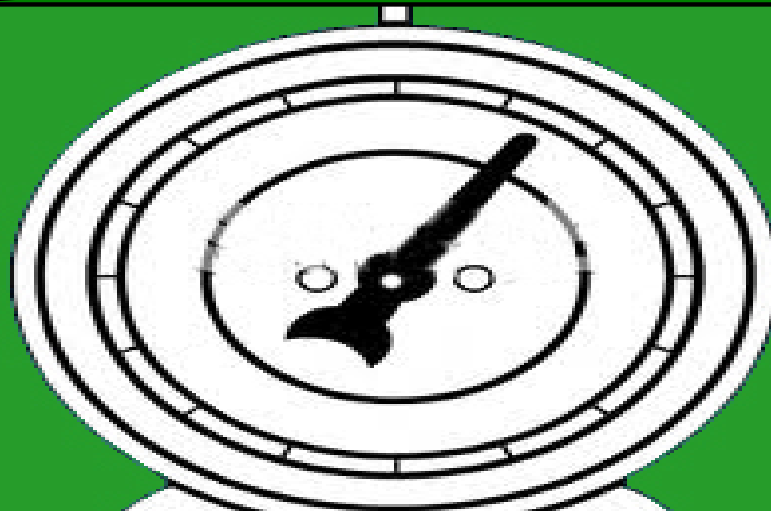
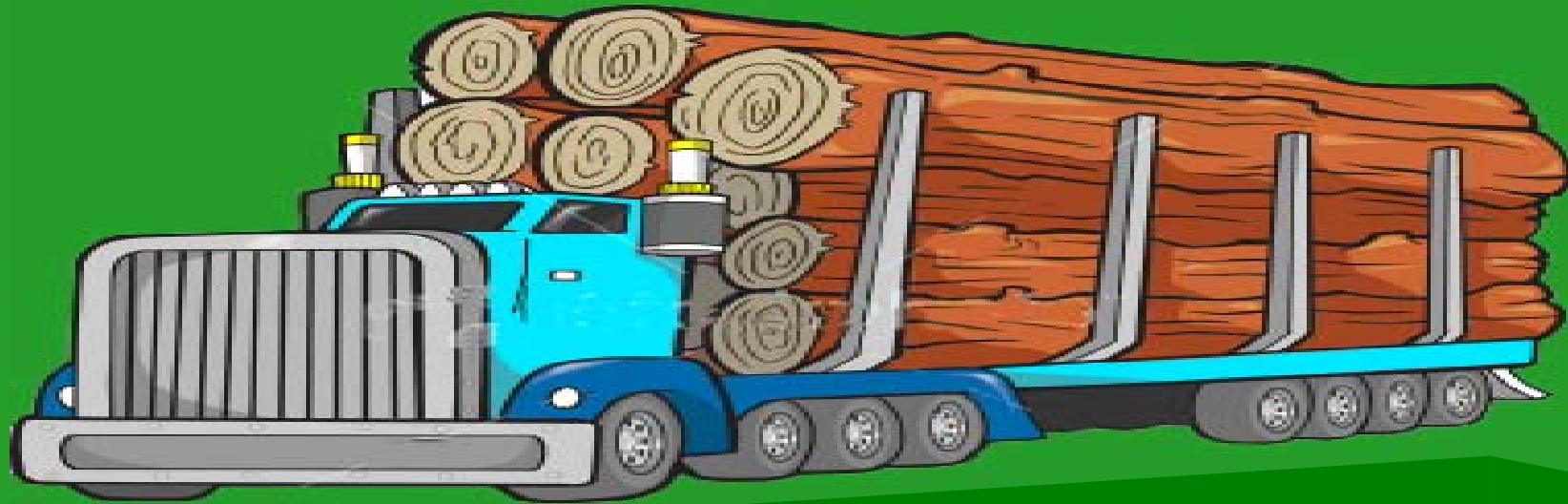


Transacting Logs by Weight

A Western US Overview



Neal T. Hart, Jendro & Hart, LLC
Timber Measurement Society, Central Meeting, April 6-8 2011, Tacoma Washington

**Western US log scaling
practices are changing**

**cubic and weight scaling
is replacing
board foot measure**

Weyerhaeuser Company, 2008 Annual Report

HOW WE MEASURE OUR PRODUCT

Beginning this year, we have started to report Timberlands data in cubic meters. Cubic meters is a measure of the total volume of wood fiber in a tree or log that can be sold. Cubic meter volume is determined from the large- and small-end diameters and length and provides a more consistent and comparative measure of timber and log volume among operating regions, species, size and seasons of the year than other units of measure.



STATE FOREST NOTES

Office of the State Forester
Sacramento

No. 42

August, 1970

BOARD FOOT BY THE POUND

David M. Burns^{1/}

Weight Scaling in California's Jackson State Forest

“It is operational and it works.”



1968:

1969:

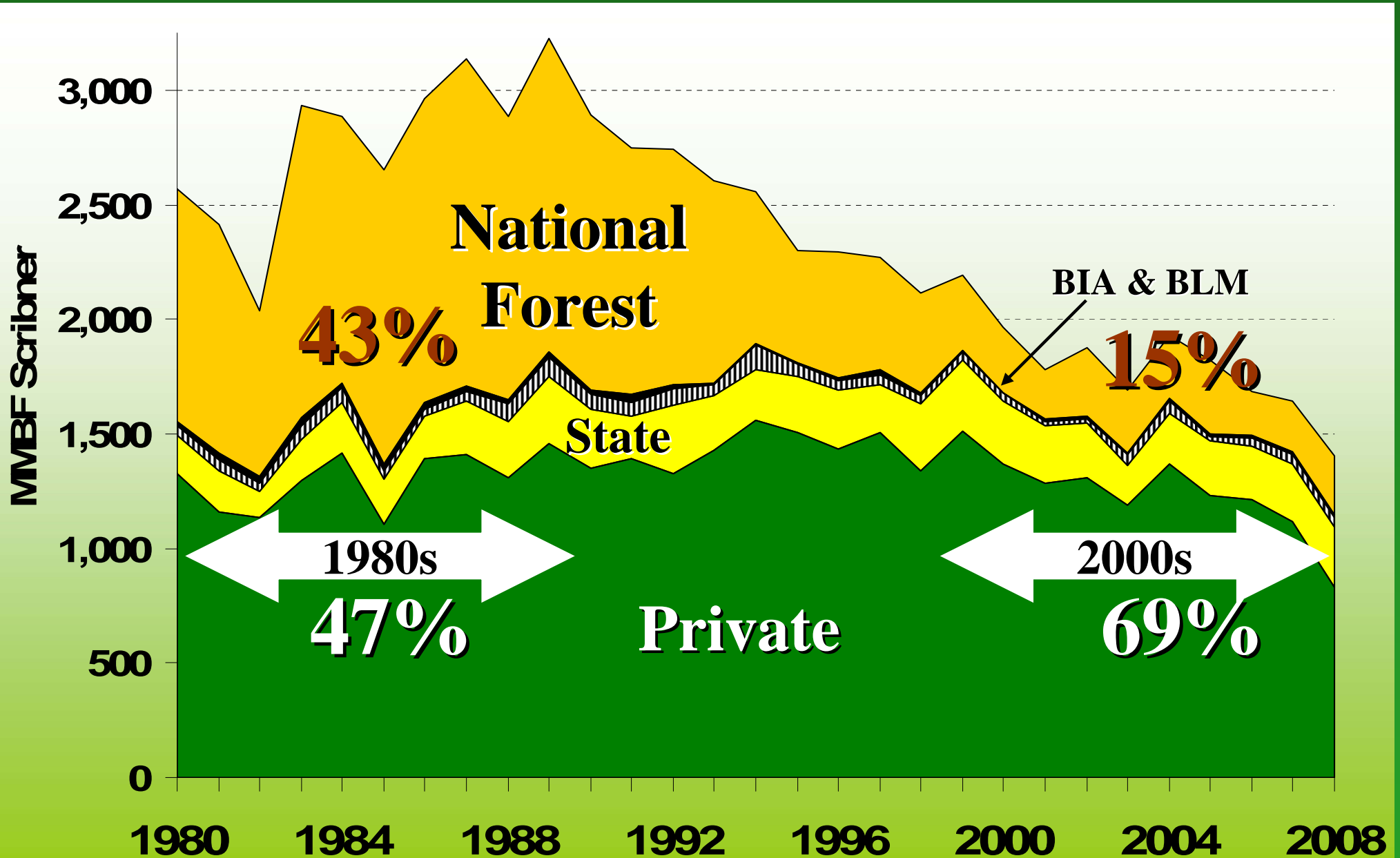
1970:

