

Silviculture Workshop Orono Maine June 22 2017

Economics of Growing Spruce and Fir: Discarding the Box!

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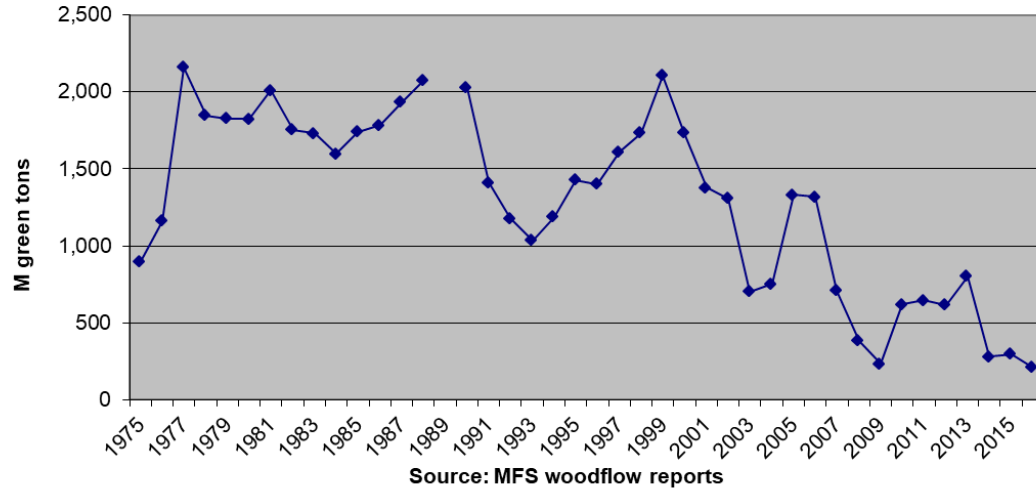


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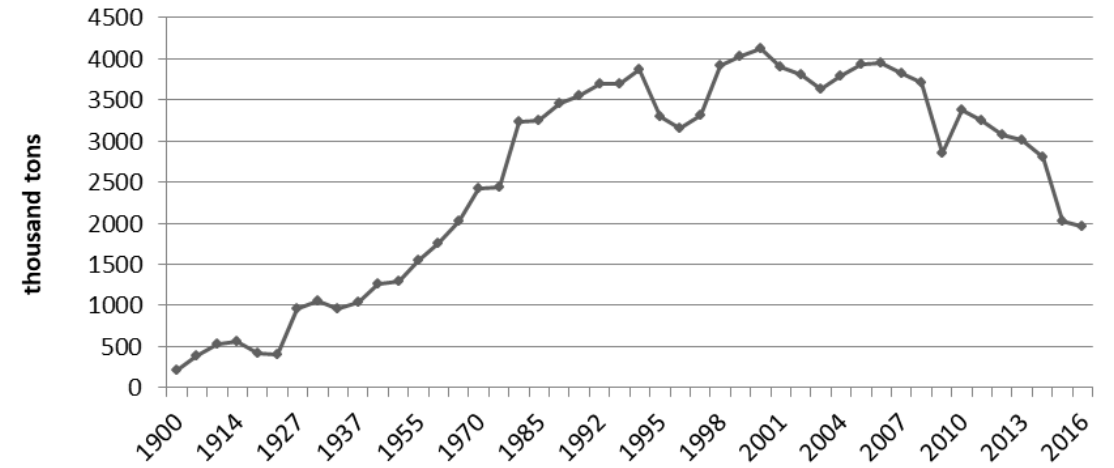
- Market Trends and Outlook
- Utilization standards
- 6 boxes to escape or discard
- Tips on practical economics
- Don't take economics too seriously
- Closing Notes



