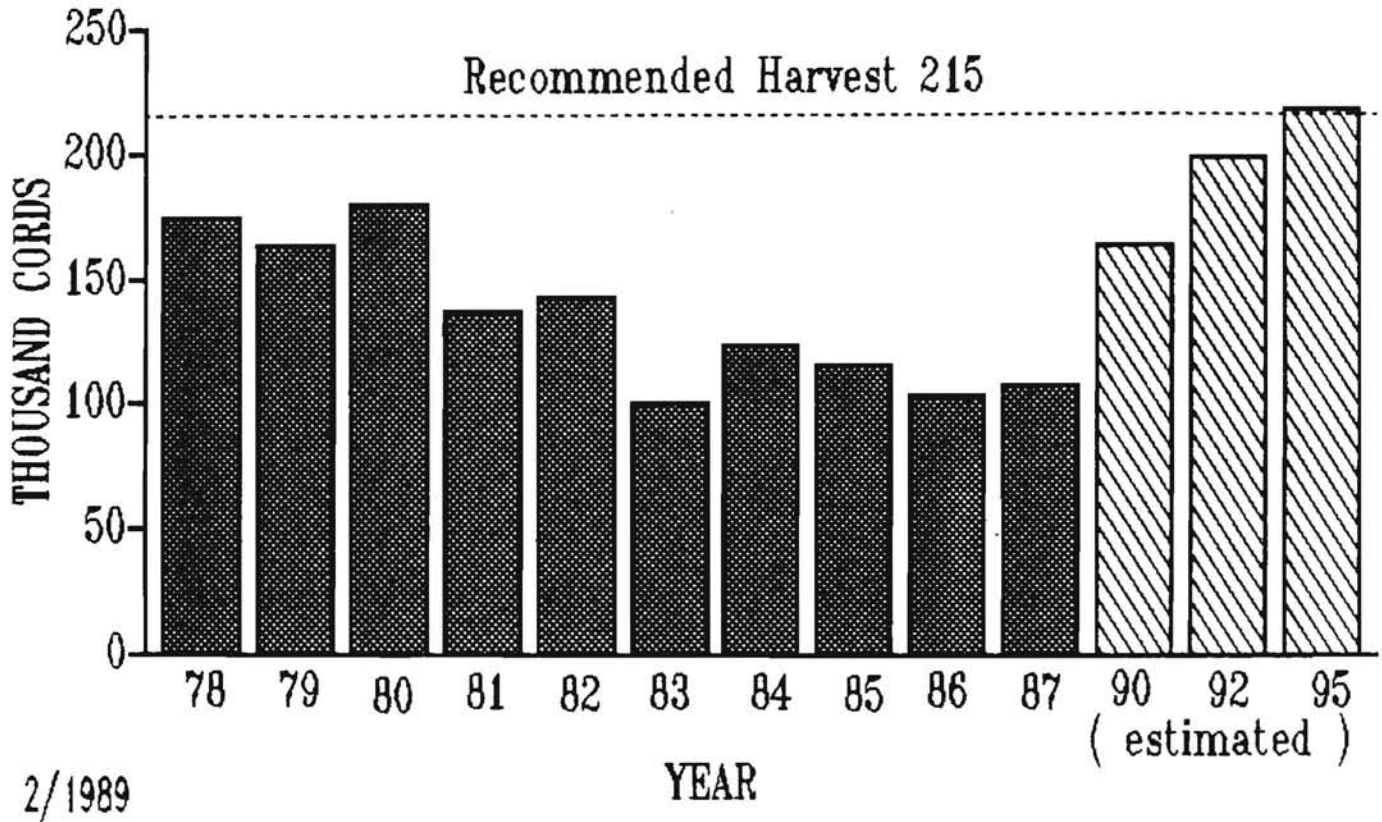
# VOLUME of BALSAM FIR HARVEST in MINNESOTA

(includes pulpwood & sawtimber)



