

# Growth and yield models for improved Sitka spruce

Talk to the Timber Quality Steering Group,  
Northern Research Station

by Tom Jenkins

Project manager: Forest mensuration growth and yield

11<sup>th</sup> June 2009

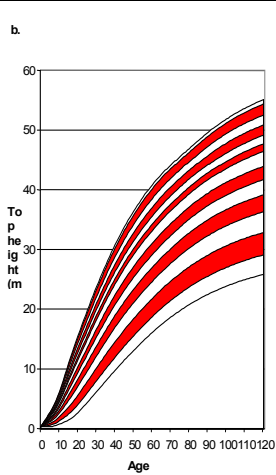
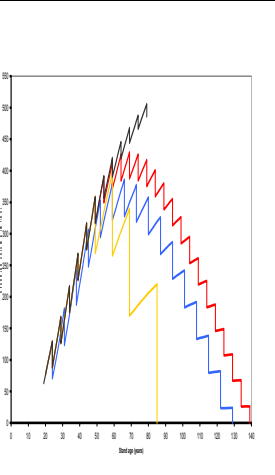
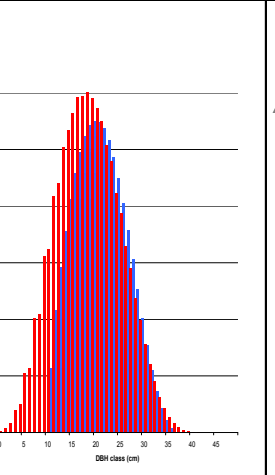
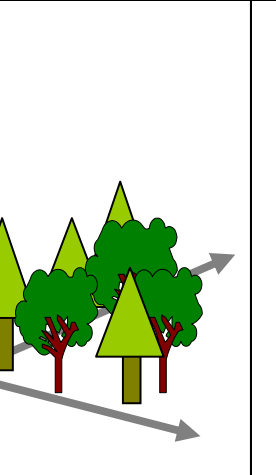
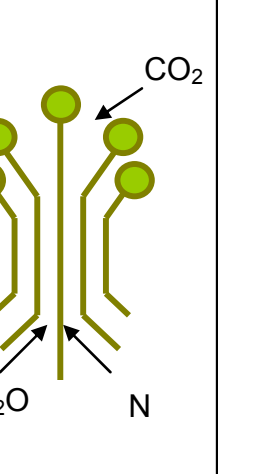
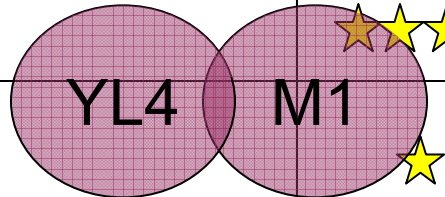
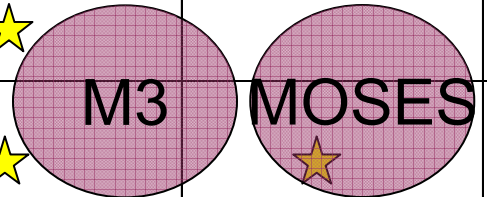
- Update on the current state of development of growth and yield models within Forest Research
- Questions underlying the use of these for modelling production from improved Sitka spruce
- Wider issues
- Example output

# Where are we now?

## Growth models currently under development

- Yield Lookup (Forest Yield)
- M1
- M3 (Dynamic Forest Yield)
- M1-CCF
- DSORT
- ASORT
- BSORT
- CSORT
- MOSES.

## Strategic approach: 'M-series' model classification

Type	M1	M2	M3	M4	M5
Detail					
Production Forecasting	★★★★	★★★★	★★	★	
Decision Support	★	★★	★★★★	★★★★	★
Scenario Analysis		★★★	★★		
Climate Change Impacts					★★★★

