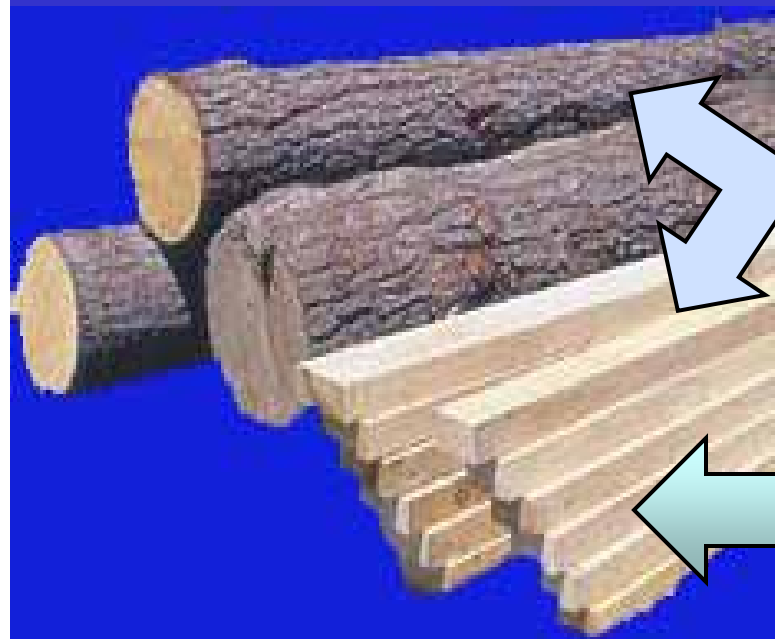


# Is there a better measure for roundwood than the Board Foot ?



**Neal Hart, Jendro & Hart, LLC**  
**Timber Measurement Society, Central Meeting - Portland, Oregon**  
**April 8, 2010**

# Three common, *but false*, presumptions about Board Foot measurements:



**1.** A "board foot" is the same in log and lumber measurement

**2.** Board foot log scales accurately predict lumber volume

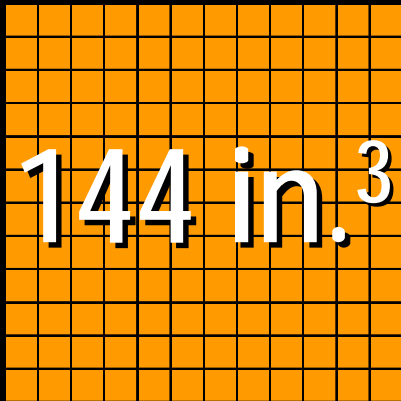
**3.** The ratio of board feet to other scales is a single precise factor

Like:  
Feet x 0.3048  
= Meters

# What's One Board Foot ?

It depends on what's being measured!

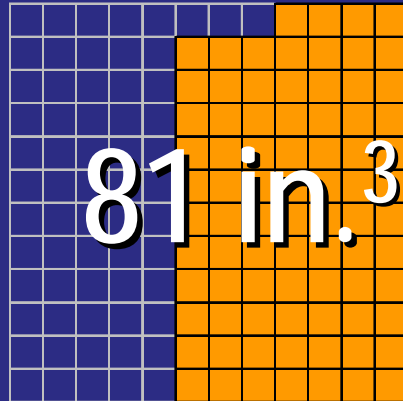
## Logs



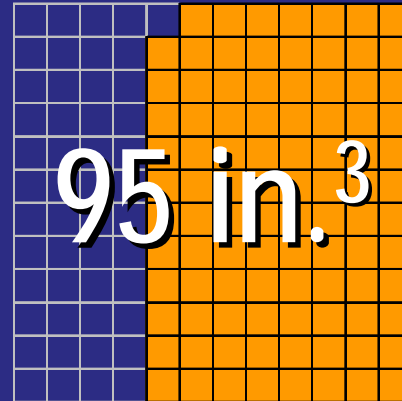
1" x 4"+

Scribner

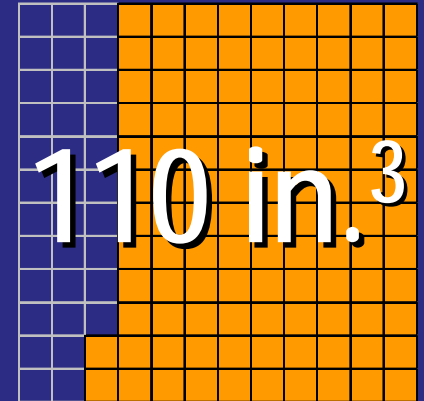
## Dimension Lumber



2" x 2"



2" x 4"



4" x 4"