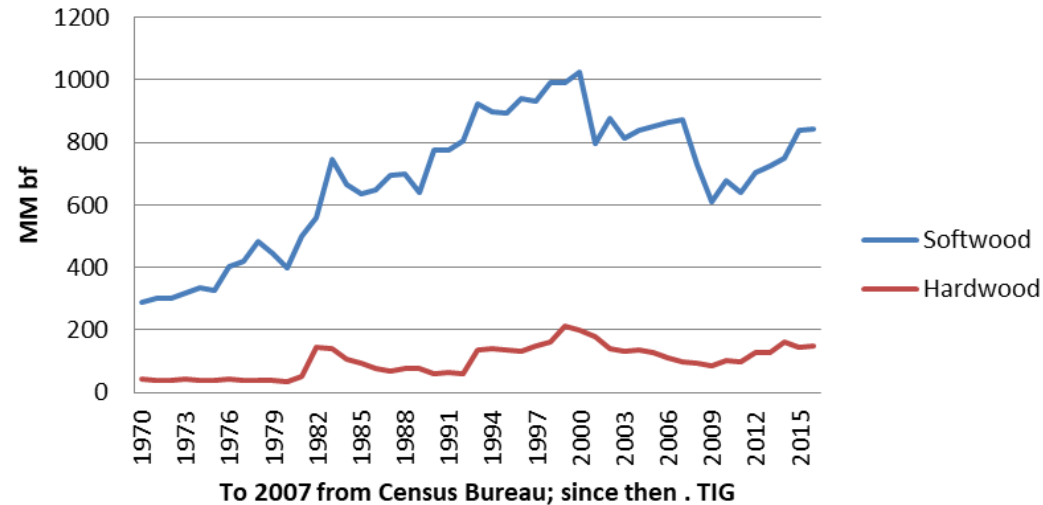
Maine Sawmill Chip Usage in Paper Industry 1975-2016