## Yield Lookup (Forest Yield)

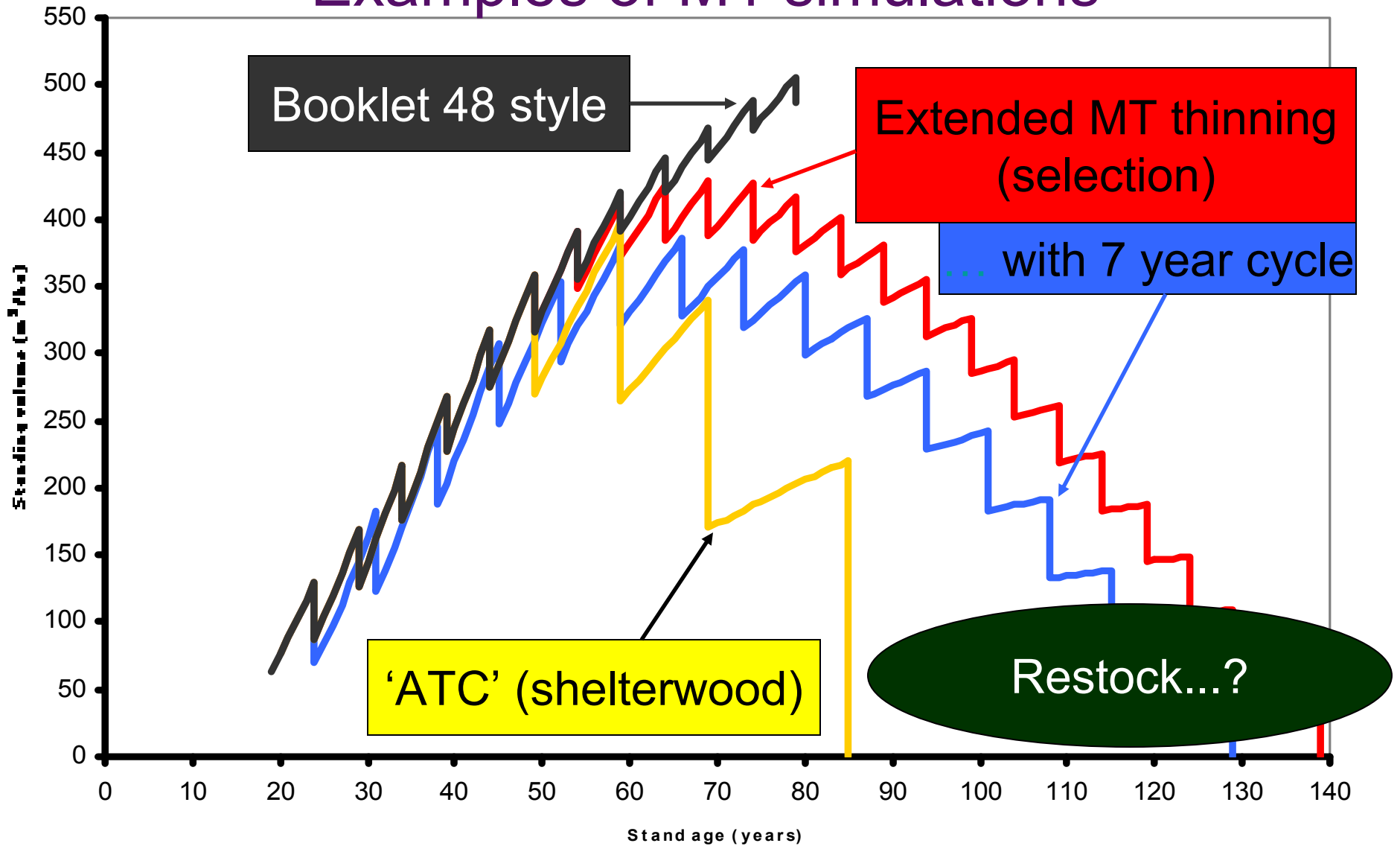
- Electronic presentation of Booklet 48
- Stand-level estimates
- Static yield tables
- Extended to later stand ages than in Booklet 48
- Includes 'LISS' yield tables
- In final stages of development
- 'Polished' user interface
- Being prepared for publication end 2009

## M1 growth model

- Dynamic representation of Booklet 48
- Based on 'Christie' paradigm
- Stand-level estimates
- Wide range of thinning regimes
  - cycle, type, intensity
- Some representation of LISS
- Advanced stage of development
- Already in use within FC PF system
- 'Dirty' user interface
- Currently no plans for publication.