Lumber Tally

# Scribner &

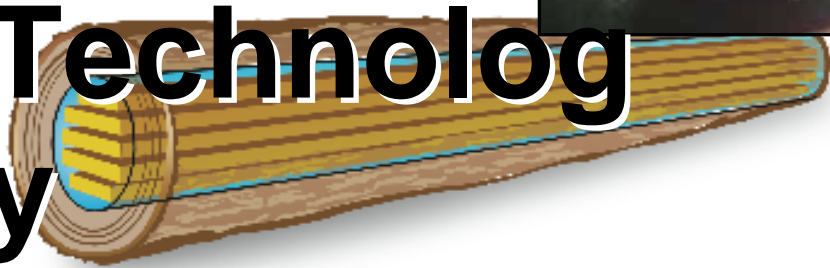
19<sup>th</sup>

Century

Technology

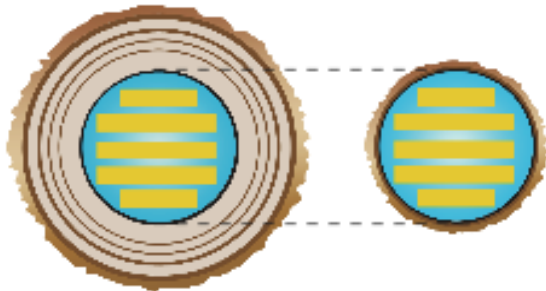


y



Large End of Log

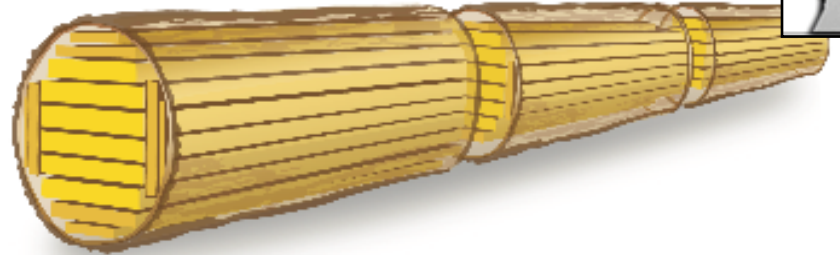
Small End of Log



# Lumber Tally

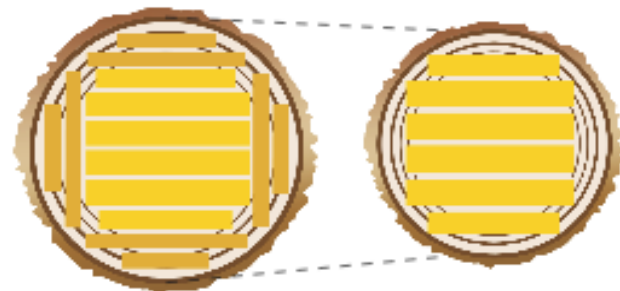
21<sup>st</sup> Century

Technology

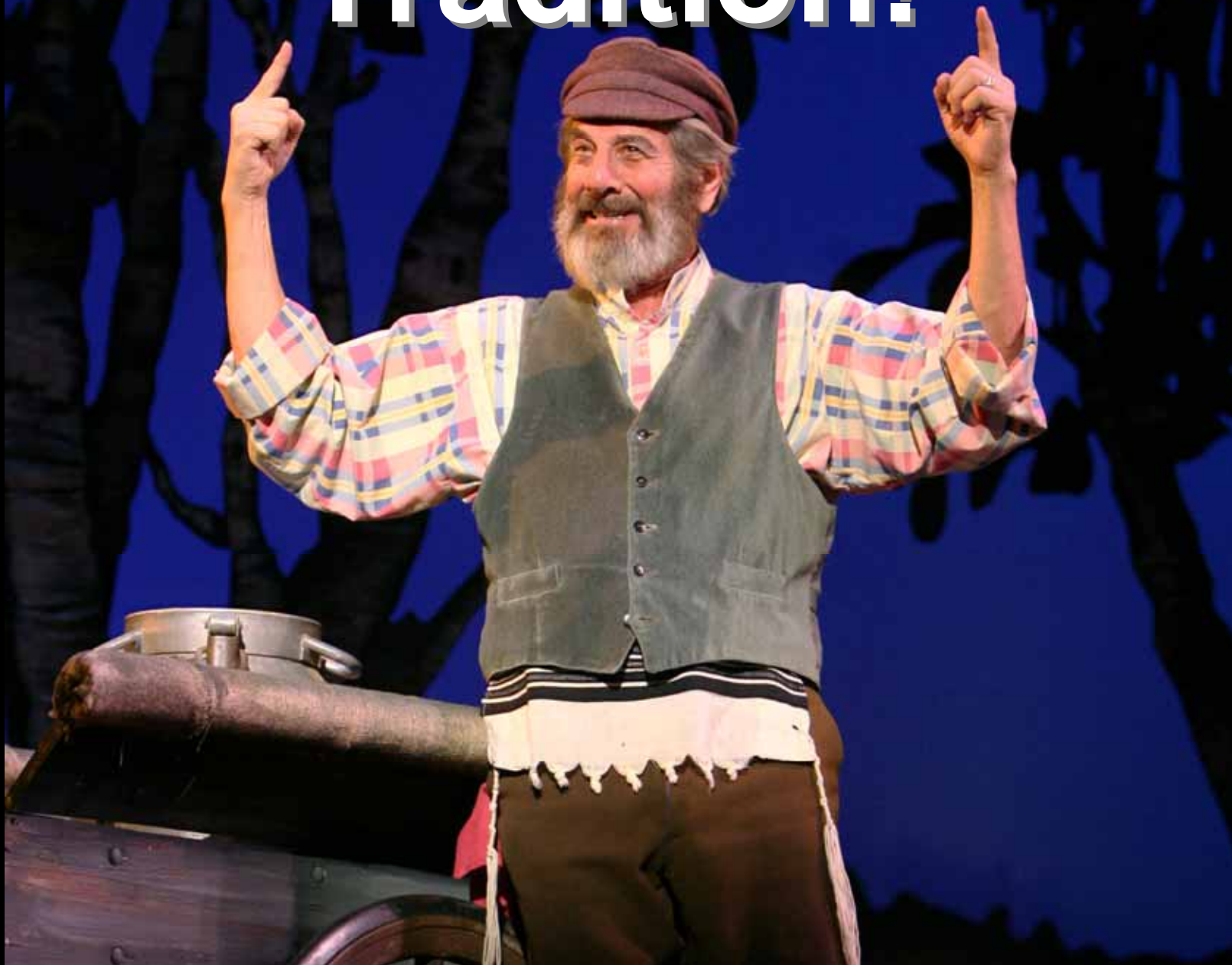


Large End of Log

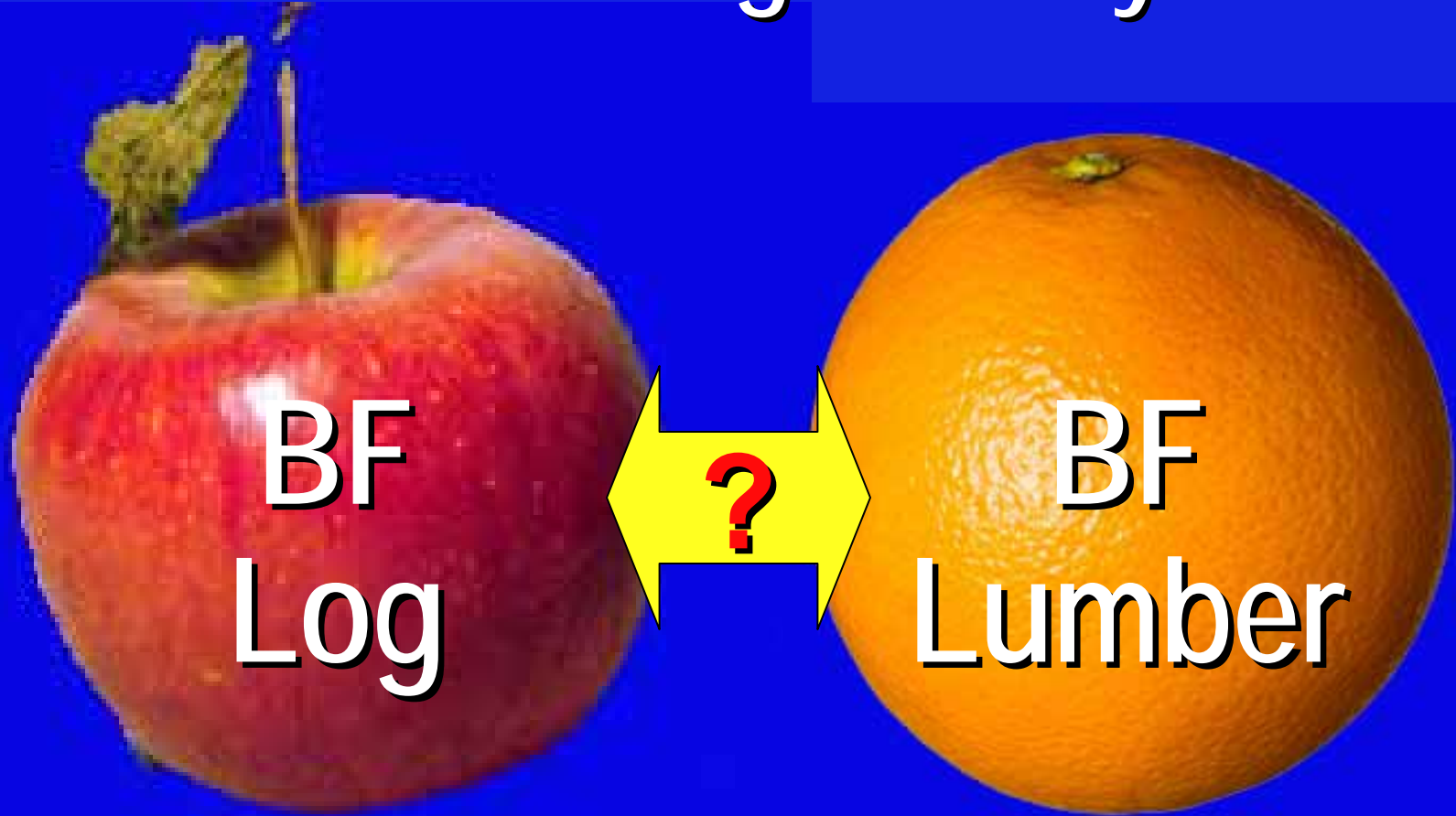
Small End of Log



# Tradition!



# Board Foot Measurement and Sawmill Margin Analysis



# Sawmill Margin "Per MBF"



Lumber

Sawdust & Shavings

Chips



Logs

Period

1

Period

2

*Change*

**Lumber Tally**

**\$100**

*less*

**Scribner**

**\$200**

*equals*

**Nonsense!**

**(\$100)**

# Sawmill Lumber Recovery

<b>BF Lbr Per:</b>	<b>Period 1</b>	<b>Period 2</b>	<i>Change</i>
<u><b>BF Scribner</b></u>	<b>1.00</b>	<b>1.43</b>	<b>+43%</b>
<u><b>Cubic Foot</b></u>	<b>3.83</b>	<b>5.29</b>	<b>+38%</b>

# Sawmill Margin Per MBF LT



Lumber

Sawdust &  
Shavings

Chips  
*less*

Logs

*equals*

Margin

Period  
**1**

Period  
**2**

*Change*