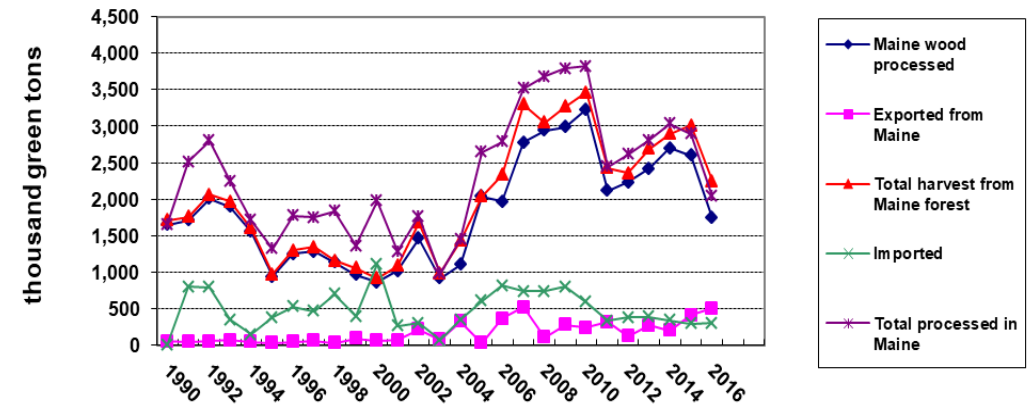
Maine Paper Production, 1900-2016



Maine Lumber Production Estimates



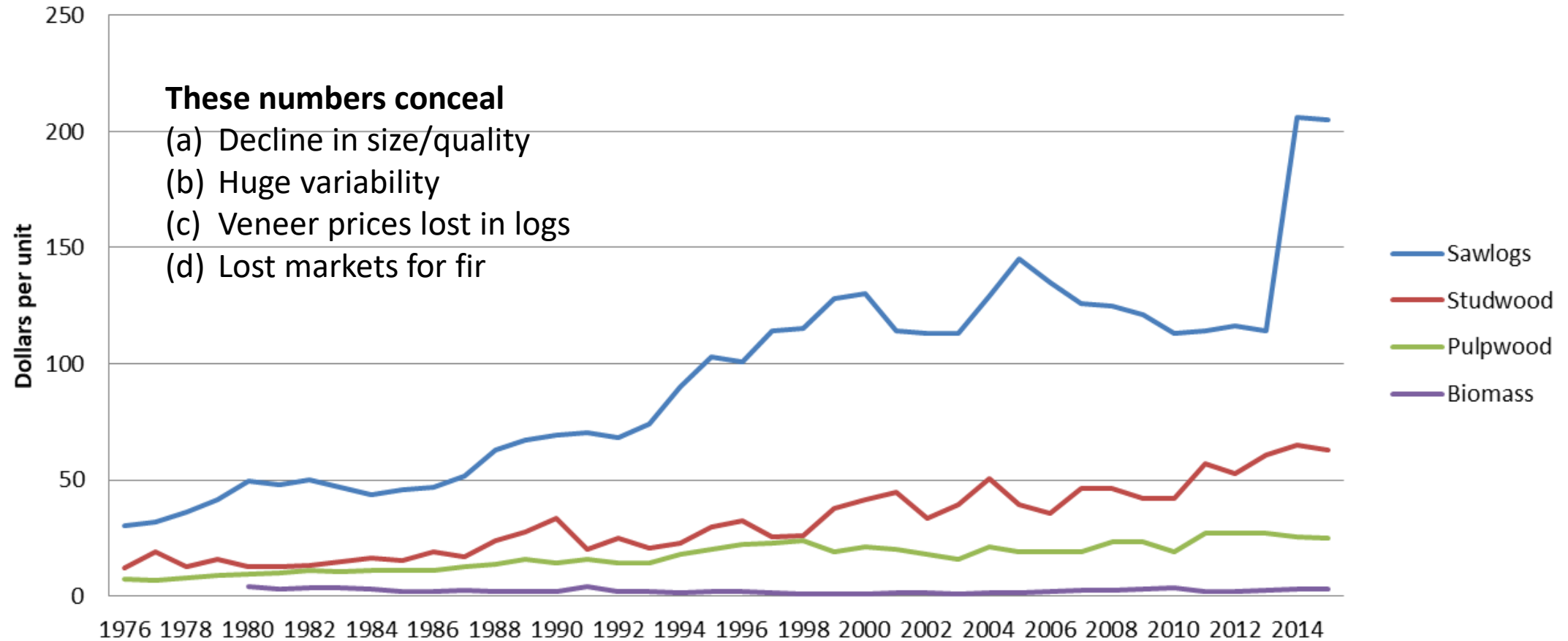
Maine Biomass Chips Trends, 1990-2016



Source: MFS Wood Processor Reports

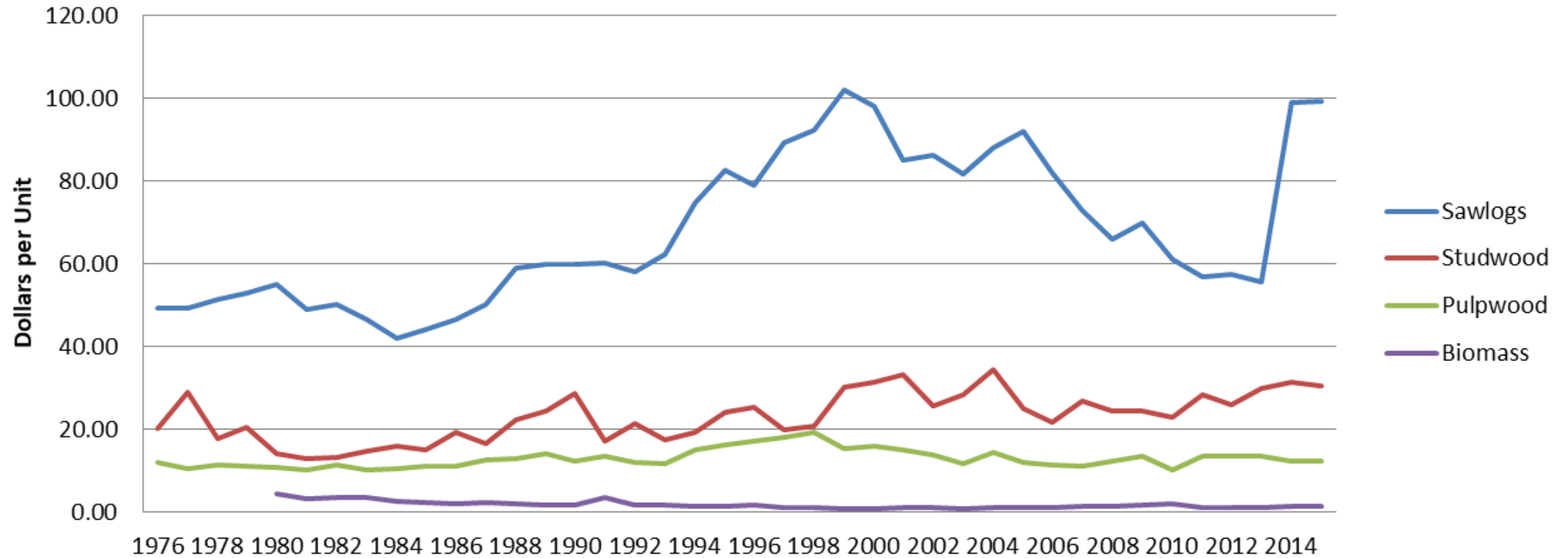
Spruce – fir from MFS

Stumpage prices Maine 1976-2015 Nominal

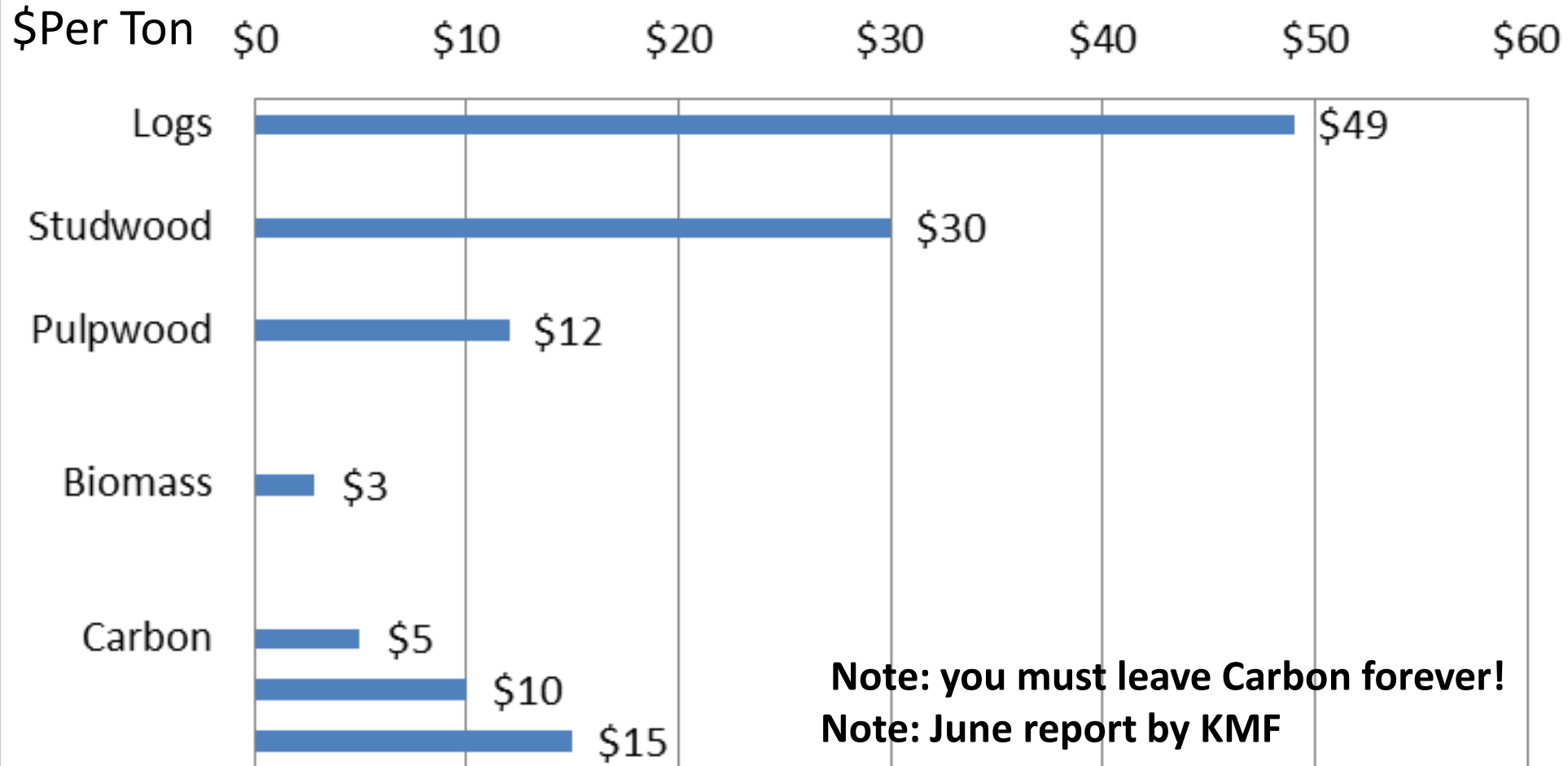


Spruce-fir from MFS

Stumpage prices deflated by PPI



Spruce fir stumpage value scale, 2015



Market Outlook: Near Term Grim

- Dark time: longer, grimmer than Dr Doom envisioned
 - (so much for experts)
- Eventual Market recovery will be good for our competitors too
 - US South – with well established fast growing stands
 - Europe – especially with import limitations on lumber
 - Chile
 - Asia

New products

- Innovative construction products take time to gain markets
 - Conservative builders
 - Codes
 - Conservative building purchasers
- Worth watching, but:
- None in view that will recover volumes recently lost



CLT at UMO Composites
Lab
Note: recent NEFF study

Innovative products....