**Two Young Growth Sales
21 mmbf of SG**

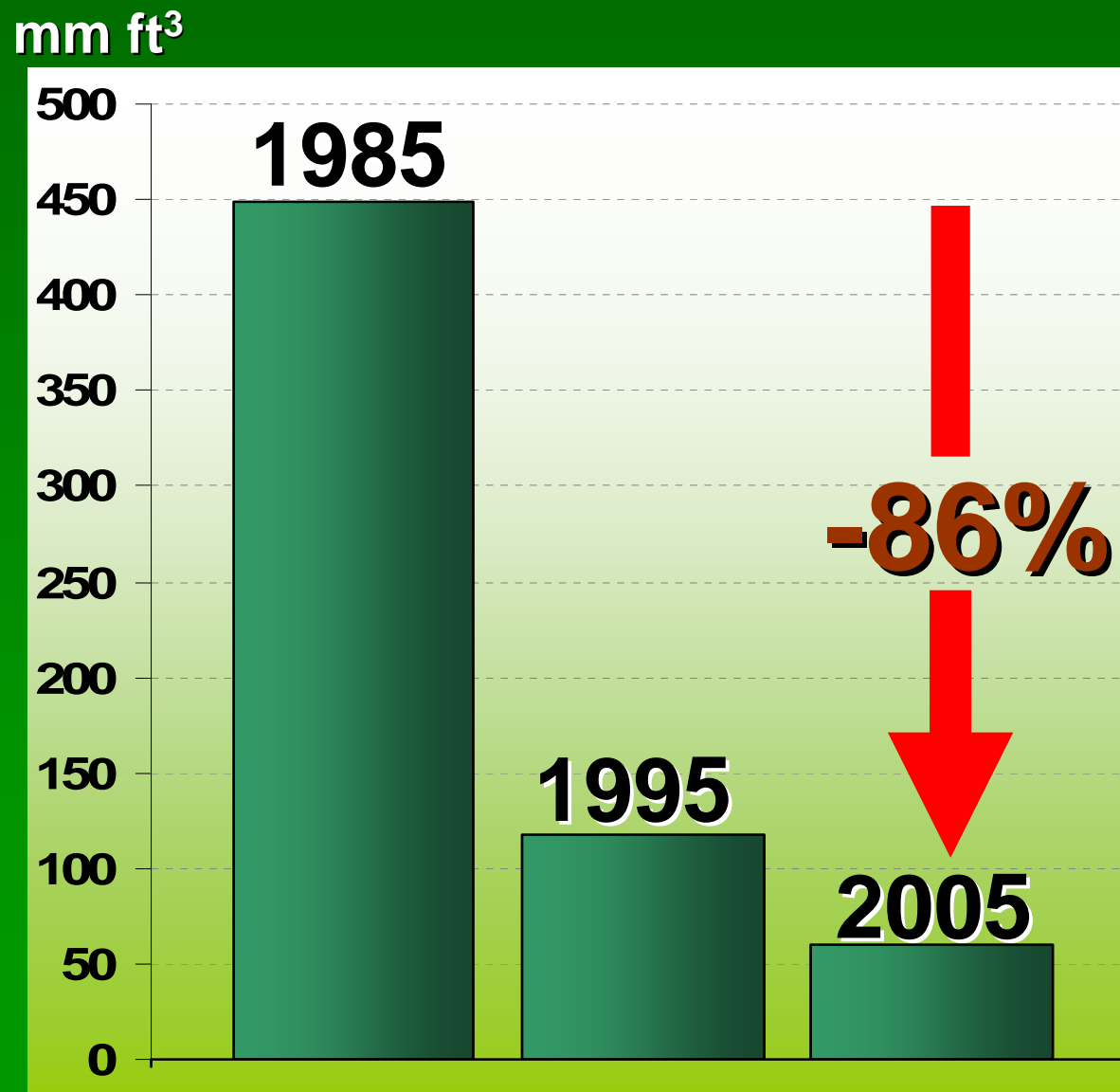
**Entire JSF Sale Program
including 19 mmbf SG &
15 mmbf of OG**

^{1/} Staff forester for State Forests, Sacramento, formerly Assistant Forest Manager, Jackson State Forest.

Idaho & Montana Timber Harvest by Ownership, 1980 - 2008



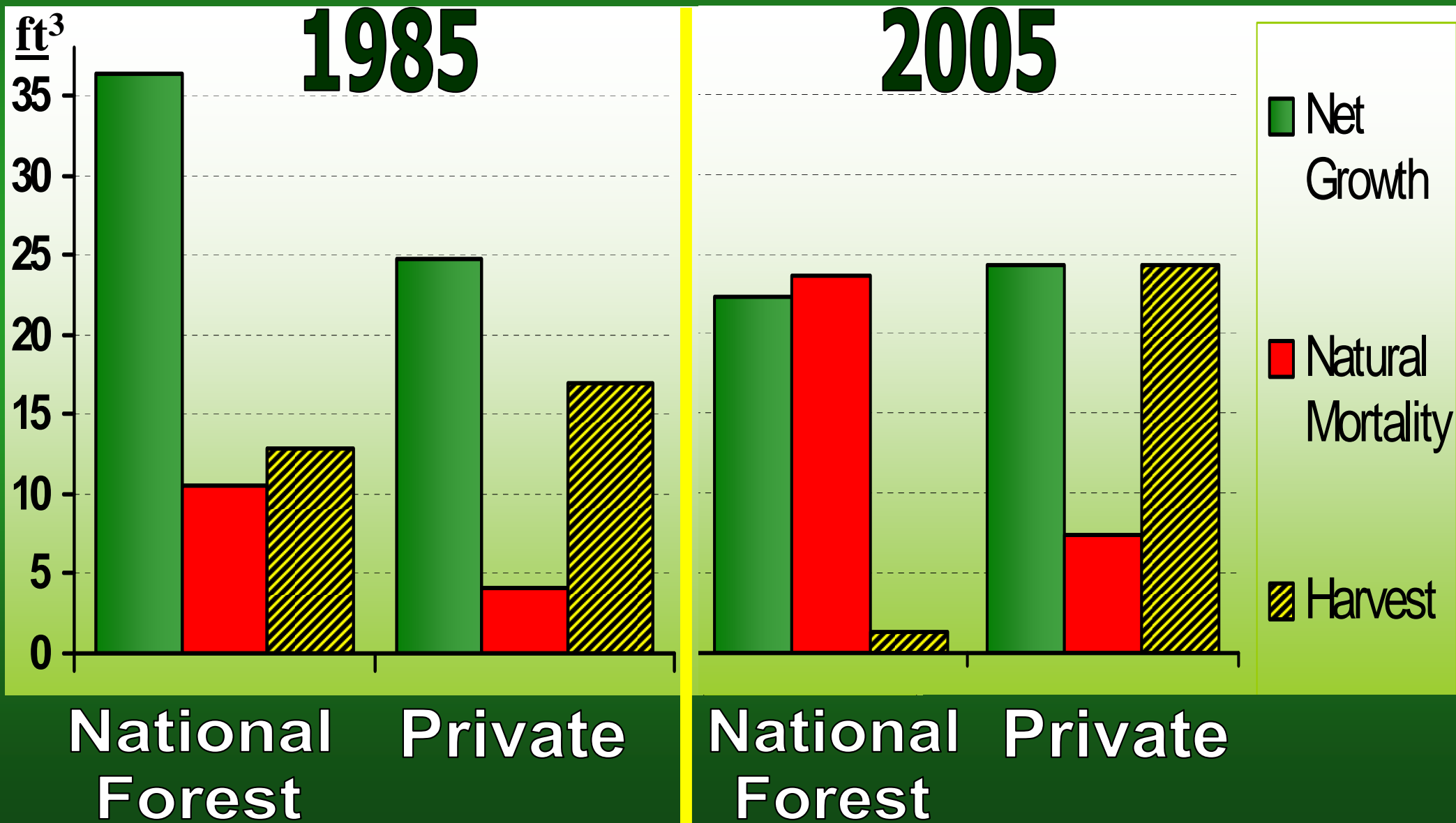
Harvest from National Forests in the Intermountain West