# VOLUME of SPRUCE HARVEST in MINNESOTA

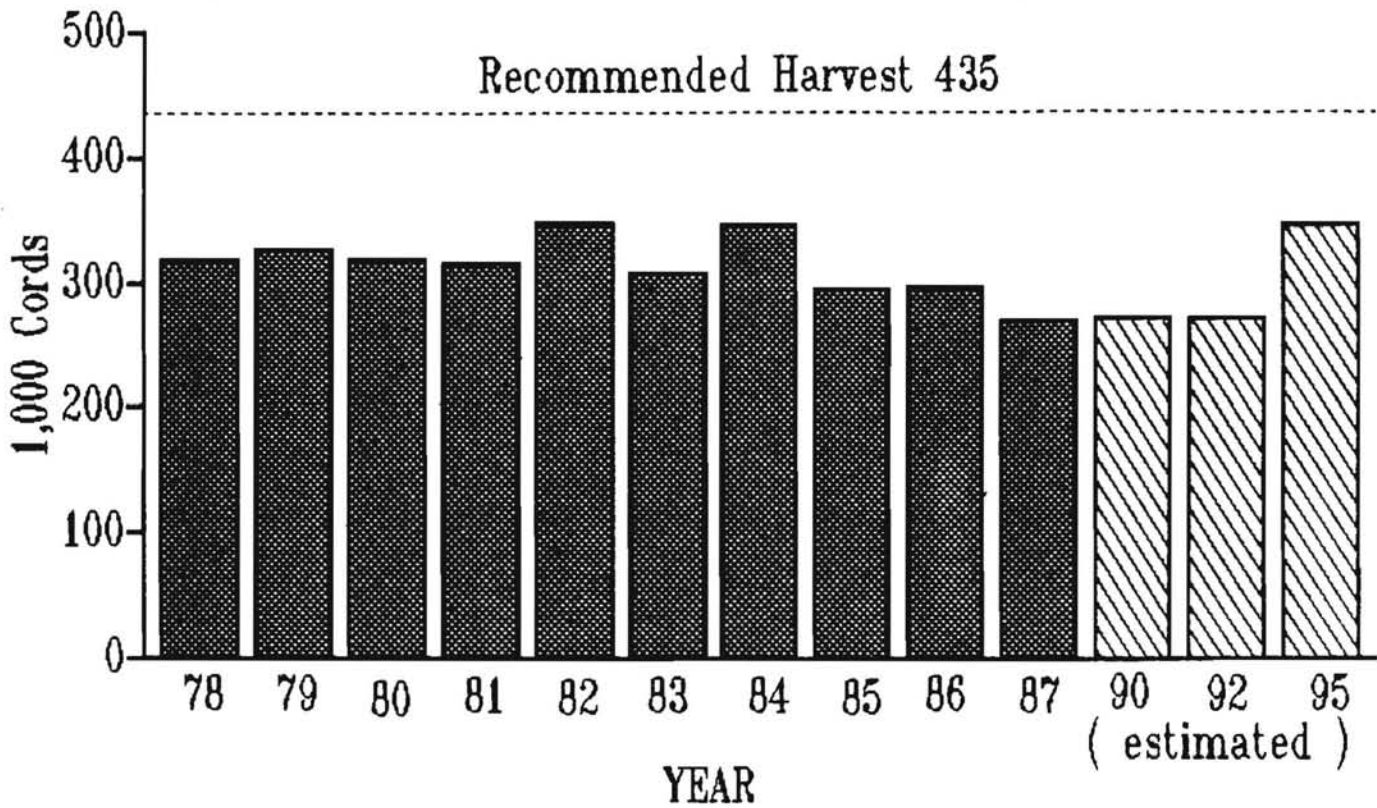
(includes pulpwood & sawtimber)