- Often use other species
- Don't count on them to bail us out of this!
- REALLY INNOVATIVE: Equipment that can make money in a SMALL mill!
- Ways to use wood in the round – its strongest form
- Biomass plant that is not a gamble on:
 - Federal grants; whims of public policy; volatile electric market

Box 1 : Utilization Standards



- Best markets keep changing
- Can we keep being saved by looser utilization standards?
 - Remember fitted logs, Hy-Grade, etc?
- Find mills that pay for value and then meet their needs
- Support innovators

Box 2: Tons need to work around this



At one level, the only
“practical” way:
Make a list of all the harmful
effects

- 1
- 2
- 3
- 4

Box 3: Our Machines: Are we getting the best out of them?



Logs get smaller, the machines get bigger!



How to keep the benefits and manage the disadvantages



Modern machines >> Many important benefits
But: Capital costs too high
O&M costs too high
Site damage
Restricted operating weeks/year

Box 4: Forest Type definitions

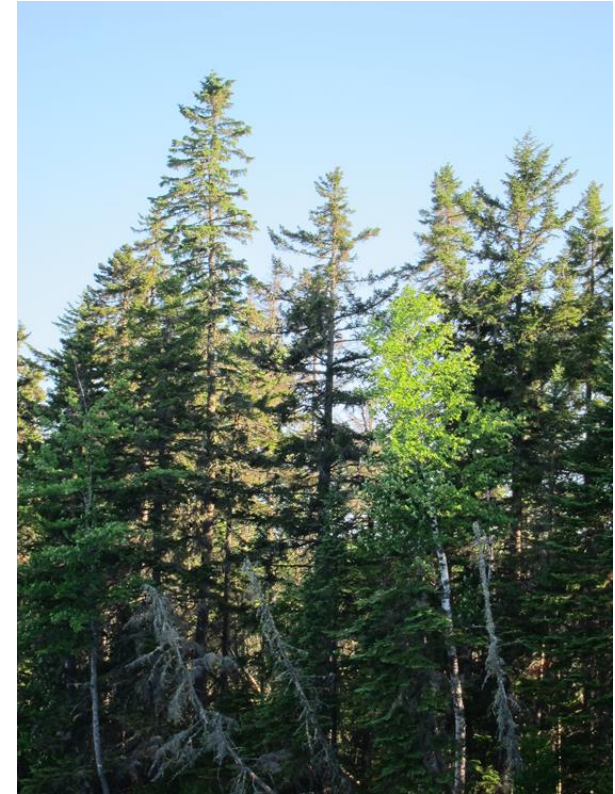
Core Spruce fir type



- S-F type Gp less tamarack and cedar
- 83% of s-f cord volume in Me is in core type
- Ave stocking 13 cds/A – lowest in Northern Forest
- Past s-f stocking in mixedwood types Largely over by now
- Acreage trend? Does it matter?