**\$600**

**\$700**

***\$100***

**\$300**

**\$350**

***\$50***

**\$300**

**\$350**

***\$50***

**It's easier to believe  
false presumptions  
than to believe the truth  
about board foot  
measurement!**

# Sawmill Revenue Per MBF LT



Lumber

Sawdust &  
Shavings

Chips

Period

1

Period

2

*Change*

\$600

\$700

**\$100**

The *Change* in Per-Unit Revenues Expressed in Lumber Tally Does *Not* Show the Change in Lumber Recovery Between Periods

# Sawmill Revenue Per CCF



Lumber

Sawdust &  
Shavings

Chips

Period  
**1**

Period  
**2**

*Change*

**\$230**

**\$370**

**\$140**

## Price Change:

$\$100/\text{MBF LT} \times 0.529 \text{ MBF LT per CCF} = \underline{\$53}$

## Recovery Change:

Per. 1 Rev.  $\$230/\text{CCF} \times 38\% \text{ increase} = \underline{\$87}$

**Total Change: \$140**

# Sawmill Margin Per CCF



Lumber

Sawdust &  
Shavings

Chips

*less*

Logs

*equals*

Margin

Period  
**1**

Period  
**2**

*Change*

**\$230**

**\$370**

**\$140**

**\$115**

**\$185**

**\$70**

**\$115**

**\$185**

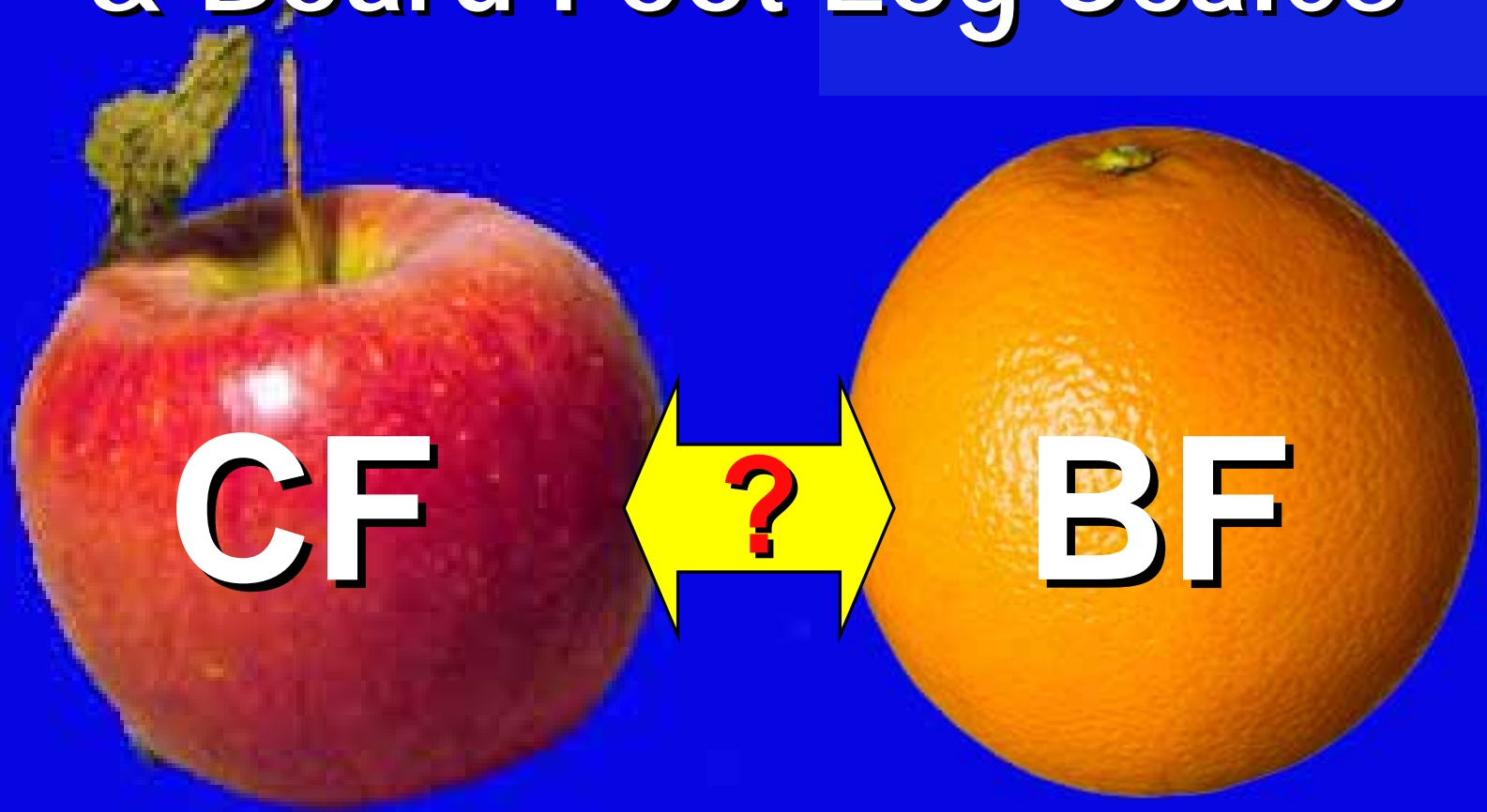
**\$70**

# What's the Cost of Scribner?

Confusion about “board foot”  
scaling has led to costly errors  
and litigation involving

