

*Current State Of Maine's Pulp And Paper Industry*

**Bangor, Maine**

**April 4, 2003**

**Fiber As Opportunity And  
Constraint In The Maine  
Paper Industry**

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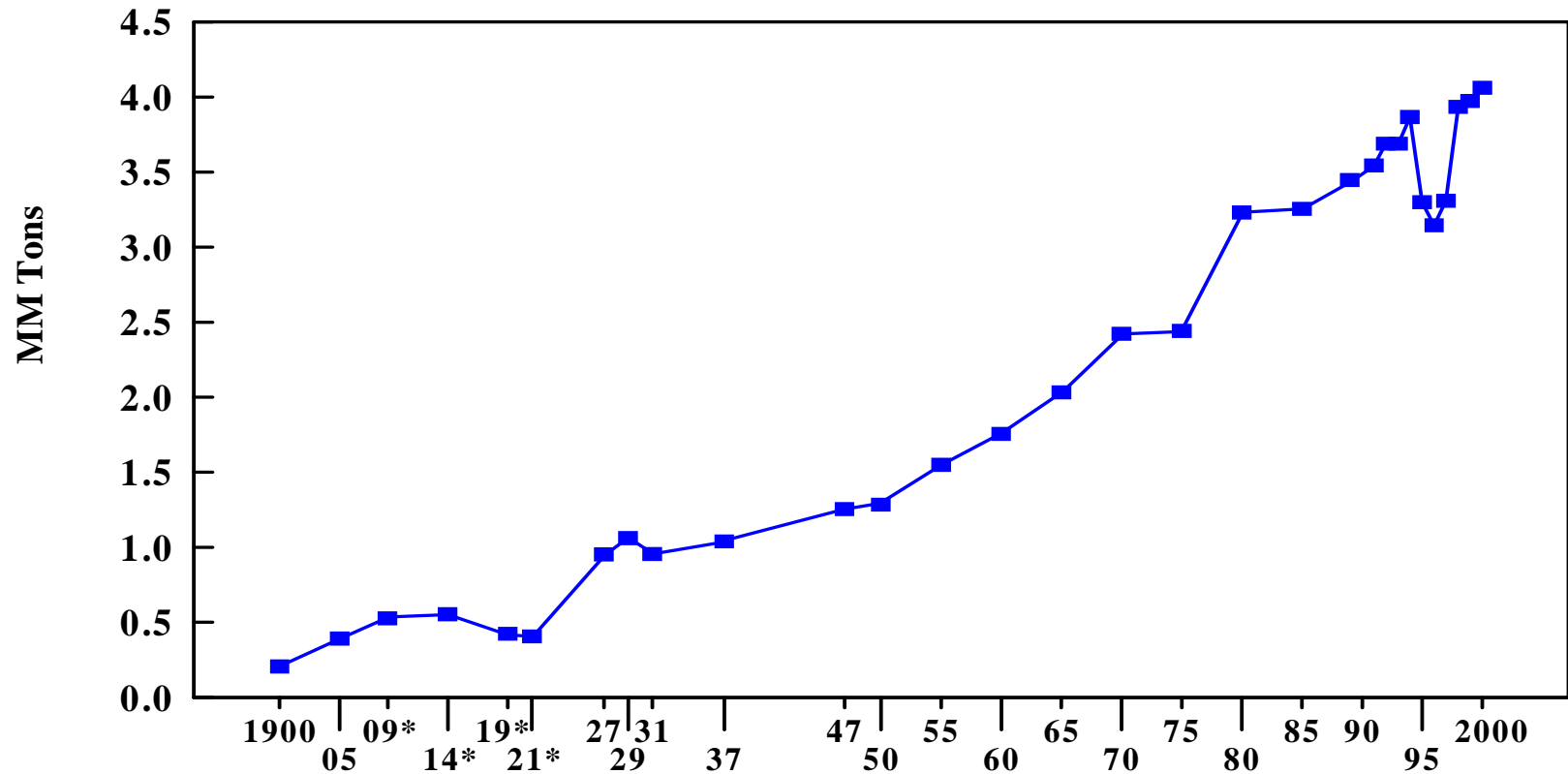
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# Six Issues