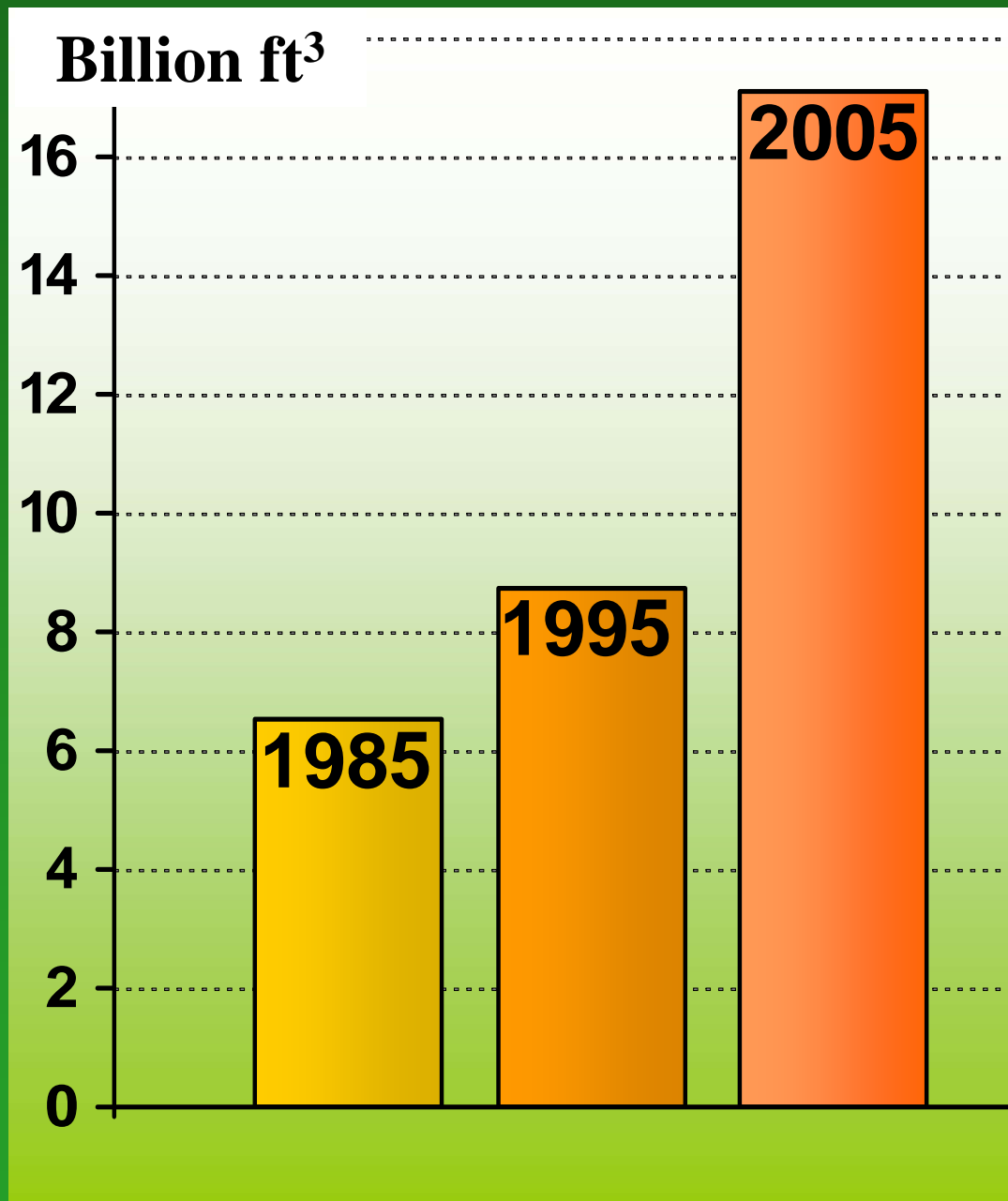
Intermountain Region

Net Growth, Mortality & Harvest

per acre of Timber Land



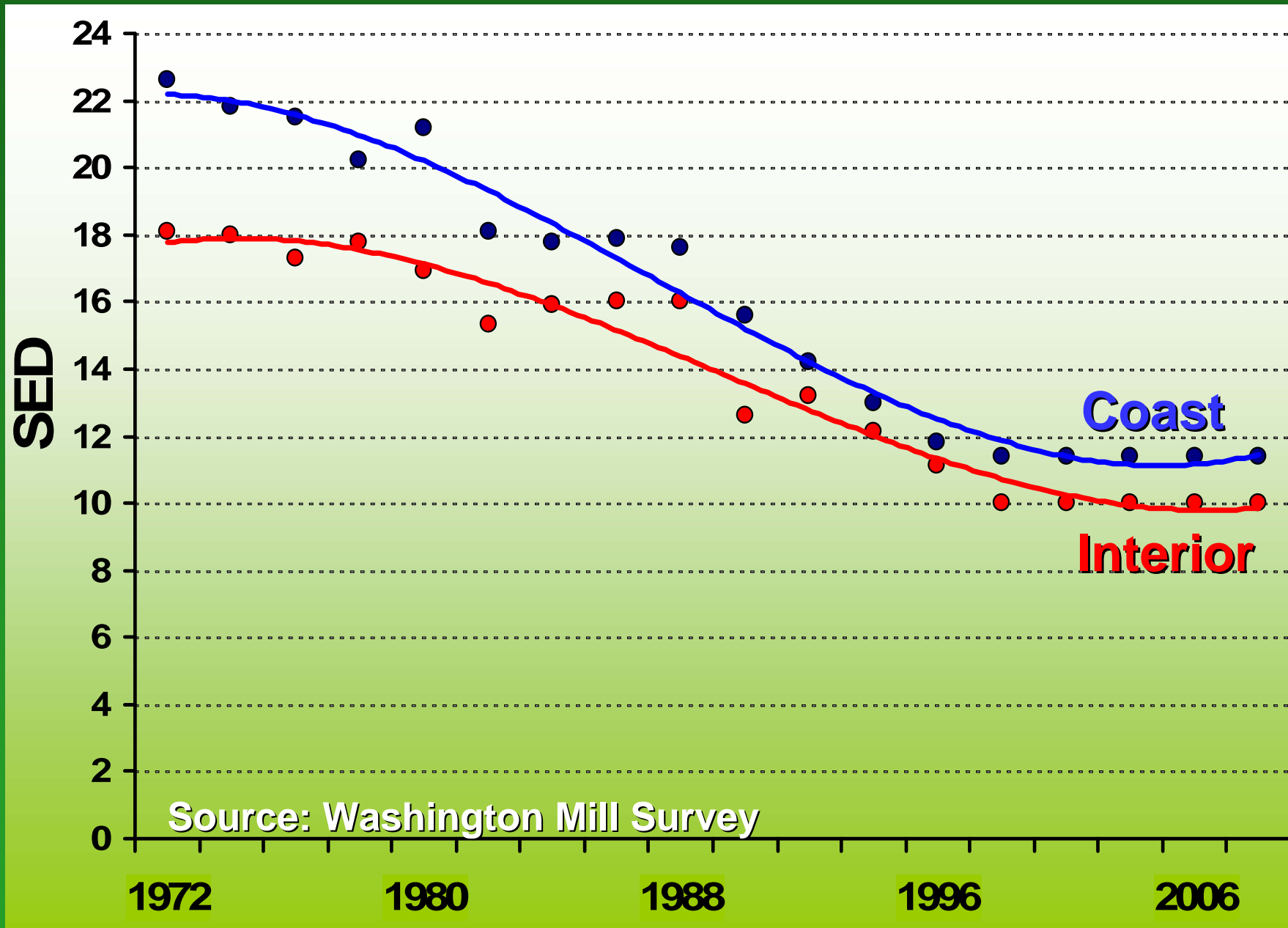
Inventory of Sound Dead Volume Intermountain Region