hundreds of \$ Millions

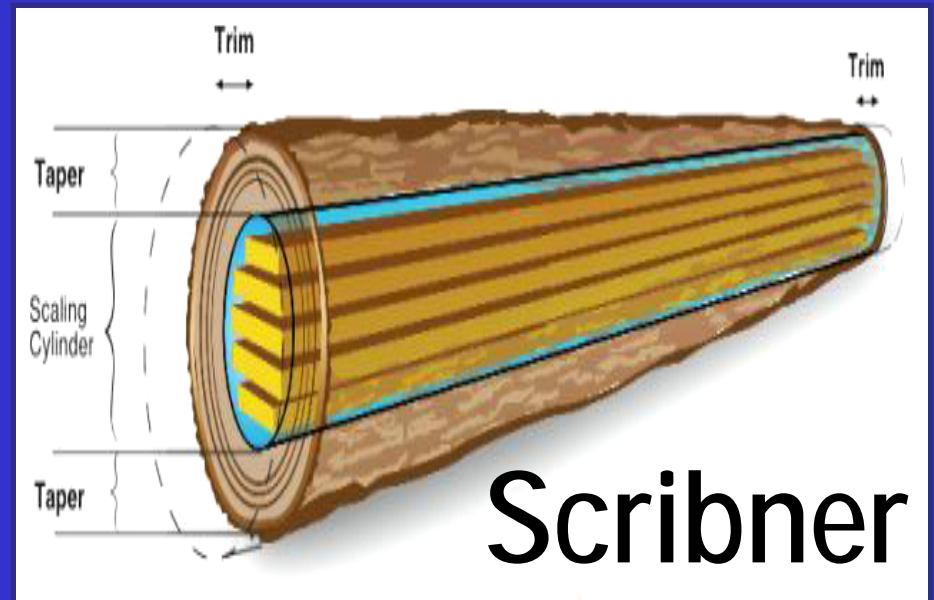
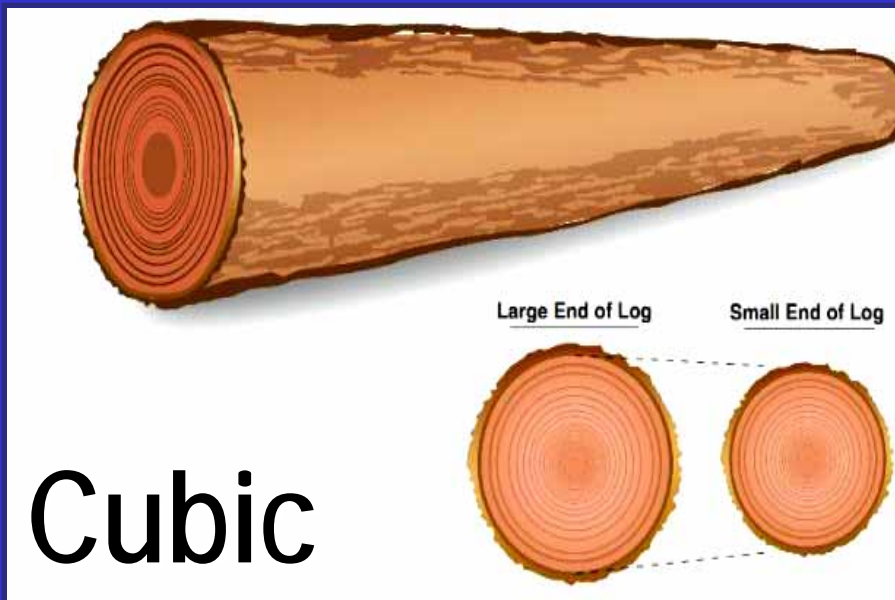
# Converting Between Cubic & Board Foot Log Scales



# Common, *but false*, presumptions about Board Foot measurements...

**Like:**  
**MBF x 4.53 =**  
**Cubic Meters**

**3.** The ratio of Board Feet to other log scales is a single precise factor



# Single Precise Conversion Factor is Promoted by Industry Literature

## Conversion Factors Used in This Report

For logs: 4.53 cubic meters equals 1 thousand board feet

For lumber: 2.36 cubic meters equals 1 thousand board feet

For veneer: 92.9 square meters equals 1 thousand square feet

Assumes a  
BF = 144 in.<sup>3</sup>

For plywood: .885 cubic meters equals 1 thousand square feet (3/8-inch basis)

For chips, paper and other products: 1 metric ton equals 2.2 short ton

"Production, Prices, Employment, and Trade in  
Northwest Forest Industries, All Quarters" July 2009

# Single Precise Conversion Factor is Promoted by Industry Literature

## Factors for converting between metric and in-lb units of measure<sup>a</sup>

Unit	Conversion factor	Metric or in-lb unit
square foot	0.0929	square meter
cubic foot (logs)	0.028317	cubic meter
short ton (chips)	0.0185	1,000 cubic feet
board foot (hardwood lumber)	0.00236	cubic meter
board foot (softwood lumber)	0.00170	cubic meter
board foot (lumber export and imports)	0.00236	
board foot (logs)	0.00453	
1,000 square feet	0.0929	square meter

Assumes a  
BF = 144 in.<sup>3</sup>

Assumes a  
BF = 104 in.<sup>3</sup>

"U.S. Timber Production, Trade, Consumption, and Price Statistics 1965 to 2005" Sept 2007