1. Inventory Condition & Outlook
2. Availability Of The Resource
3. Control Over The Resource
4. Ability To Expand Supply To Meet Need
5. Delivered Cost Of Wood
6. Relative Technical Quality Of Fiber

# Context:

## Maine Paper Production, 1900 to 2000



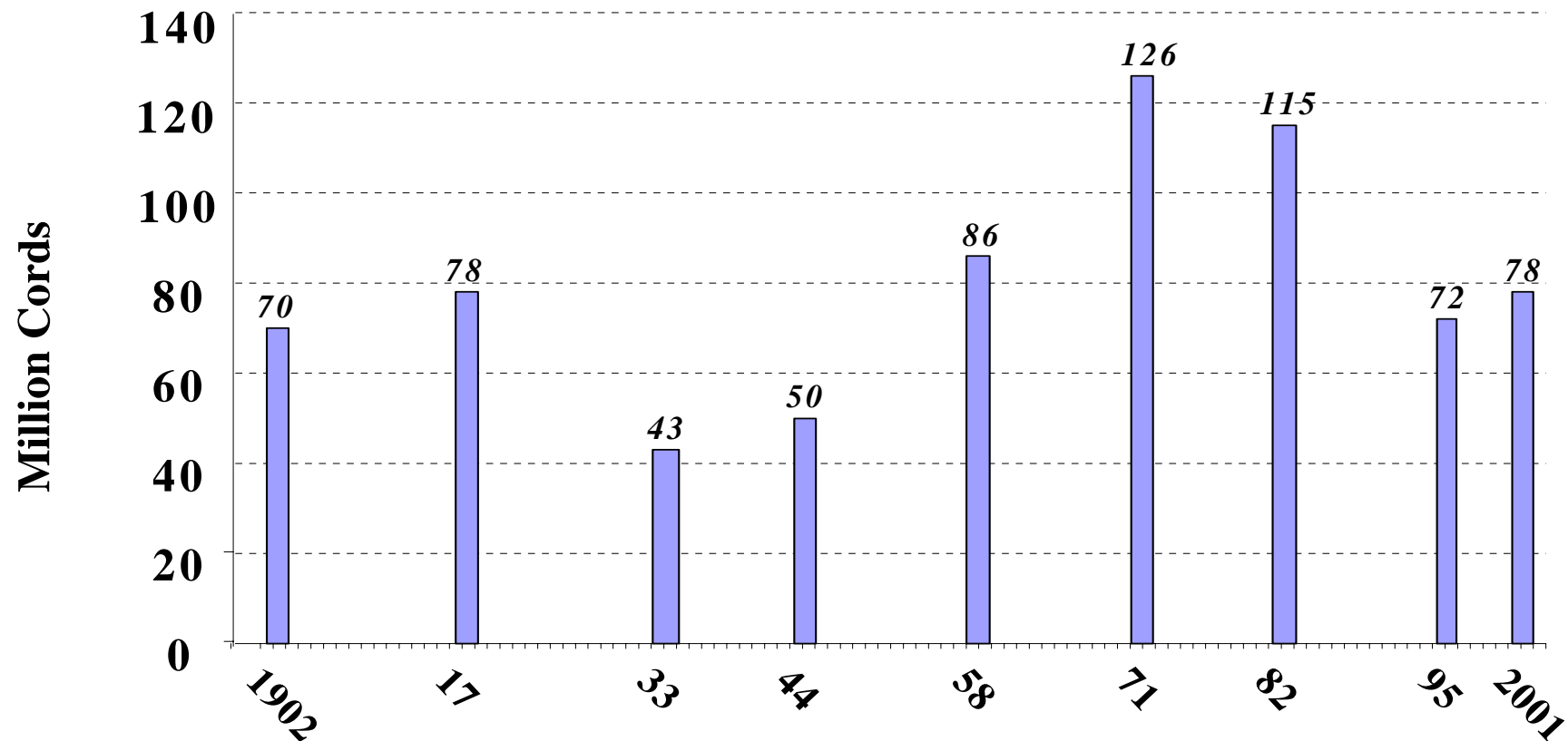
\* = Partial data.