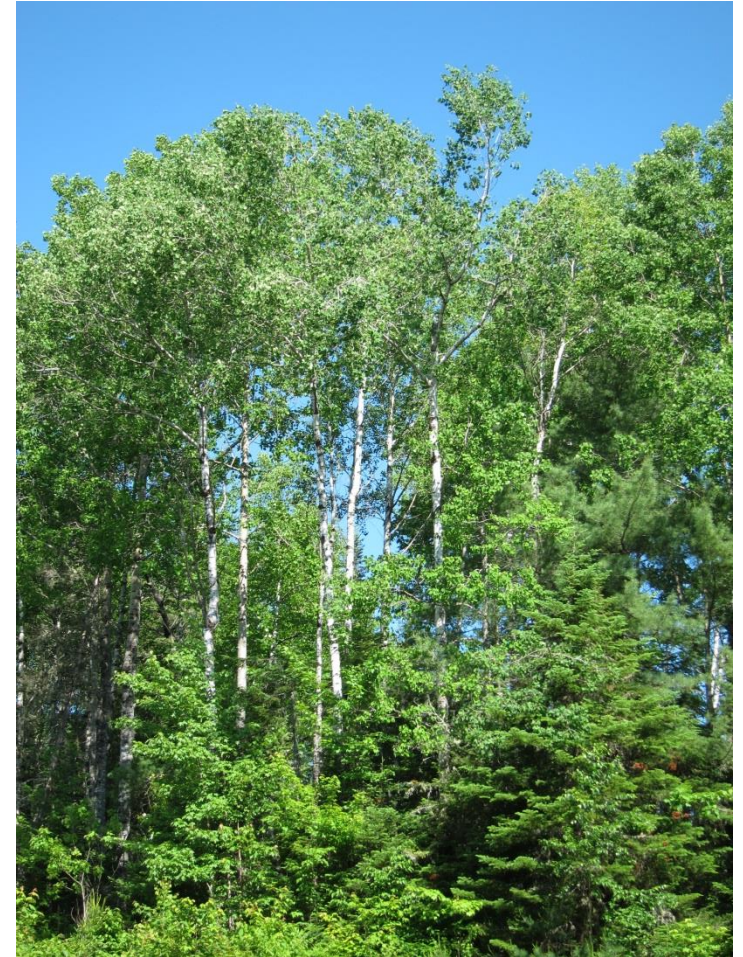
What do we want to Grow in spruce fir stands?

- The best quality, most vigorous stems!
- If they happen to be spruce fir, so much the better!
- How to do this:
 - Focus on crop trees
 - Do not homogenize stand at PCT stage or first thins
- No more blanket prescriptions for cut units
- Protect regeneration



What do we want to grow in our hard/mixedwood Stands?

- As much spruce-fir as possible!!!!
- How do we do this?
 - Disciplined marking and logging practice
- Struggling to keep stands in a “box” strangles our thinking!



Economics 101

- If you keep eating the seed corn sooner or later you starve
- Don't take out logs/trees with negative stumpage values!
- Care for/release well established natural regeneration
- Focus actions on your best sites



Figure 2-15. Timberjack 1110 forwarder working in 50% relative density reduction PCT plot at Austin Pond.

Econ 101 cont....

- Economics is about least cost ways to attain goals
 - Should not define the goals
 - In practice \$\$ constraints end up doing so...
- Look closely at what it's costing to do what you're doing
- Grow a diverse species mix for quality
- Identify and change practices that are in the way
- Try Things

More Economics....

- Projected real price growth should be the frosting
- Value upgrading is the cake!

Well-known abuse: prolonged Below Cost timber sales controversy on the NF's

- In evaluating future investments:
 - Your own assumptions matter more than which investment criterion you use
- If you don't re-invest, the downward spiral never ends

Intermediate Treatments

- Abundant R&D done in Maine and New Brunswick; Economics has been done
- Hard to keep track of all the moving parts
- In an economy of extreme capital rationing and high risk, few offer attractive paybacks.
- BUT –must keep trying, experiment, learn
- Bias for commercial treatments/short payback periods



Five owners in 20 years....

And more....

- IRR's or NPV's can be used used to compare projects of similar:
 - Size
 - Time duration
 - Risk profile
 - Cash flow profile
 - Salience to the business
- Economics can support sound decisions, usually cannot make them for you

Box 5: Rotation ages and \$\$ calcs



- Foolish to let 20 year old calculations decree today's rotation ages
- The MAI curve usually has a broad plateau – which means a range of ages will work.
 - Don't be compulsive about calculating “the” rotation age
 - Rotation age should be when the tree/stand loses vigor and ceases to gain growth % on its own value (unknown in advance)
 - (yes—old –fashioned financial maturity)

Rotation ages, cont...