## Examples of M1 simulations



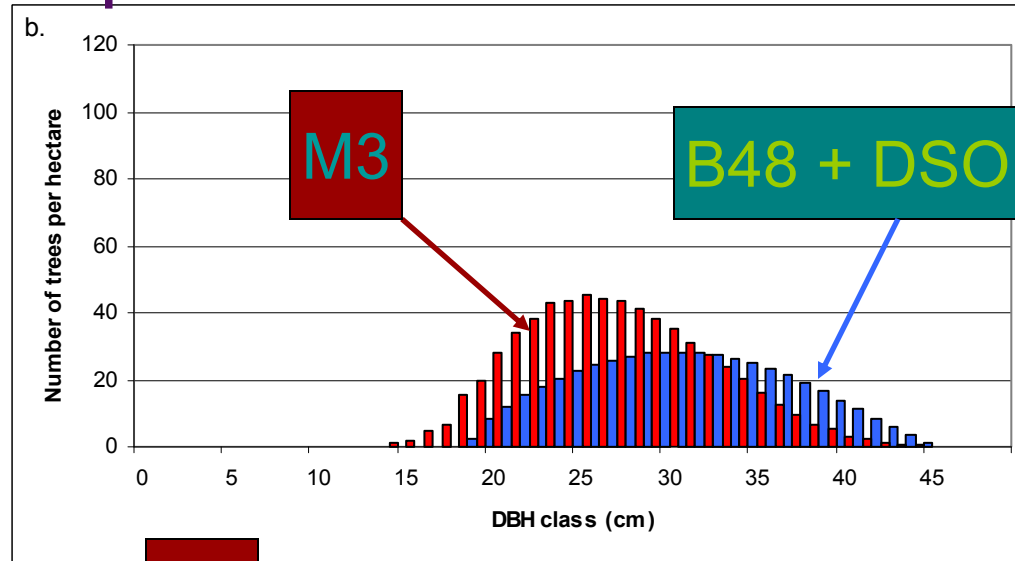
## M3 growth model (Dynamic Forest Yield)

- Dynamic representation of tree size classes
- Stand and tree level estimates
- Wide range of thinning regimes
  - cycle, type, intensity
- Some representation of spatial variation
- Advanced stage of development
- ‘Polished’ user interface
- Should be published in due course.

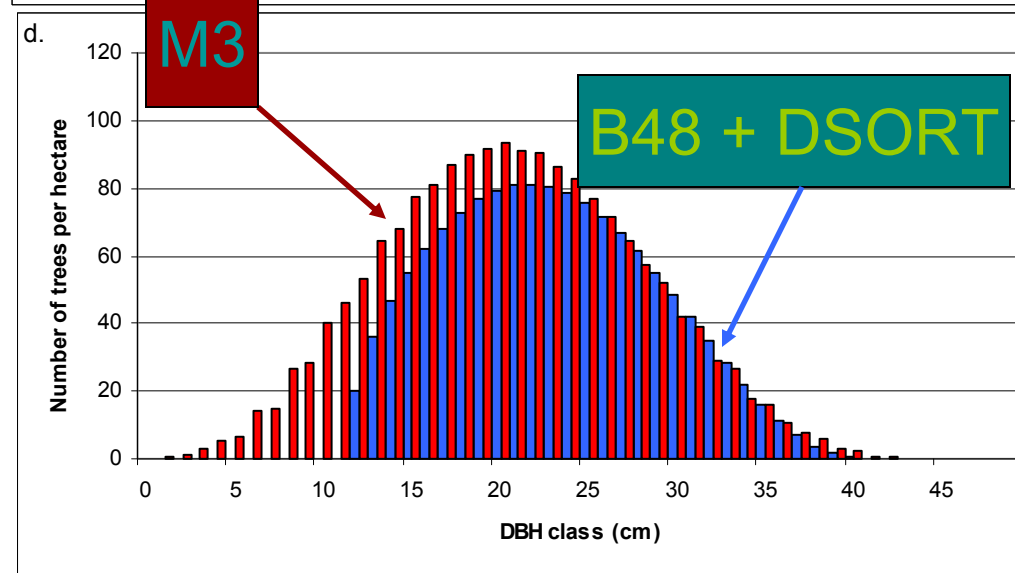


# M3 predictions: dbh distribution

MT thin



No thin



# Modelling improved Sitka spruce

- We have a number of working models of varying sophistication
- We will however need further information in order to appropriately apply the best of these to improved Sitka spruce
- The necessary input assumptions will ideally be informed by hard data...  
...although it is likely that we will have to make a number of “intelligent guesses”.

- The diameter distribution is likely to be narrower in improved SS...  
...but by how much?  
...will the shape of the distribution change?
- Mean tree diameter may be greater at a given age...  
...but by how much?
- Because of the anticipated uniformity of the distribution, will the upper tail contain as many [larger diameter] trees?

- Will tree mortality be the same as in stands of “traditional” origin?  
(A change in mortality will affect stocking levels, and consequently mean tree size).
- All of the above will have an effect on the volume assortment...  
...but how significant will this be in economic terms?

# Wider issues...