Sources: Atlas of the Resources of Maine, Supplement, Feb. 1987; The Forest of Maine; Current Ind. Rept. MA26A (89)-1 to 1989; and 1991-99 from AF&PA.

# 1. Inventory Condition And Outlook

## A. Condition:

### Estimates of Maine Spruce-Fir Inventory, 1902-2001



Source: Adopted from Irland, 1981, p. 51; Irland, et al., 1988, p. 38; MFS, 1993, p. 5; and MFS, 2002.

**At The Turn Of Century, Inventory Was In Good Shape For Pulpwood**

**Grew Until WWI Budworm Outbreak**

**Peaked - At Unsustainable Level -- During Early 1970's**

**After Dramatic Decline, Bottomed Out By Late 1990's**

**Growth Crashed From 1970's To 1990's**

***PS: Accounting For Changing Utilization Standards Would Change Shape But Not Overall Message Of This Chart.***

## **B. Outlook**

**During And After 1890-1910 Investment Boom,  
Voices Were Raised About Sustainability Of Wood  
Supplies**

**... Concerns Proved Wrong Despite Large  
Production Increases**

**Budworm Outbreak - 1912-1920**

**From 1930's To Early 1970's, Maine Inventory  
Displayed Strong Recovery**

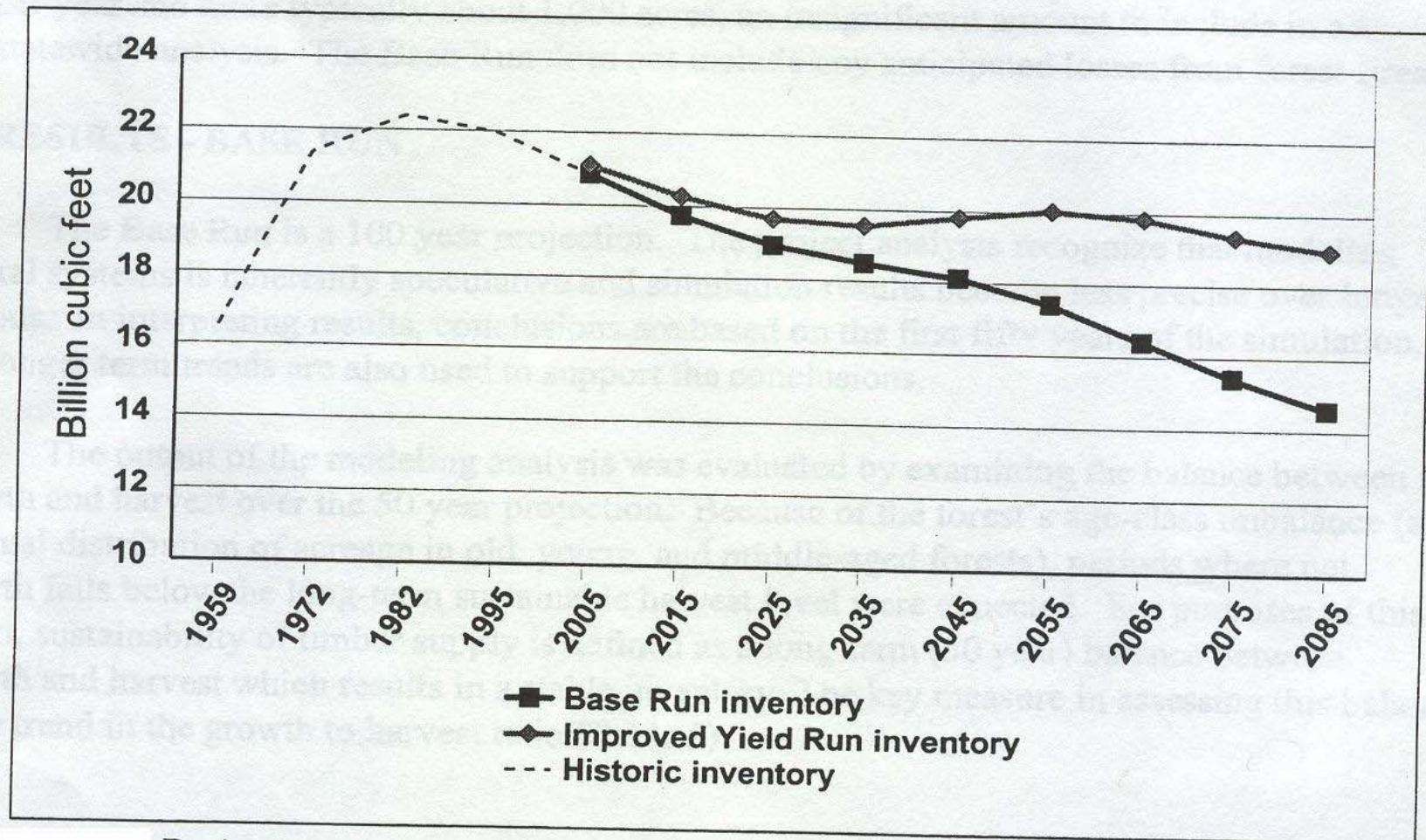
**... High Growth/Cut Ratios**

**... Lent Strong Support To Mill**

**Investment/Expansion Proposals**

**After Late 1970's, Outlook Turned Negative**

## Late 1990's MFS Projections - (All Spp.)



Projection of statewide inventory for Base Run and Improved Yield Run. (Data for 1959 to 1995 are from forest inventory reports. Data points after 1995 are based on ATLAS modeling projection.)