# Single Precise Conversion Factor is Promoted by Industry Reports

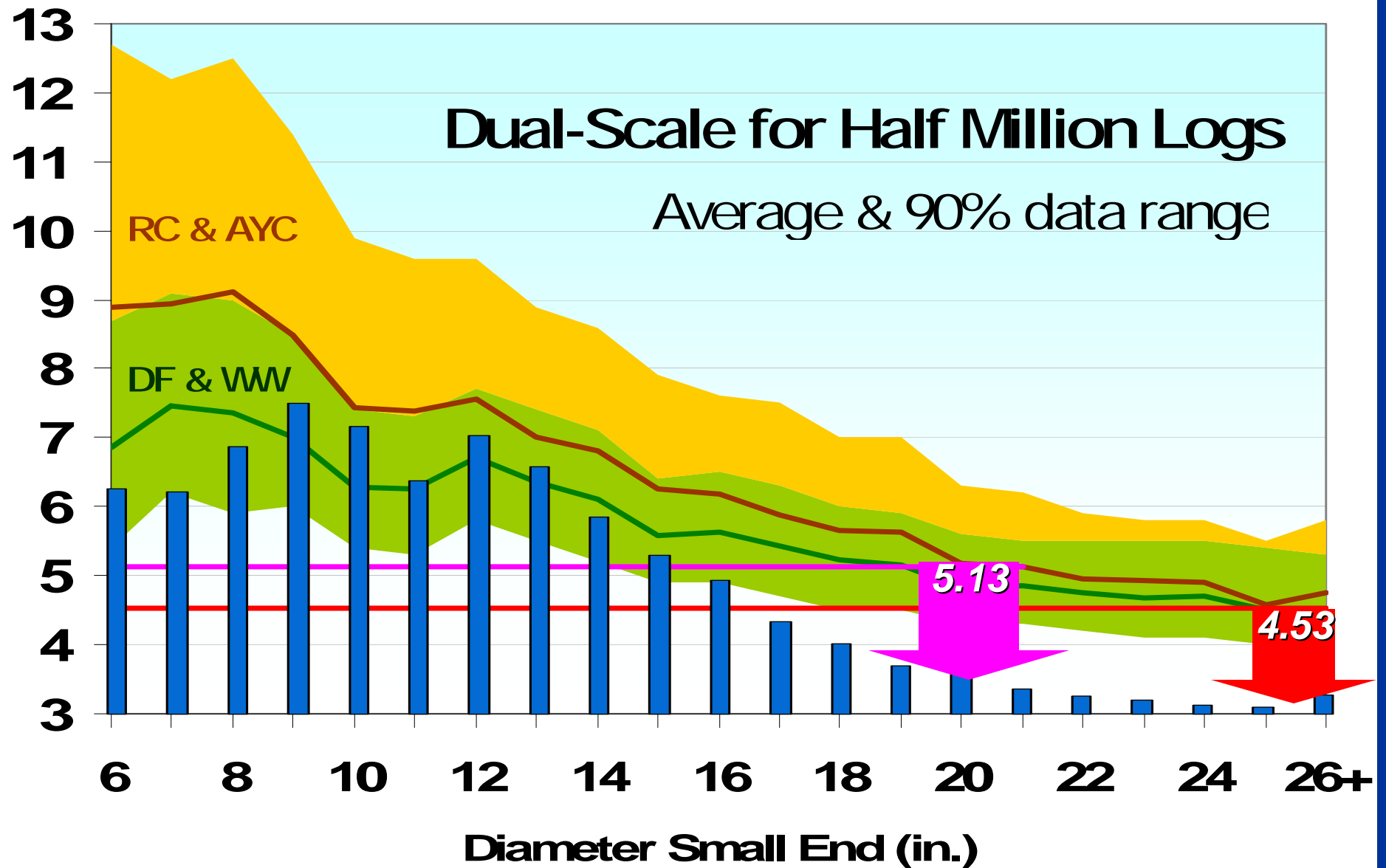
**FSC Forest Management Certification  
Public Summary Report**  
Washington Department of Natural Resources  
South Puget HCP Planning Unit

March 27, 2009

Conversion Rates: 1 acre = .404688 hectares, 1mbf = 5.12825051 m<sup>3</sup>

Implies 19"- 20" ave. SED!