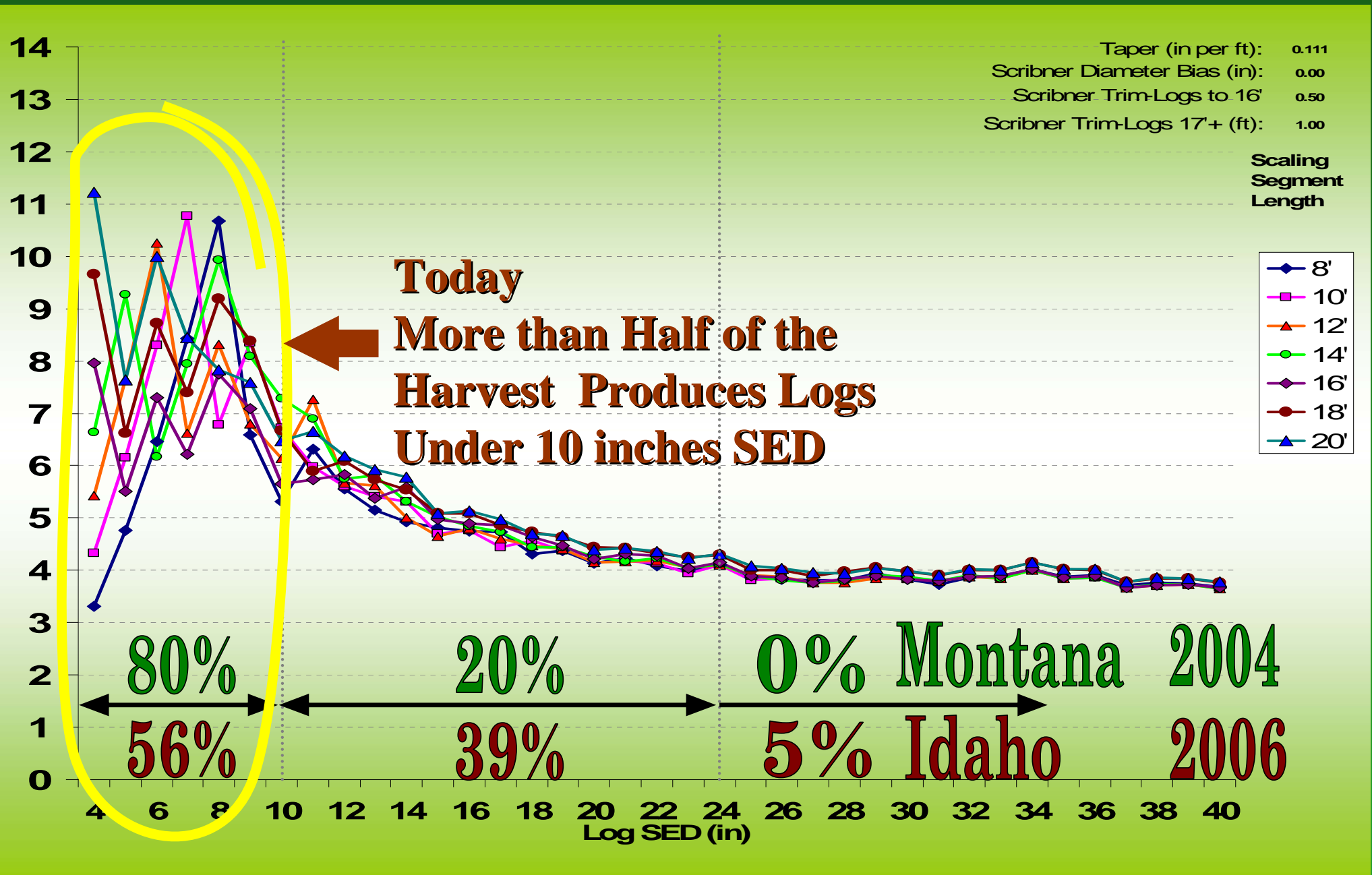
**17.1 Billion
Cubic Feet**

**35 times
annual harvest
from all
ownerships**

Average Sawlog Diameter Washington Sawmills 1972 - 2008

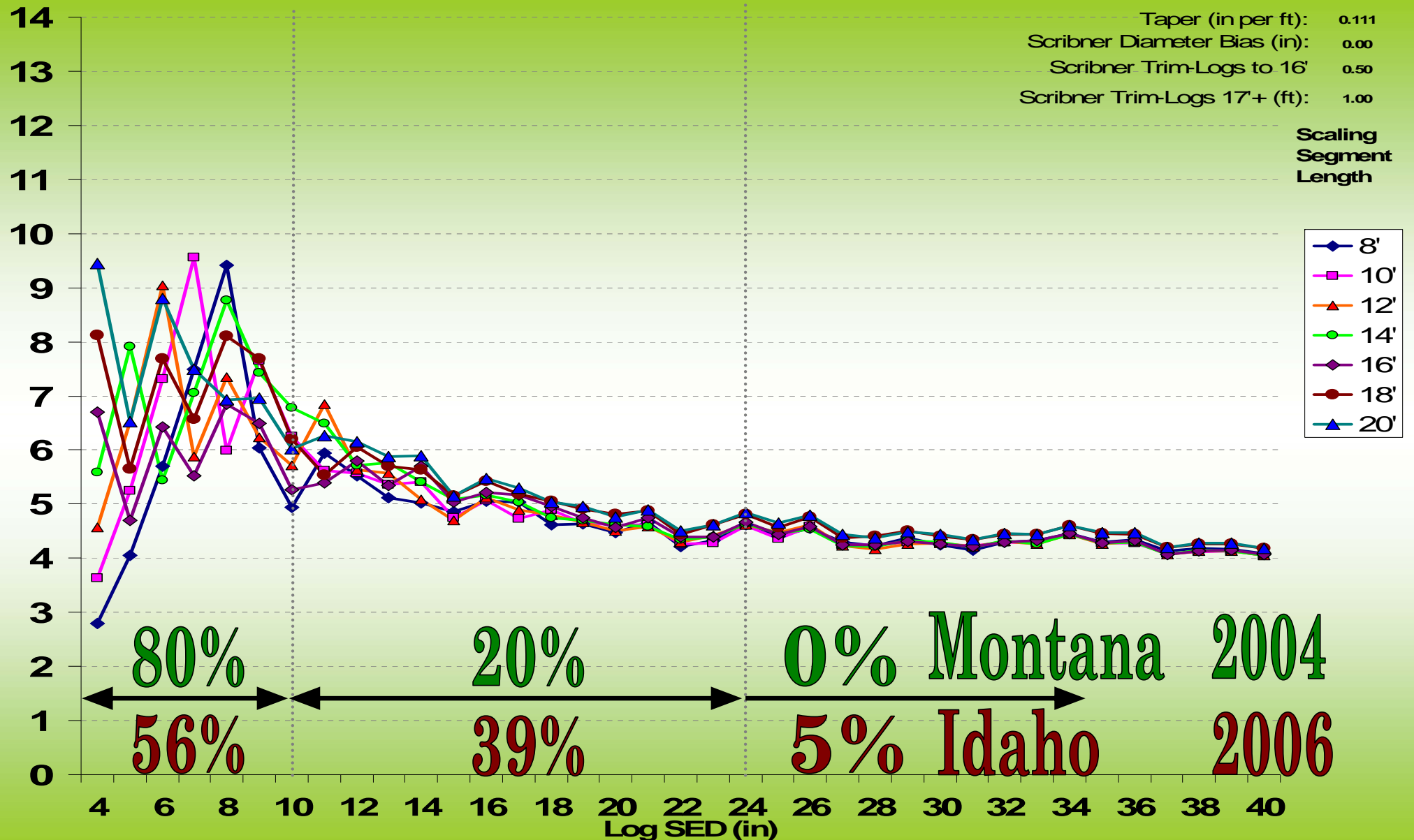


Cubic Meters per MBF Scribner Decimal C, Gross Short Log Scale



Tons per MBF Scribner