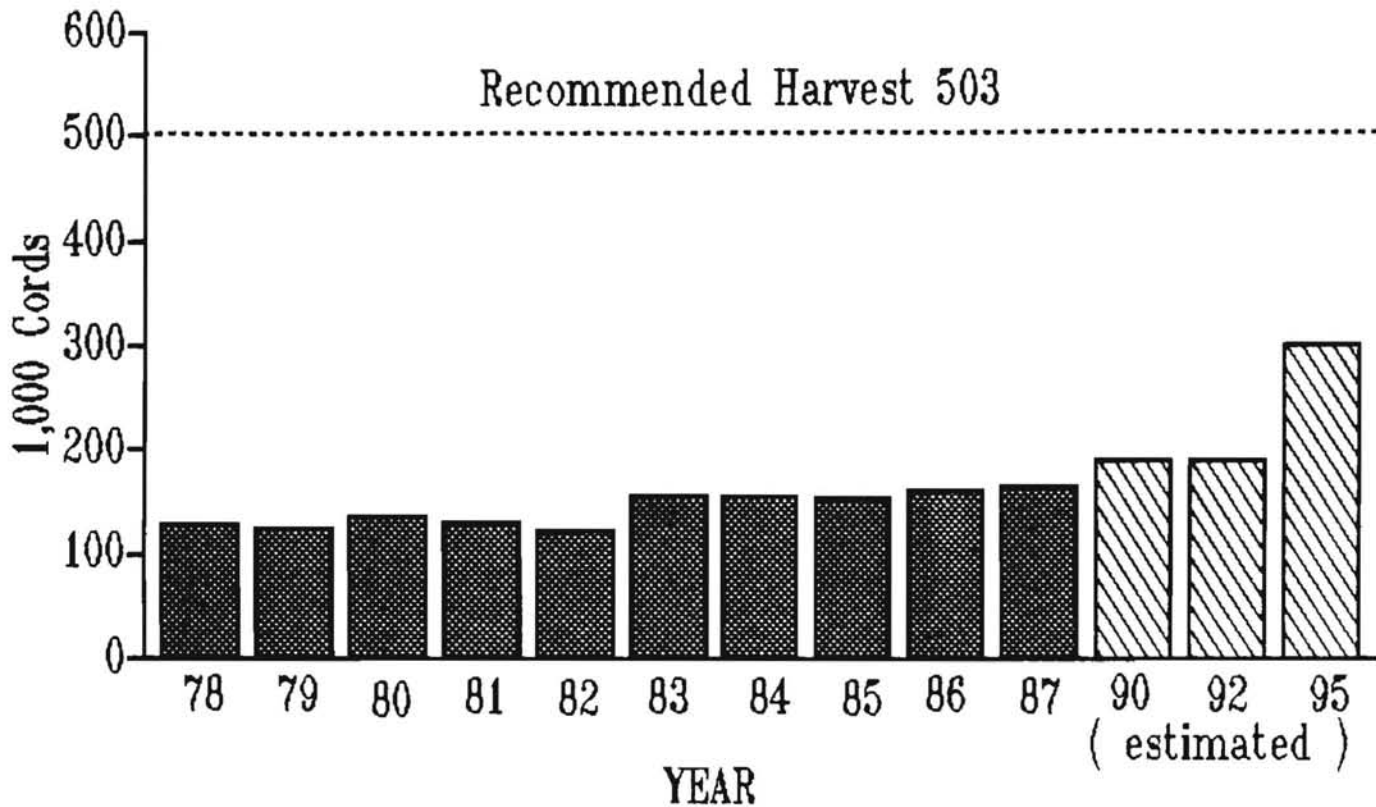


**VOLUME of PINE HARVEST in MINNESOTA**  
**Jack Pine, White Pine, Red Pine - All Ownerships**

(includes pulpwood, sawtimber & specialty products)