- Intermediate treatments will change optimum rotations
- Adding in land costs not necessary— will get wrong answer
- Adding in taxes, matter of taste
- Even where set by policy, useful to know opportunity cost

Nonfinancial or Diffuse Goals

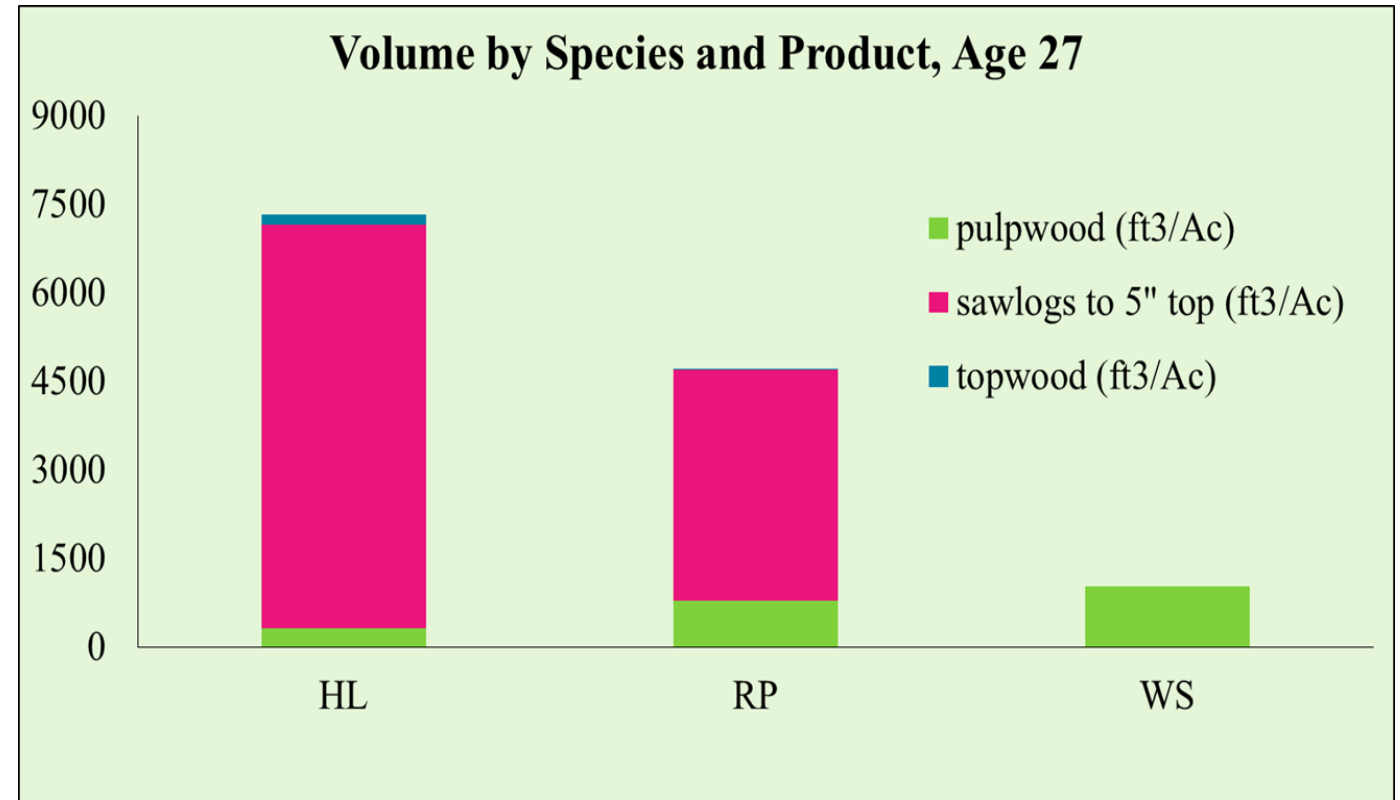
- Recreation
- Restoration to desired conditions
- Fire hazard reduction – protecting adjacent property
- Cost-effectiveness remains important!



Ossipee Barrens, NH

Want to Boost Growth? Plant Larch!

- Mystery:
- Why is everybody planting and treating
- the slowest growing species we have?????



Chase Stream plantations –unthinned
See www.larchresearch.com



13 year old stand. Former
Mead Lands.

Another mystery: If “there’s
no market”, why are these
stands disappearing????