Decimal C, Gross Short Log Scale



Weight Is Blind

On the Plus Side
Weight Can't:

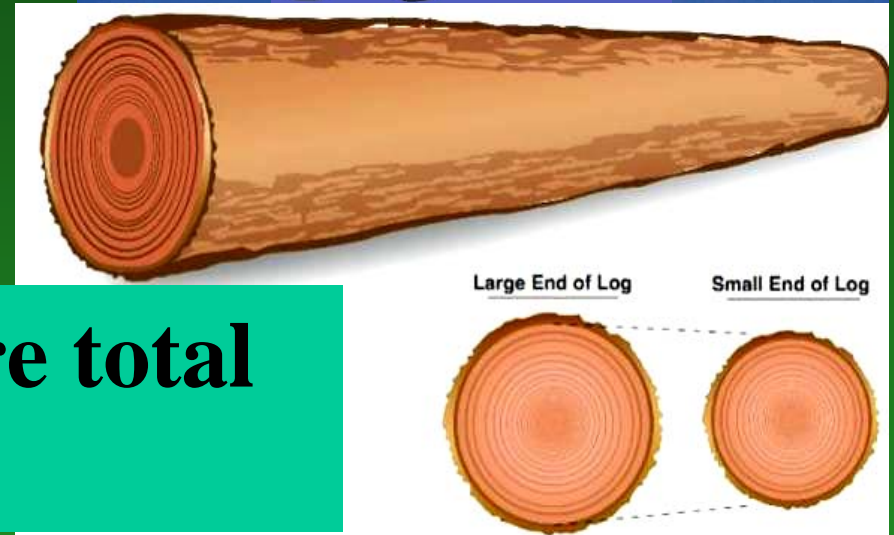
- Ignore Trim
- Ignore Taper
- Truncate Diameter
- Round to X #lbs



It Can't "See" Cracks, or
Any Other Defects

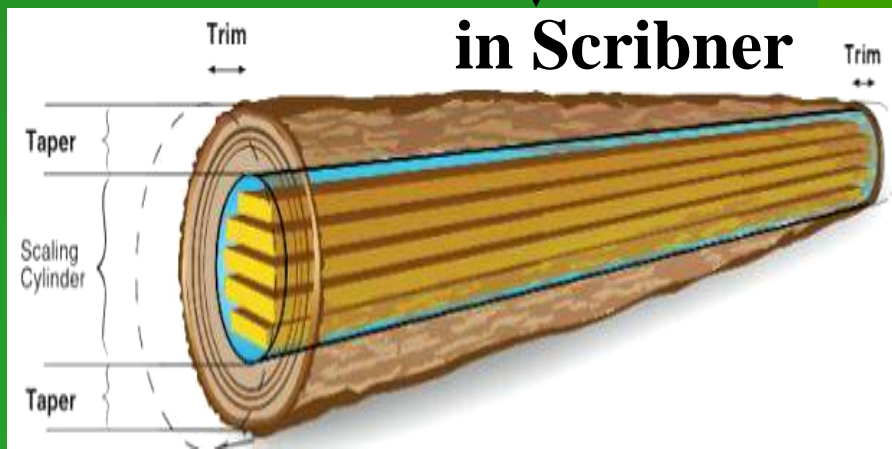
The Alternatives:

- *Weight is Weight*
- *Cubic ~ Cubic*



Where its goal is to measure total solid-wood fiber

• **Board Foot** *is not a Board Foot*

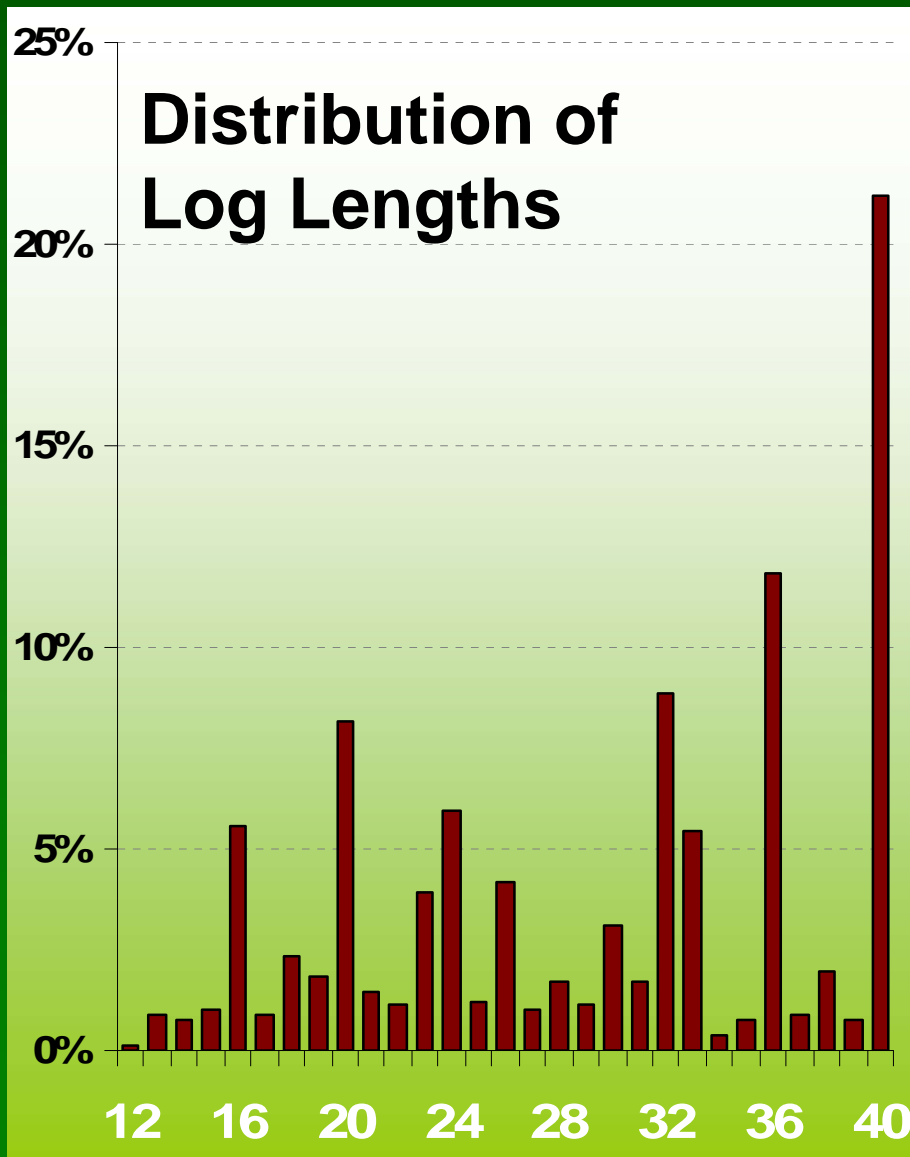


of Lumber

Hypothetical Mill Test for 100 m³ of Logs in Each Diameter Class from 6" to 11"

Assumptions

- Same Distribution of Lengths in Each Diameter Class
- Constant Taper of 1 inch in 9 feet
- Defect-Free DF Logs



Hypothetical Mill Test for 100 m³ of Logs in Each Diameter Class from 6" to 11"

Logs In	6"	7"	8"	9"	10"	11"
# of Logs	338	267	217	179	150	128
Cubic Meters	100	100	100	100	100	100
Tons	113	111	110	108	104	103
Scribner MBF:						
LLS	12.5	12.5	12.2	12.8	14.4	15.3
SLS	14.1	15.1	15.9	16.6	17.9	18.5
Lumber & Chips Out						
MBF LT	25.5	27.4	29.0	30.3	31.4	32.4
BDU	19	18	16	15	14	13

Hypothetical Mill Test for 100 m³ of Logs in Each Diameter Class from 6" to 11"

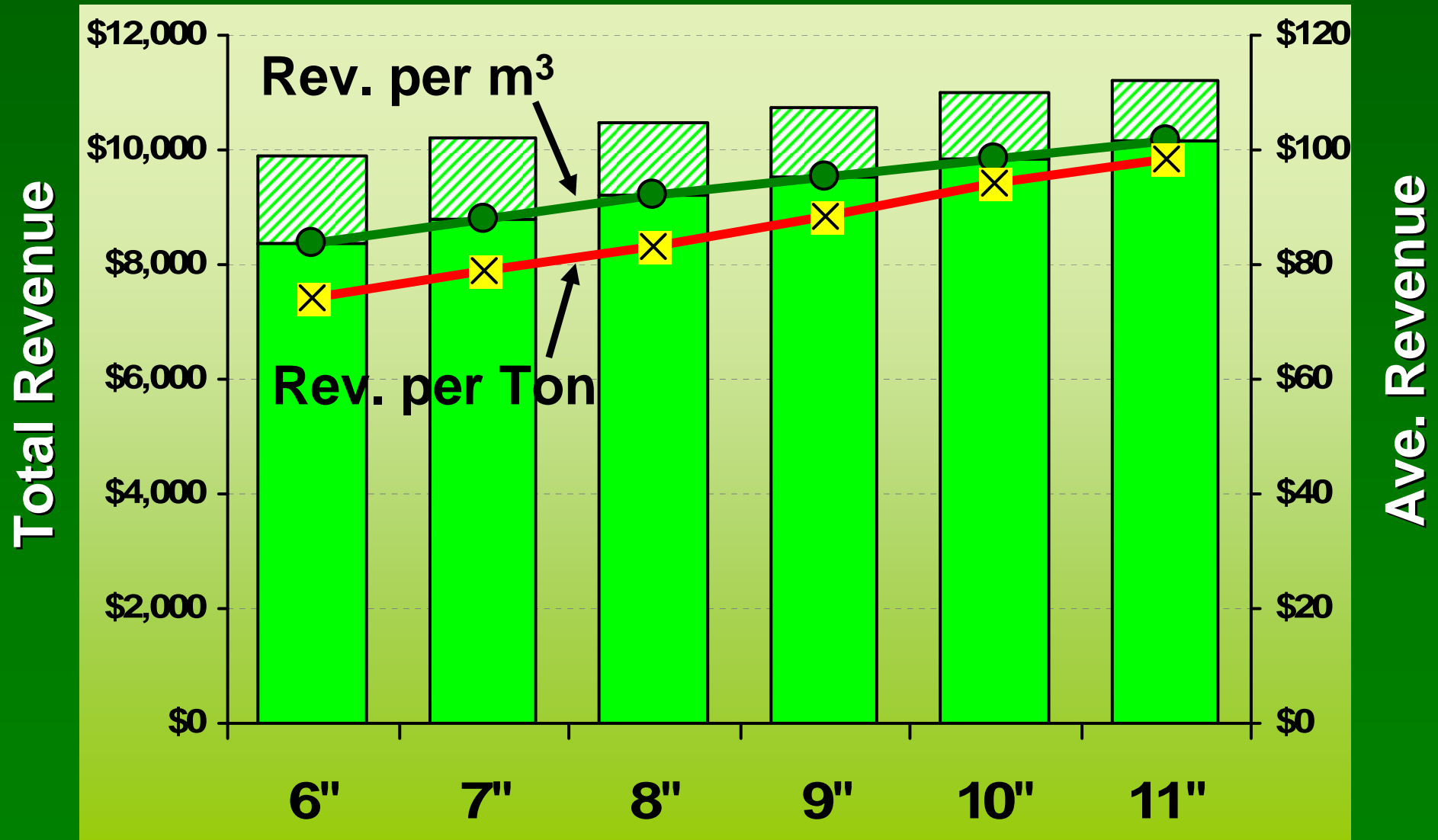
Lumber Recovery Factors

SED:	<u>6"</u>	<u>7"</u>	<u>8"</u>	<u>9"</u>	<u>10"</u>	<u>11"</u>
BF / m ³	260	278	297	313	326	335
BF / Ton	232	249	269	290	312	325