**(Note: 2001 NESFA Projections (Turner, Caldwell)  
Did Not Publish State/Sp Group Results)**

**Wagner, Bowling, Seymour (in press) More  
Optimistic, But Only After 2020 (“The  
Hereafter”)**

**Result:**

**\* It Has Been Clear For 20 Years That Future  
Softwood Supplies Would Be Under Severe  
Stress In Maine And Adjacent Areas**

**\* From 2003 Forward, Some Owners Will See  
Improvements As Young, Treated Stands Grow**

## **2. Availability Of Resource**

**Rivers Enabled Fiber From Remote Distances To Be  
Delivered Cheaply To Mills**

**... (To 1976)**

**Terrain Only A Limited Constraint On Logging Or  
Cost**

**By 1990's, Regulations Were A Factor, Though Not  
Large**

**In Southern Maine, Parcel Fragmentation, Suburban  
Attitudes, Are Limiting Access**

**... Local Regulations Are An Increasing  
Worry**

**A Significant Concern In Industry Supply Analyses**

# 3. Control Over The Resource

## Ownership

**Considered Much Less Important In The New Century Than In 1900 (or 1990)**

**Maine in 1990 Was The Largest Single Concentration Of Industrial Ownership in U.S.  
... Industry Ownership Peaked During Late 1960's To 1980's**

**Today - Half Of Remaining Industrial Land Is Owned By Canadian Companies**

**Informal “Implicit Contracting” Existed In Longterm Arrangements, Some Enforced By Geography**

**High Buyer Concentration And Vertical Integration Endowed Pulpwood Buyers With A Measure Of Market Power In Markets For Wood And Logging Services (See PAC Study, MDOL, 1999)**