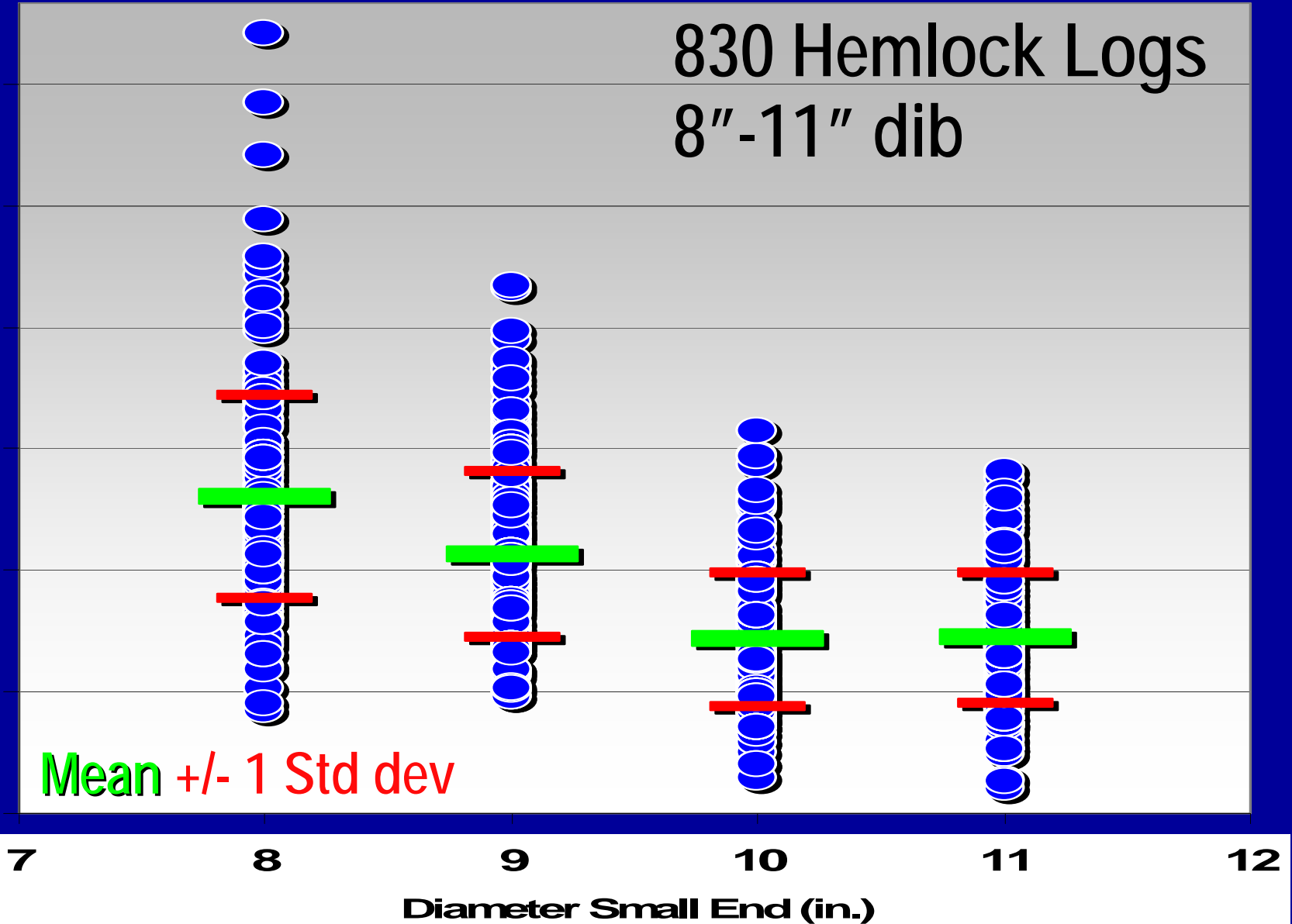
# Cubic Meters per MBF Scribner LLS



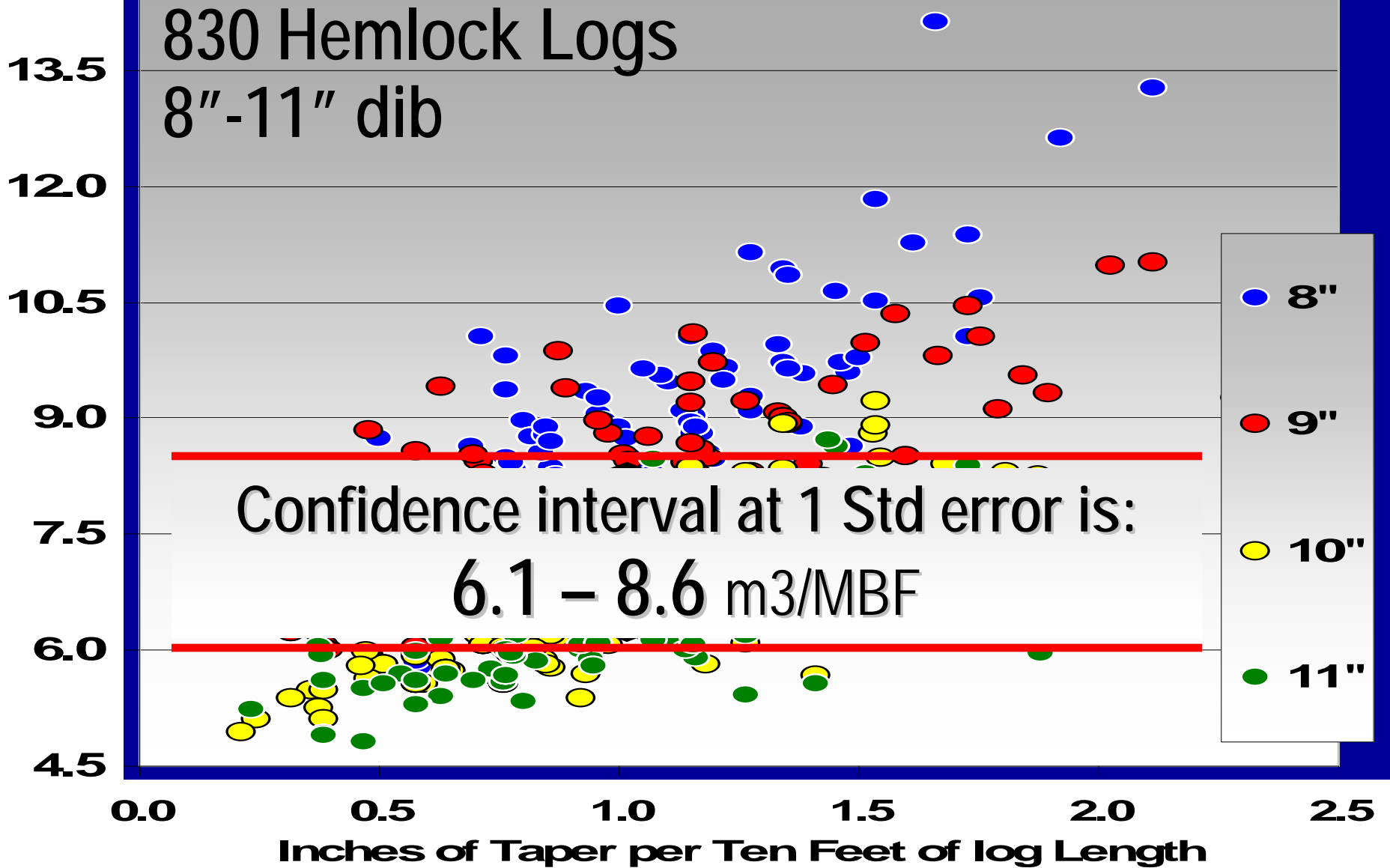
# Cubic Meters per MBF Scribner LLS

830 Hemlock Logs  
8"-11" dib

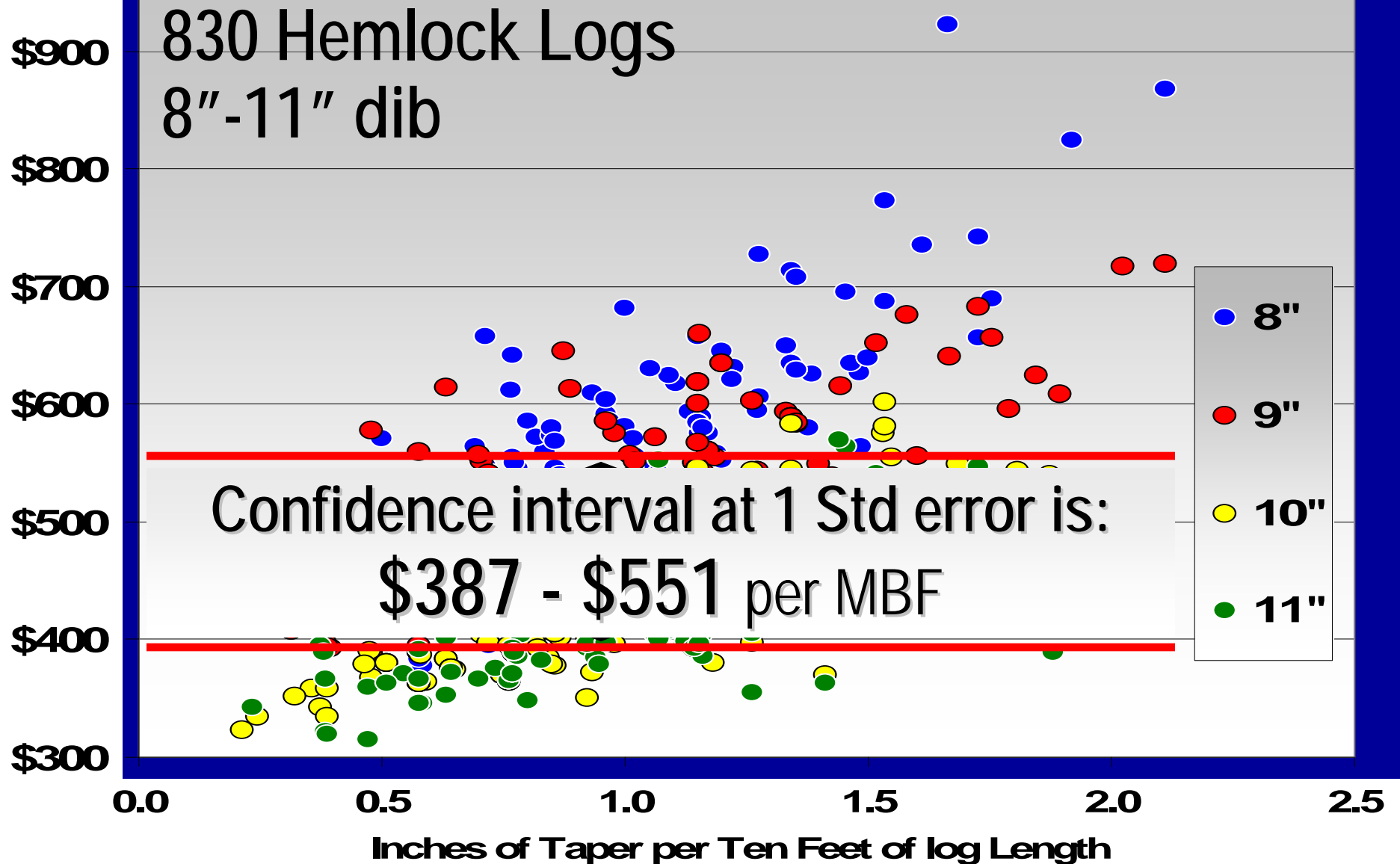
13.5  
12.0  
10.5  
9.0  
7.5  
6.0  
4.5