Box 6: Two forgotten kinds of Cost

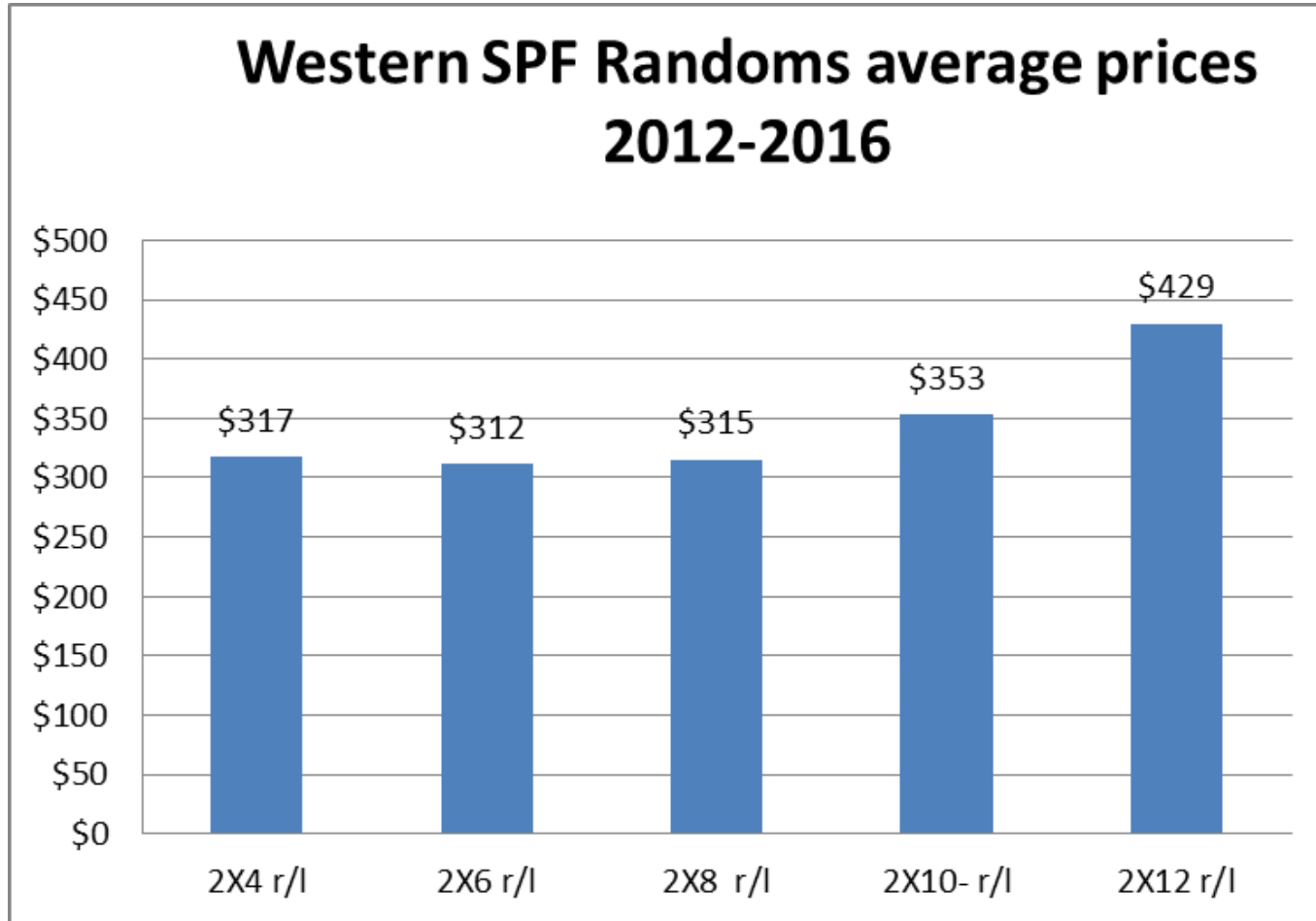


- Forgotten economics lessons:
- **Opportunity cost** –see above slide
 - What do you lose by cutting this stand at this age????
- **Irrelevance of Sunk Cost**
 - Decisions should not be ruled by past investments
 - These cannot be changed
 - Decisions are about the future

This stand Cost a lot: But Is this what we really want?



So, we'll spend this kind of money to grow Studwood and unmarketable pulp?????



Random Lengths no longer quotes ESPF lumber wider than 6"

For Western,
2X10 is worth \$41/M more than 2X6
2X12 is worth \$117/M more than 2X6
Think about it....

Is all of this Practical?

- No, it's not -- Not all of it
- And not all at one time
- Two things are NOT practical:
 - The traditional posture of fatalism and passivity regarding markets.
 - Continuing to do what we're doing!
- **TIME TO THROW OUT THE BOX! JUST THINKING OUTSIDE OF IT WON'T BE ENOUGH!**

Questions & Comments & Better Ideas?

- Thanks for your
Time and attention