**Levels Of Fiber Control Vary In Competing Regions, From Modest In Europe, To High In Canada, And None To Very High In Subtropics And Tropics**

# 4. Ability To Expand Supply

(Econ. 101: Elasticity Of Supply)

... Shape Of Cost Curves;

... Shifts in Curves;

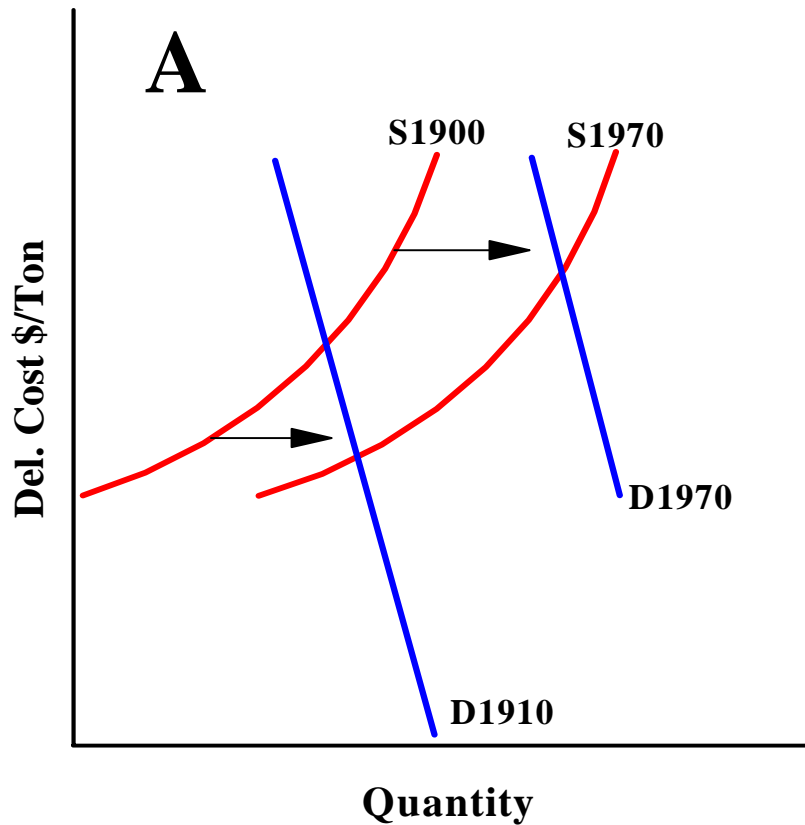
... Supply Of Complementary Inputs

Supply Elastic Up To WWI Budworm Outbreak

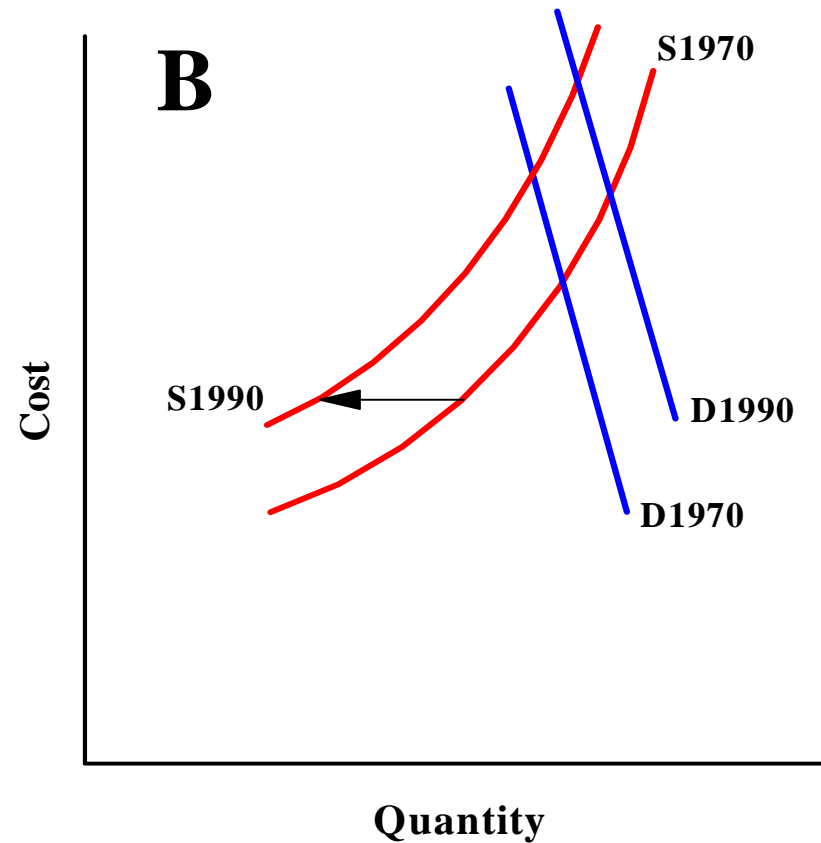