# Cubic Meters per MBF Scribner LLS

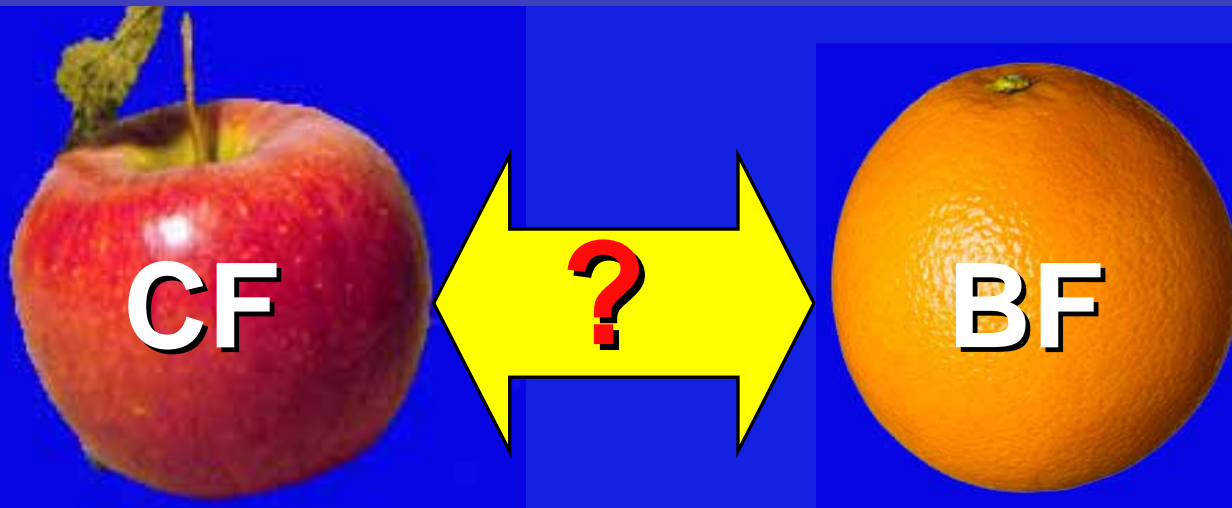


# \$/MBF Scribner Equal to \$65/m<sup>3</sup>

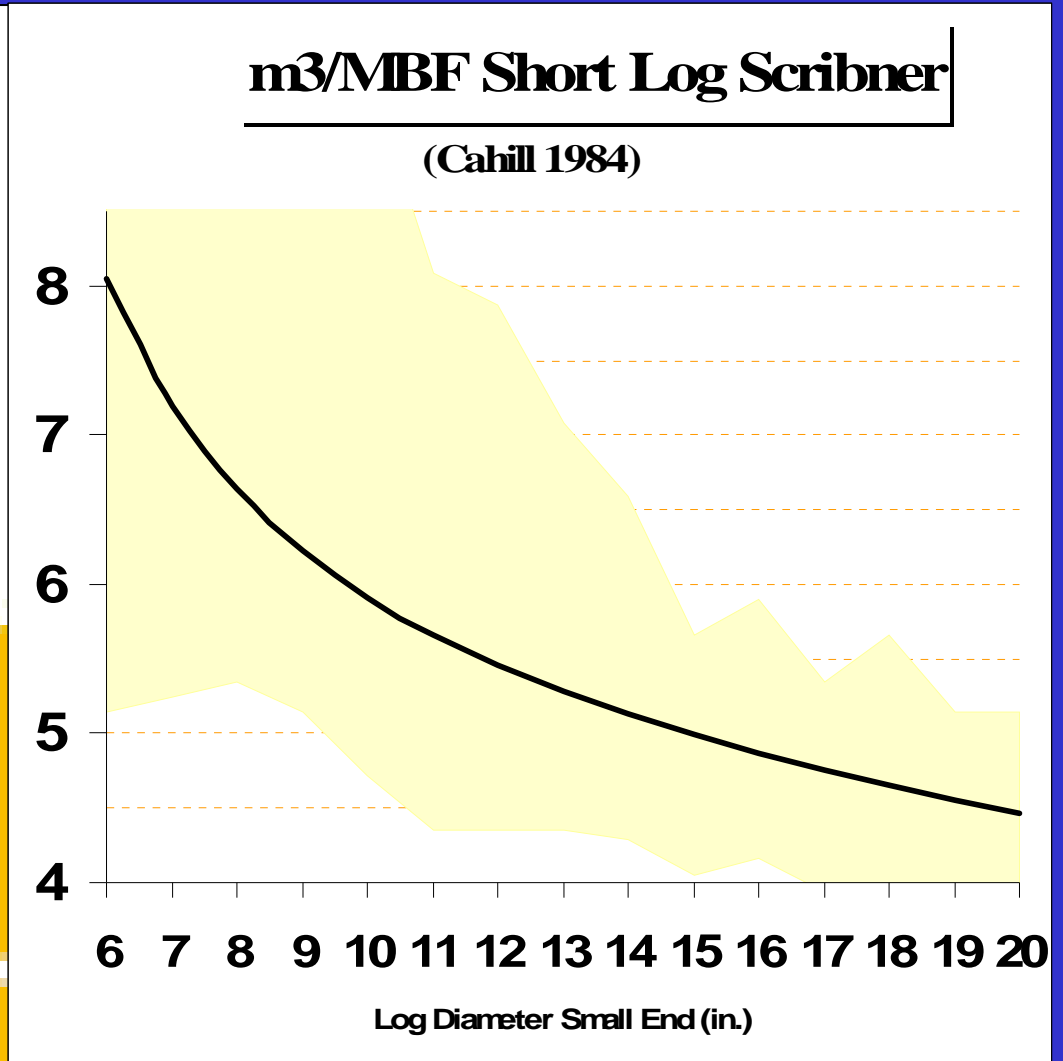
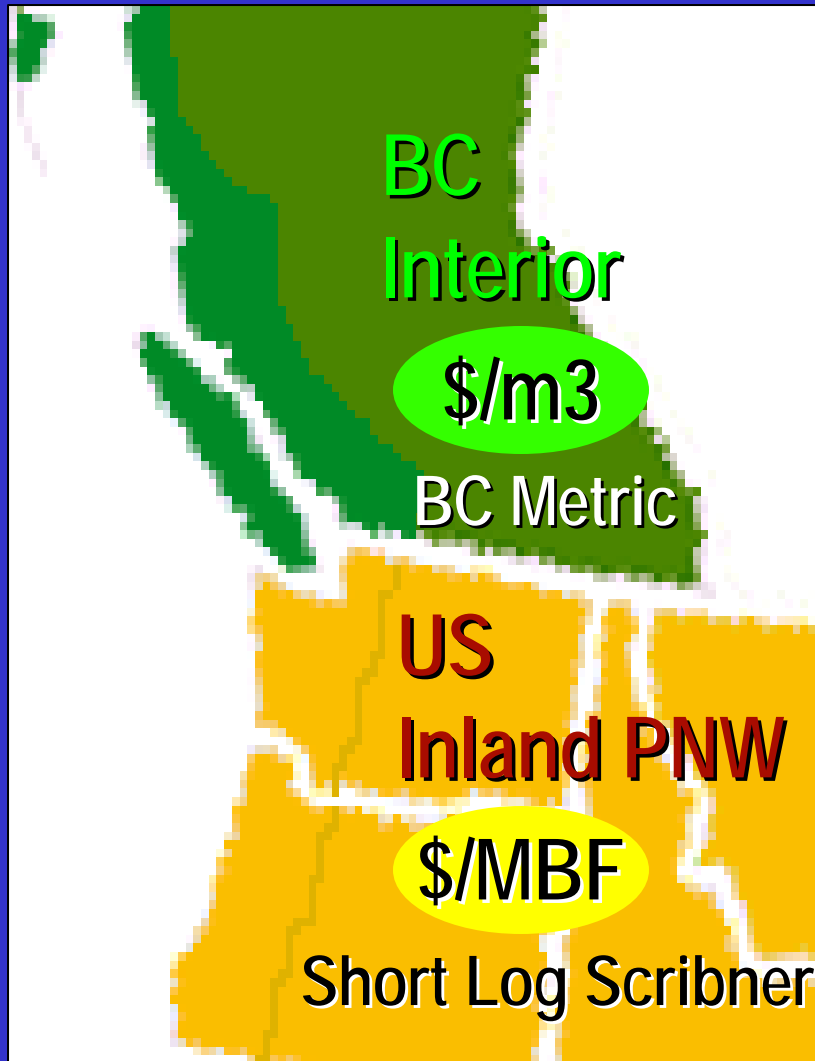