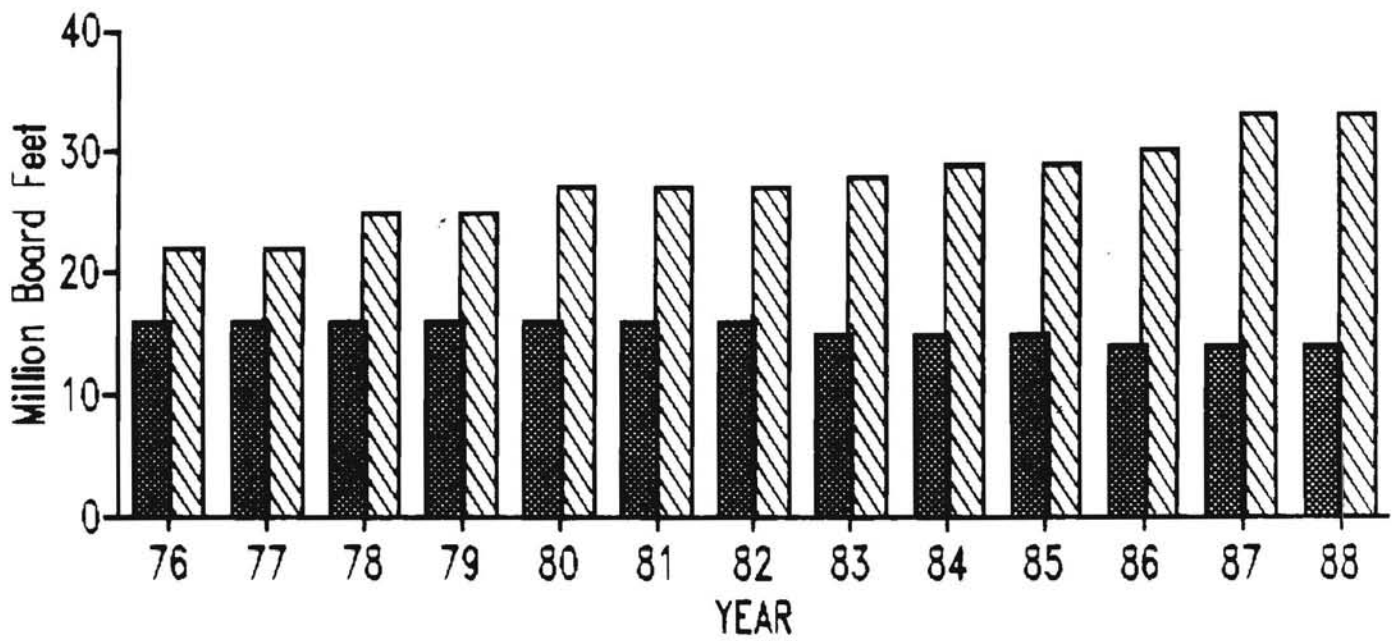


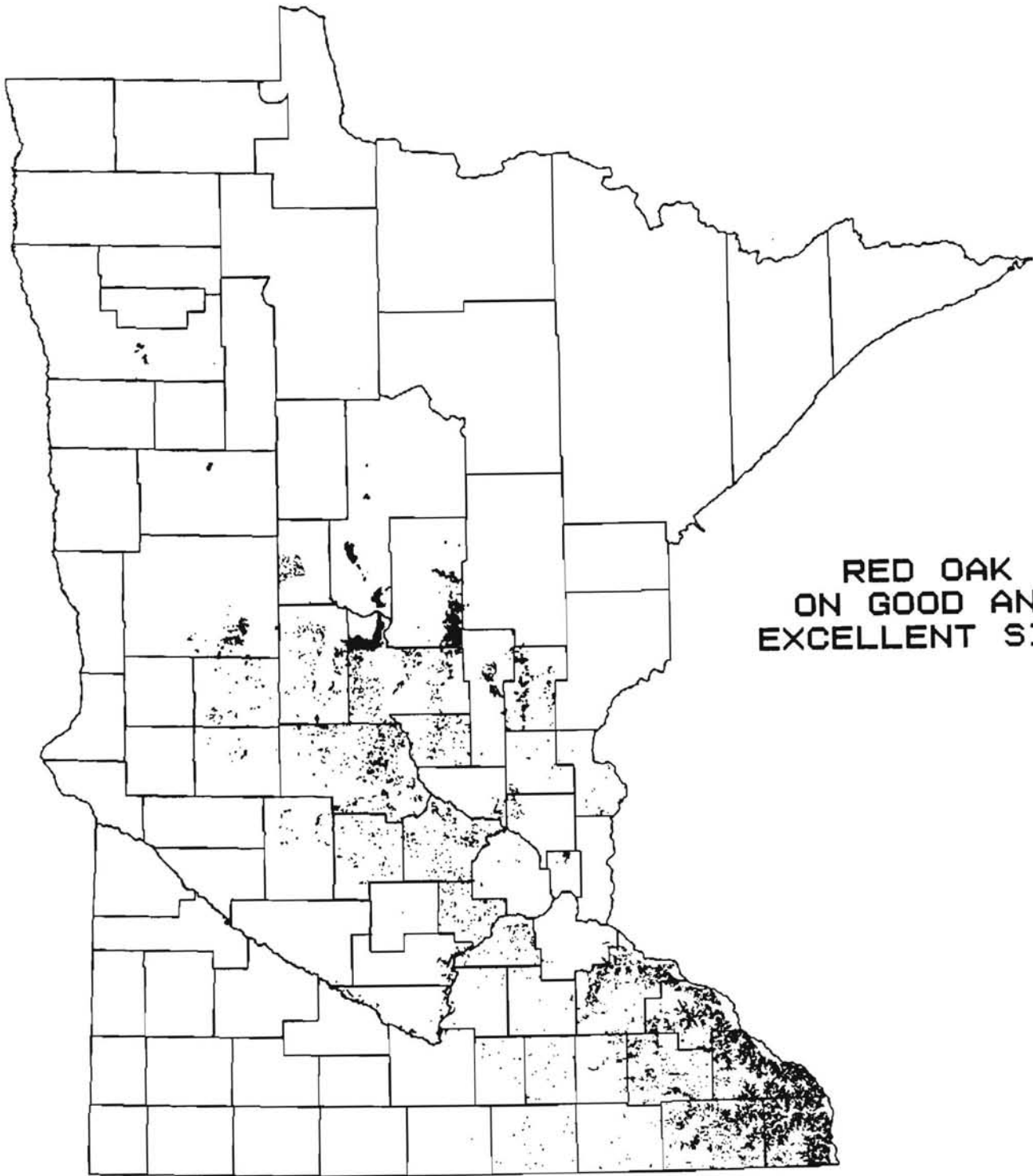
**VOLUME of BIRCH HARVEST in MINNESOTA**  
(Includes pulpwood, sawtimber, energy & specialty products)