Elastic Again, 1940's To The 1980's

An Opportunity For Paper Industry (A)

Became A Constraint As Supply Shifted To Right And  
Became Less Elastic (B)



**Supply Moves Outward  
Along With Demand**



**Supply Moves Inward,  
Prices Rise, Slope  
Steeper**

# 5. Delivered Cost Of Wood

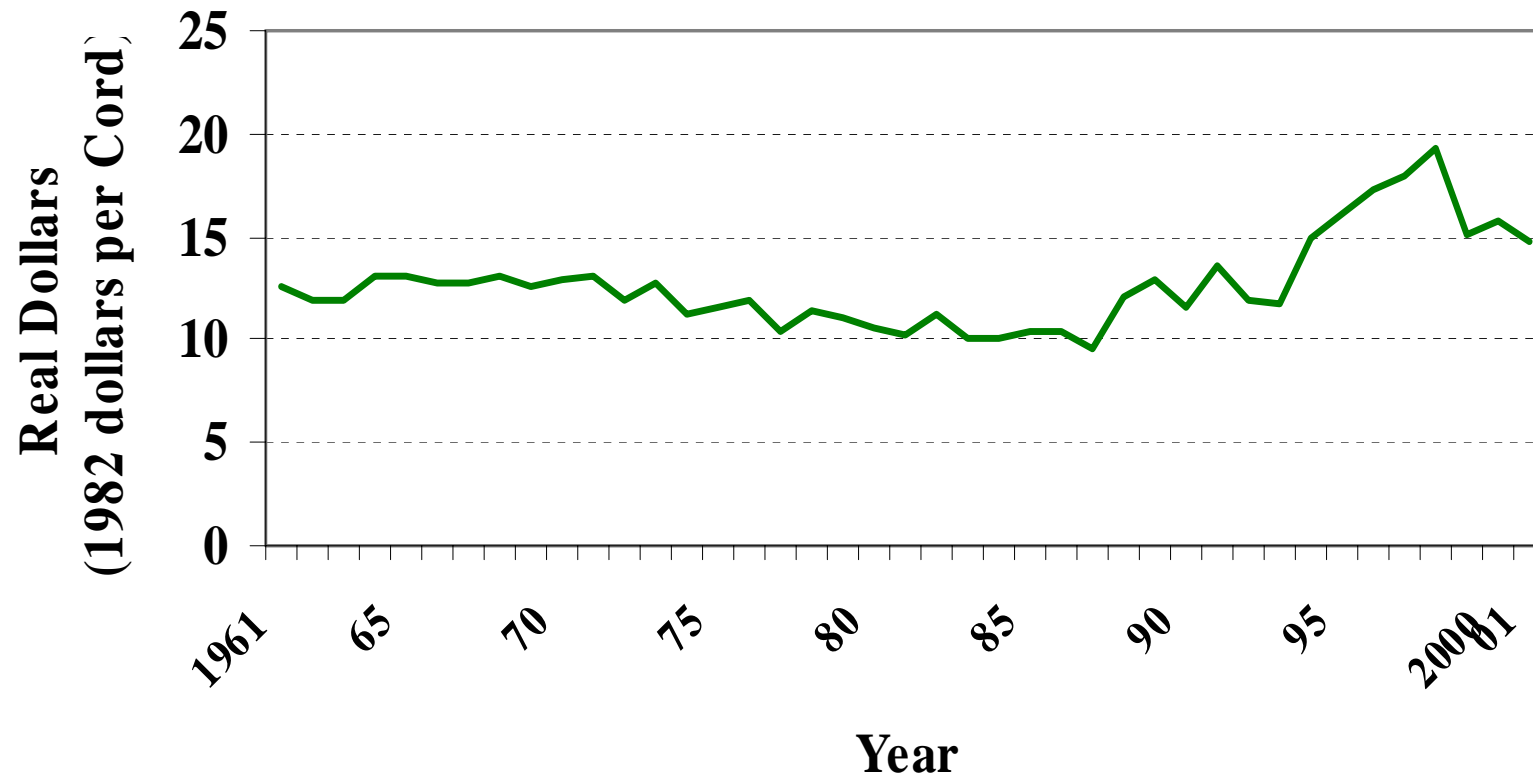
**What Counts Is Maine Compared To Other Competing Areas**