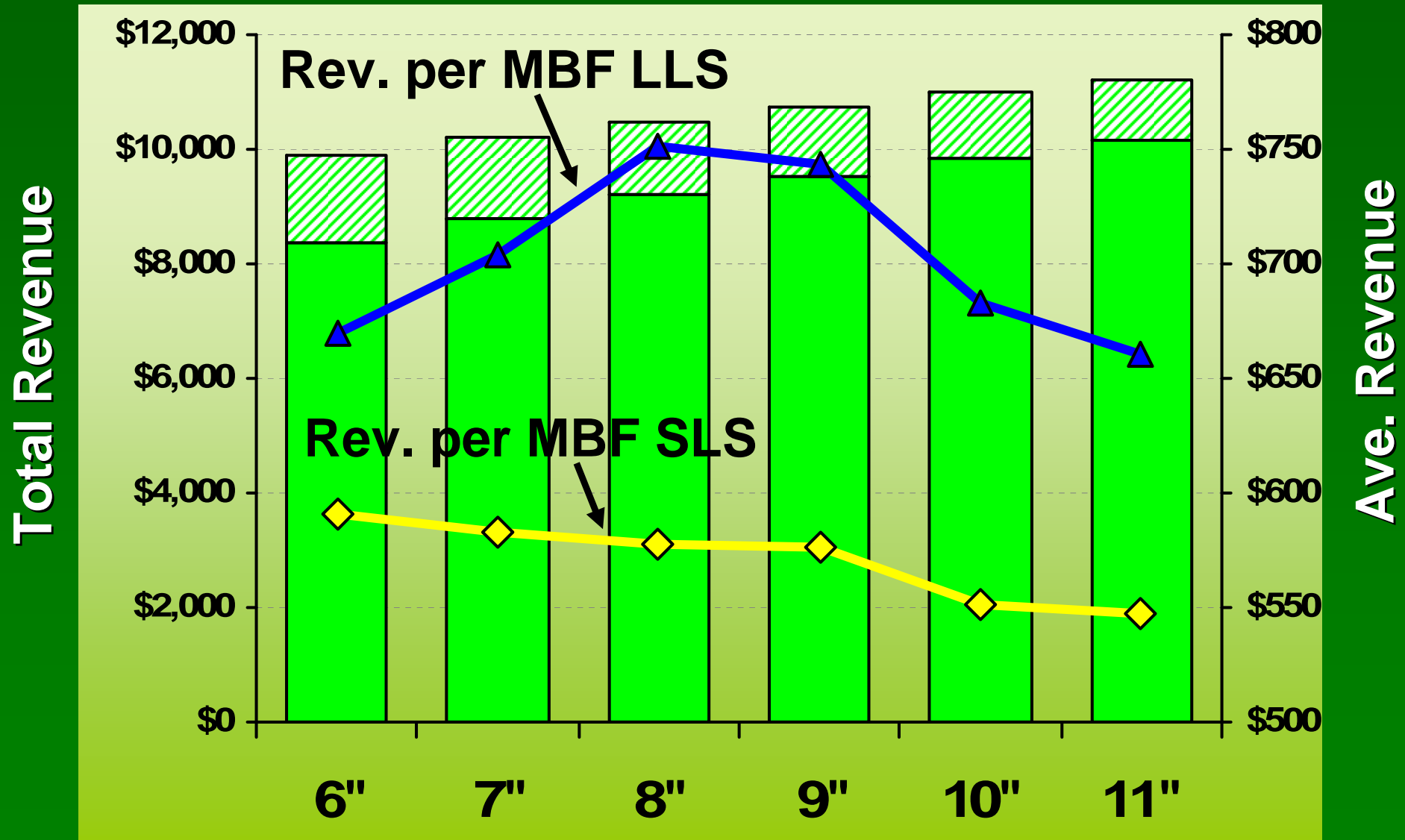
Scribner Overrun:

Long Log	1.98	2.07	2.21	2.10	1.92	1.97
Short Log	1.92	1.87	1.87	1.87	1.79	1.78

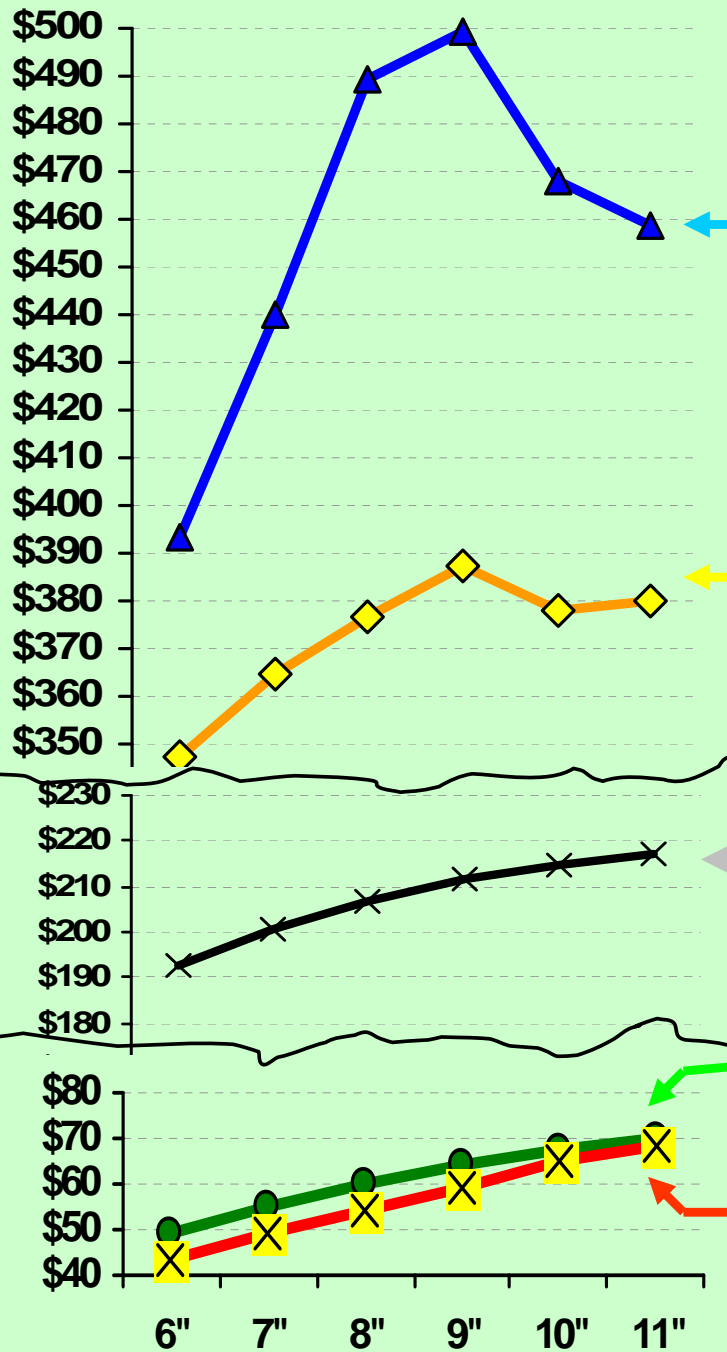
Total Sales Revenue, Revenue per m³ and Revenue per Ton



Total Sales Revenue, Revenue per MBF Scribner, LLS & SLS



Return To Log Value



← \$/MBF LL Scribner

← \$/MBF SL Scribner

← \$/MBF Lumber Tally

← \$/Cubic Meter

← \$/Ton

Tons per MBF Scribner Conversion Factors Washington Department of Revenue (DOR)

	<u>WA DOR Tons/MBF Factor</u>		=	Implied SL / LL Factor
	<u>Eastside SL Scribner</u>	<u>Westside LL Scribner</u>		
Douglas-fir	5.50	÷ 7.50		0.73
Western Hemlock	5.50	÷ 8.25		0.67
Western Red Cedar	4.50	÷ 7.00		0.64