So, despite what some industry literature suggests...

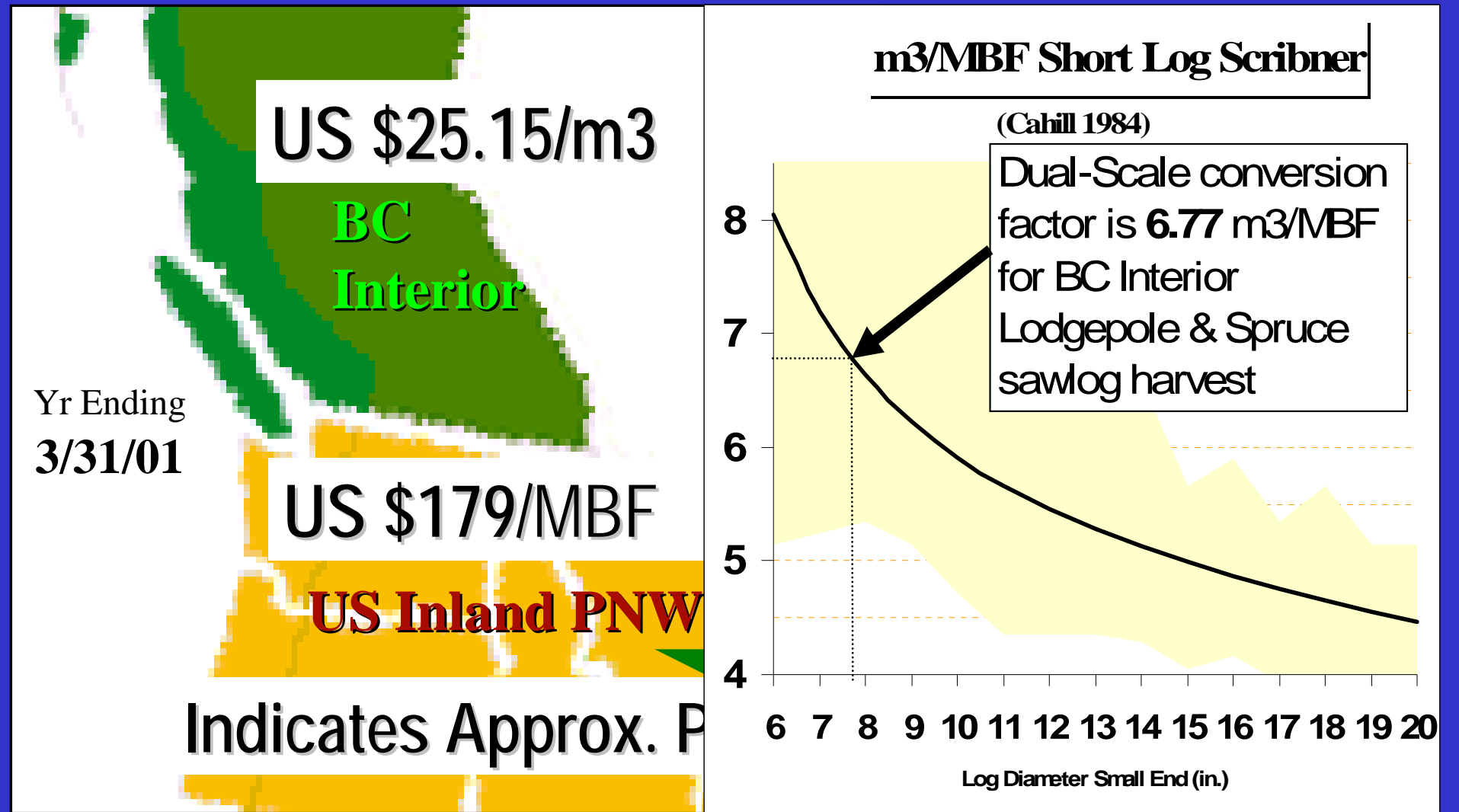
There is No Single Factor to convert Board Feet to Cubic!



# Converting Among Log Scales in US-Canada Price Comparisons



# Converting Among Log Scales in US-Canada Price Comparisons



# Converting Among Log Scales in US-Canada Price Comparisons

“The most appropriate approach to  $m^3$ /MBF conversions would be for Commerce to use a standard, published, average factor...

The most widely accepted such factor is  $4.53 m^3$ /MBF.”

“In fact, alone, its very longevity and stability suggest that, as a general approximation, it is reasonably accurate.”

Expert for “Coalition for Fair Lumber Imports” January 2002

# Converting Among Log Scales in US-Canada Price Comparisons



During 2002 - 2006 the US Government charged approx. **\$1.5 Billion** in tariffs on BC Interior manufacturers of Lodgepole & Spruce lumber

Virtually all those tariffs resulted from incorrect conversion between US Scribner & BC Metric scale

# What's the Cost of Scribner?

In the case of Canada – US  
lumber trade, use of Scribner  
instead of Cubic in the U.S.

has led to \$ Billions in tariffs  
and litigation costs

Is there a better measure for  
roundwood than the  
Board Foot ?

*I Say it's Cubic!*