**Production History Indicates Reasonable Comparison To 1980's**

**By 1990's, Corporate Complaints About High Wood Cost Were Legendary!**

**Proxy For Situation -  
(delivered would be better, but no data)**

**Maine Spruce-Fir Pulpwood Stumpage  
Prices (MFS), 1961-2001**



# 6. Relative Technical Quality Of Fiber

**In Rag Paper Days, Maine's Supply Was Limited,  
And Other Fiber Assets Therefore Irrelevant**

**In Late 19<sup>th</sup> Century, Abundant Poplar And  
Cottonwood Was An Advantage**

**In Newsprint Days, Spruce-Fir Supply Was  
Critical**

**Due To Increased Demand For Hardwood, And  
Tighter Softwood Supplies,  
... Hardwood Exceeded Softwood (Round)  
Production By Mid 1990s:**

**Maine Round Pulpwood Production, 1965-2001  
(1,000 Cords)**

	<u>Softwood</u>	<u>Hardwood</u>	<u>Total</u>	<u>Hardwood % of Total</u>
<b>1965</b>	<b>1,831.7</b>	<b>585.7</b>	<b>2,417.4</b>	<b>24.2%</b>
<b>1980</b>	<b>2,304.6</b>	<b>1,143.4</b>	<b>3,448.0</b>	<b>33.2%</b>
<b>1990</b>	<b>1,899.5</b>	<b>1,436.1</b>	<b>3,335.6</b>	<b>43.1%</b>
<b>1995</b>	<b>1,524.9</b>	<b>1,940.5</b>	<b>3,465.4</b>	<b>56.0%</b>
<b>2001</b>	<b>1,143.6</b>	<b>2,041.2</b>	<b>3,184.8</b>	<b>64.1%</b>

**Source: USDA-FS, as presented in GTR NE-286,**

**... As Of 2001, Spruce-Fir Was Only 20%  
Of Maine Round Pulpwood  
Production**

**... Part Of This Is Due To Switch To  
Sawmill Chips: Maine Mills Used  
1.4 Million Green Tons In 2001**

**With Hardwood A Dominant Pulpwood Source,  
No Advantage On This Count Exists Rel. To  
Offshore Hardwood Pulp Producers  
... Or the South**