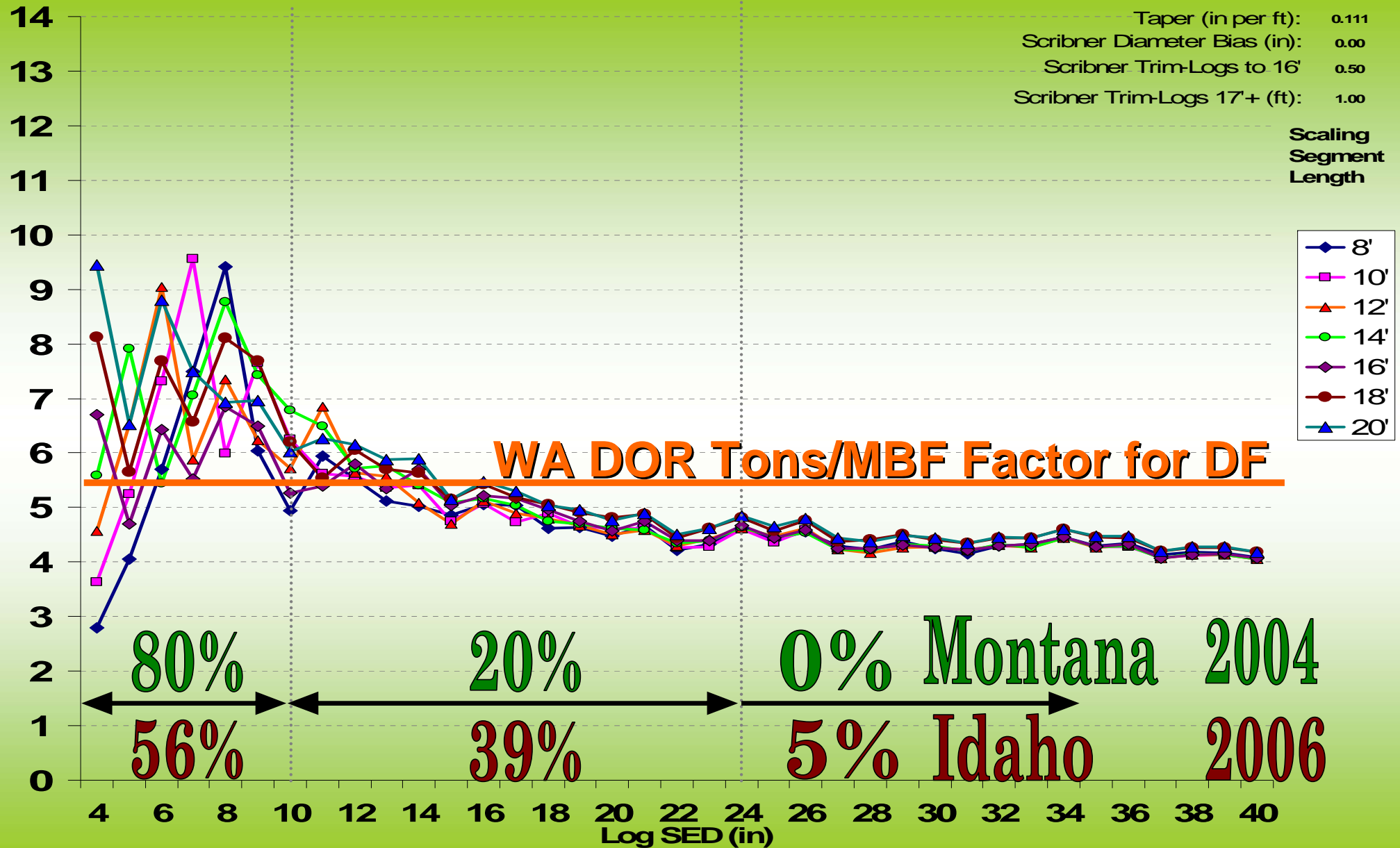
WA DOR Conversion Factor to translate

from SL to LL Scribner is:

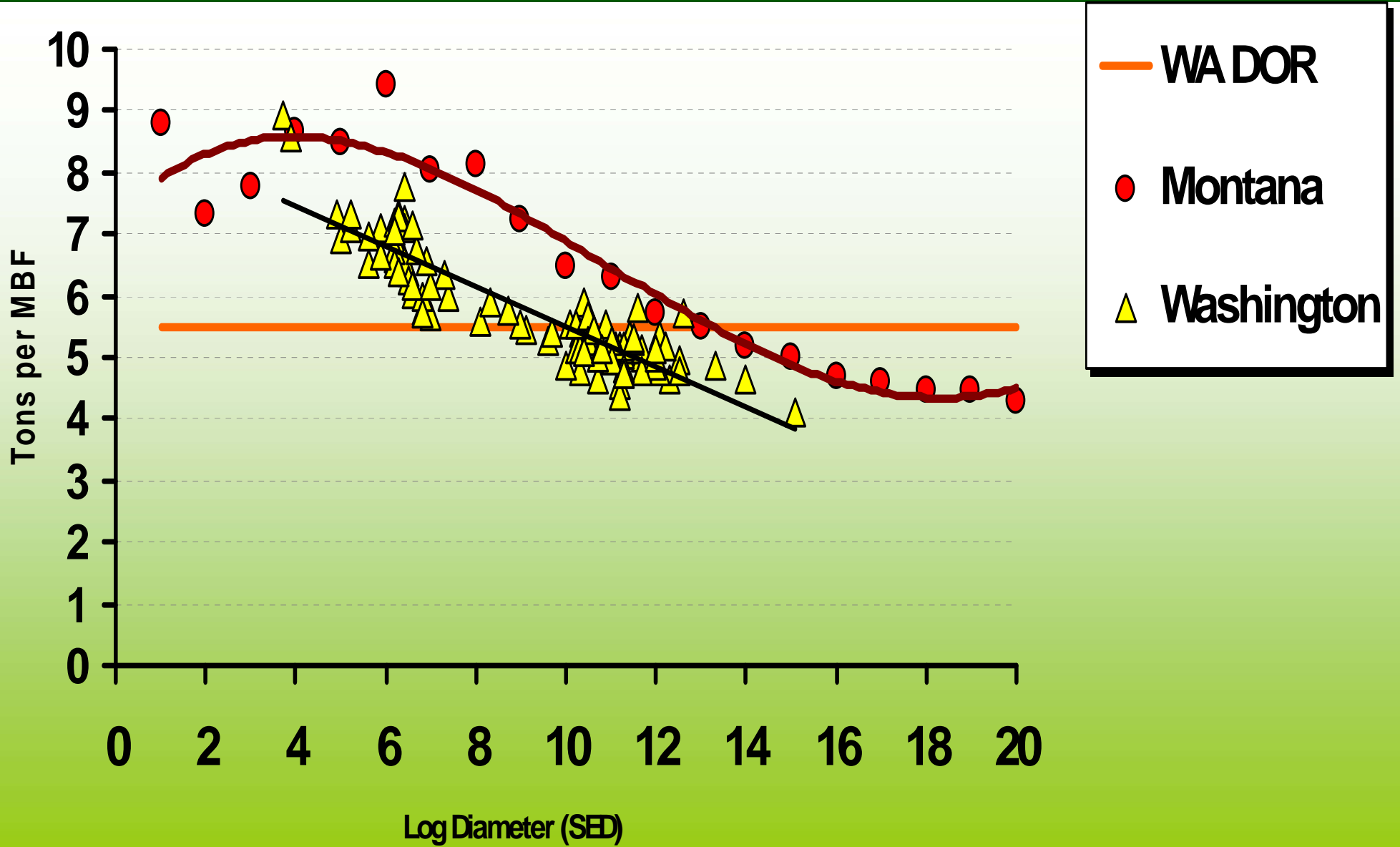
0.82

Tons per MBF Scribner

Decimal C, Gross Short Log Scale



Douglas-fir: Tons/MBF Net Scribner SLS Montana & Washington Scale Data Compared With WA DOR Statutory Conversion @ 5.5 Tons/MBF



Using A Tons/MBF Factor That Is Too Low Results in Overpayment of Taxes

If Correct
Tons/MBF
Factor is:

Using 5.50 Tons/MBF
Will Cause Excise Tax
Overpayment of:

6.50	18%
7.50	36%
8.50	55%

Published Conversion Factors

Forest Products Utilization Handbook

2010 EDITION

4.53 cubic meters sawlogs	= 1,000 board ft
1 cubic foot sawlogs	= 6.25 board ft
1 cubic meter roundwood	= 0.6 metric ton (air dry) wood volume w/o bark



Colorado
State
University

Extension