# RED OAK SAWTIMBER HARVEST & GROWTH

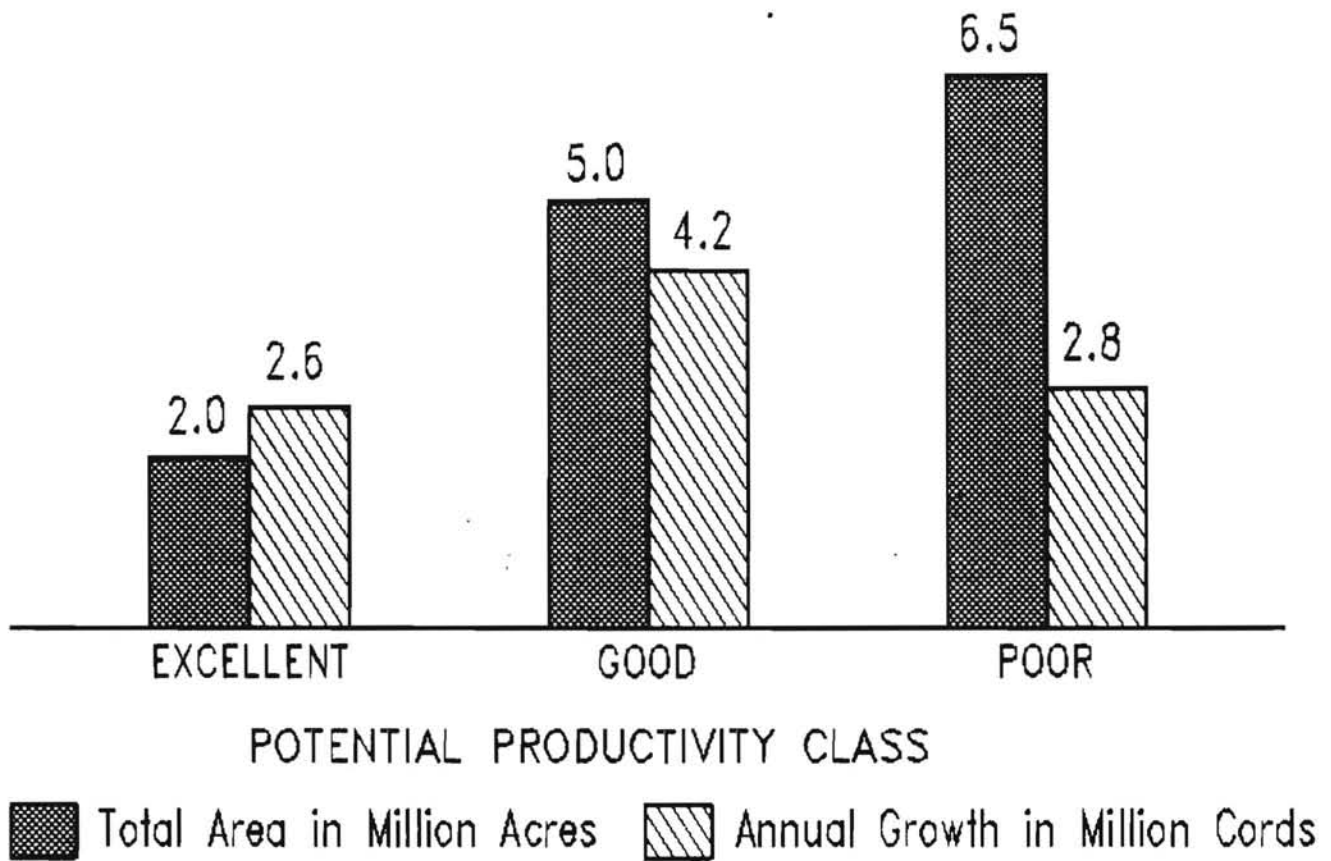
- Southern Minnesota -





**RED OAK  
ON GOOD AND  
EXCELLENT SITES**

## POTENTIAL GROWTH by PRODUCTIVITY CLASS Minnesota Commercial Forest



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## Average Prices Received from Timber Stumpage Sold on Public Lands

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- Minnesota 1988 -

<u>Species</u>	<u>Sawtimber</u>	<u>Pulpwood</u>	<u>Projected 1989</u>
Aspen	\$15.90/MBF	\$3.55/cd.	+10%
Birch	18.70	1.95	no change
Oak	60.50	3.90	+15% (logs)
Mixed Hdwds.	30.10	2.40	+15% (logs)
Balsam	11.80	3.50	+10% (pulp)
W. Spruce	35.70	9.30	+5% (pulp)
B. Spruce	—	9.40	+5%
Cedar	25.50	6.80	+10% (logs)
Jack Pine	43.50	9.70	+5%
R&W Pine	66.90	7.50	+10% (logs)

\* Prices include timber sales from county, state, and federal lands.