**For Some Users, Uniformity Of Offshore  
Hardwood Is Important (Low Cost Helps!)**

# **What Maine Offered Paper Industry 1890-1910**

- 1. Ability To Control Timberland**
- 2. Abundant Waterpower And Ability To Control It**
- 3. Abundant Water For Process Use And Waste Removal (Think of Dioxin Issue As Water Scarcity)**
- 4. Abundant Spruce-Fir Fiber**
- 5. Elastic Supplies Of Labor And Logging Services**
- 6. Supportive Public Policy Environment**

# Geography Of Competition Has Changed

	<u>Region</u>	<u>Item</u>
1950's	E. Canada, US South	Newsprint
1990's	Same	GW Specialties, P&W Grades
	Europe, When Dollar High	
New Century	Tropics & Subtropics	Pulp

Hmmm... A New Basis For A Maine Paper Industry  
... Based On Offshore Forests?

# Conclusion

**Fiber Supply Has Gone From Offering An  
Opportunity To The Maine Paper Industry  
... To A Constraint**

**This Affects Operating Costs And The Ability To  
Respond To Strong Markets**

**More Important Is The Dynamic Effect -Steep Cost  
Curves Inhibit Investment In Improvements That  
Require Higher Production  
... Which Today Is Almost Anything.**

**Land Sales And Low Returns To Timberlands  
Compromise Ability To Make Silvicultural  
Investments For The Future**

**Maine Faces A Future Of Falling Further  
Behind On Machine Age, Width, Speed**

<b>Backup A</b>						
<b>Shift from Opportunity to Constraint</b>						
						<b>Relative</b>
				<b>Supply</b>	<b>Relative</b>	<b>Tech</b>
	<b><u>Inventory</u></b>	<b><u>Avail.</u></b>	<b><u>Control</u></b>	<b><u>Exp.</u></b>	<b><u>Del. Cost</u></b>	<b><u>Quality</u></b>
<b>1950's</b>	++	++	++	++	+	+
<b>1970's</b>	+	+++	++	++	+	+
<b>1980's</b>	-	-	++	-	-	+
<b>1990's</b>	-	-	<b>n.r.</b>	=	-	<b>neutral</b>
<b>New Century</b>	=	=	<b>n.r.</b>	=	=	<b>neutral</b>
<b>+ Means opportunity</b>						
<b>- Means <u>constraint</u></b>						

<b>Backup B</b>								
<b>Changing Fiber Parameters</b>								
						<b>Comp.</b>		<b>Round</b>
			<b>Species</b>	<b>Log</b>	<b>Chip</b>	<b>Wood</b>	<b>Paper</b>	<b>Pulpwood</b>
	<u><b>Inventory</b></u>	<u><b>Growth</b></u>	<u><b>Mix</b></u>	<u><b>Size</b></u>	<u><b>Fraction</b></u>	<u><b>Cost</b></u>	<u><b>Prod'n</b></u>	<u><b>Prod'n</b></u>
<b>1950's</b>	<b>Up</b>	<b>+</b>	<b>SF</b>	<b>Up</b>	<b>0</b>	<b>-</b>	<b>+</b>	<b>+</b>
<b>1970's</b>	<b>Peaking</b>	<b>Peak</b>	<b>SF</b>	<b>Up</b>	<b>Small</b>	<b>=</b>	<b>+</b>	<b>+</b>
<b>1980's</b>	<b>Falling</b>	<b>-</b>	<b>HW Up</b>	<b>Down</b>	<b>High</b>	<b>+</b>	<b>+</b>	<b>+</b>
<b>1990's</b>	<b>Stabliz?</b>	<b>+ Rough</b>	<b>HW&gt;SW</b>	<b>Down</b>	<b>"</b>	<b>+</b>	<b>Peak</b>	<b>-</b>
<b>New Century</b>	<b>Rebound</b>	<b>Rebound</b>	<b>?</b>	<b>Down</b>	<b>"</b>	<b>+</b>	<b>Slow Decline</b>	<b>-</b>
<b>+ Means opportunity</b>								
<b>- Means <u>constraint</u></b>								