

*Growing Valuable Broadleaved Tree Species, VALBRO*

*6<sup>th</sup>-8<sup>th</sup> October 2008, Freiburg, Germany*

## **Saw log recovery and quality of birch from commercial thinning stands in Finland**

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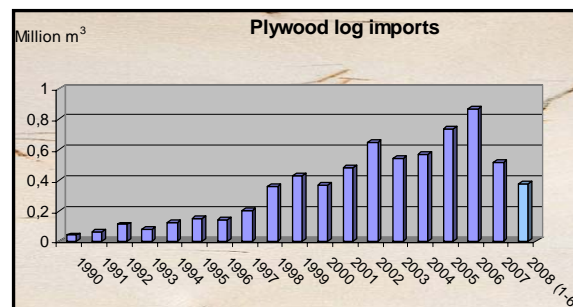
*06.10.2008*

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### Background

- Increase in the volume of imported birch logs during the past 15 years => imports cover up to 50% of the total birch log consumption in Finland
- Roundwood export duties set by Russia => log importing too expensive from the beginning of 2009 => shortage of logs
- Ca. 250 000 hectares of planted silver birch + naturally regenerated birch
- *What is the quality of birch logs harvested from the thinning stands?*



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### Study objective

- Determine the timber quality of silver birch (*Betula pendula* Roth) and European white birch (*B. pubescens* Ehrh.) from the first and second commercial thinning stands in Central and East Finland
  - Branchiness
  - Stem form
  - Size
  - Peeling experiments



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### Materials (1): Domestic thinning stands

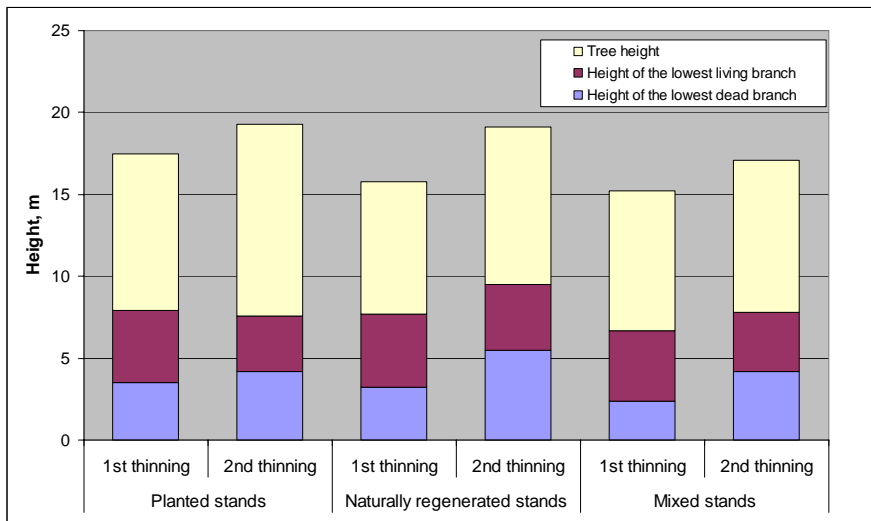
Stratum	N of sample stands	N of sample trees	
		<i>B. pendula</i>	<i>B. pubescens</i>
Planted stands			
1. First thinning	19	2941	62
2. Second thinning	7	1410	0
Naturally regenerated stands			
3. First thinning	4	34	810
4. Second thinning	8	57	1144
Mixed stands			
5. First thinning	5	28	490
6. Second thinning	5	142	650
<b>All</b>	<b>48</b>	<b>4612</b>	<b>3156</b>

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### Results: Branchiness sections

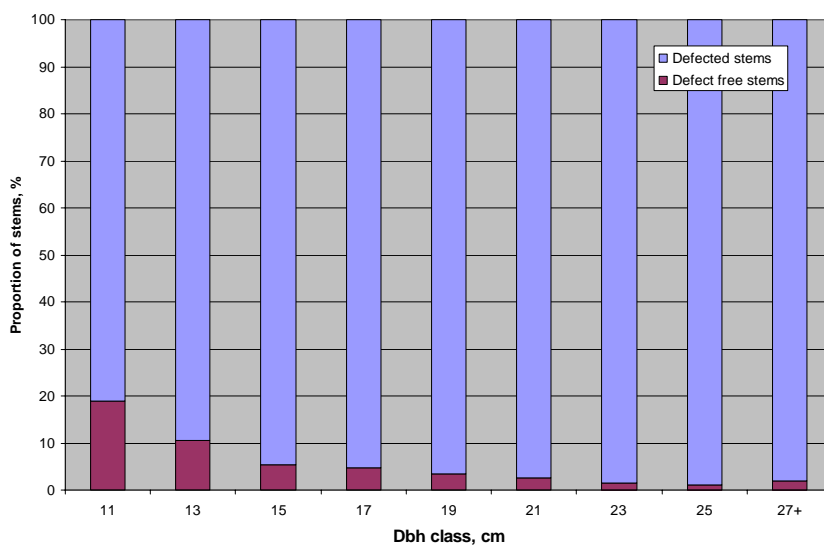


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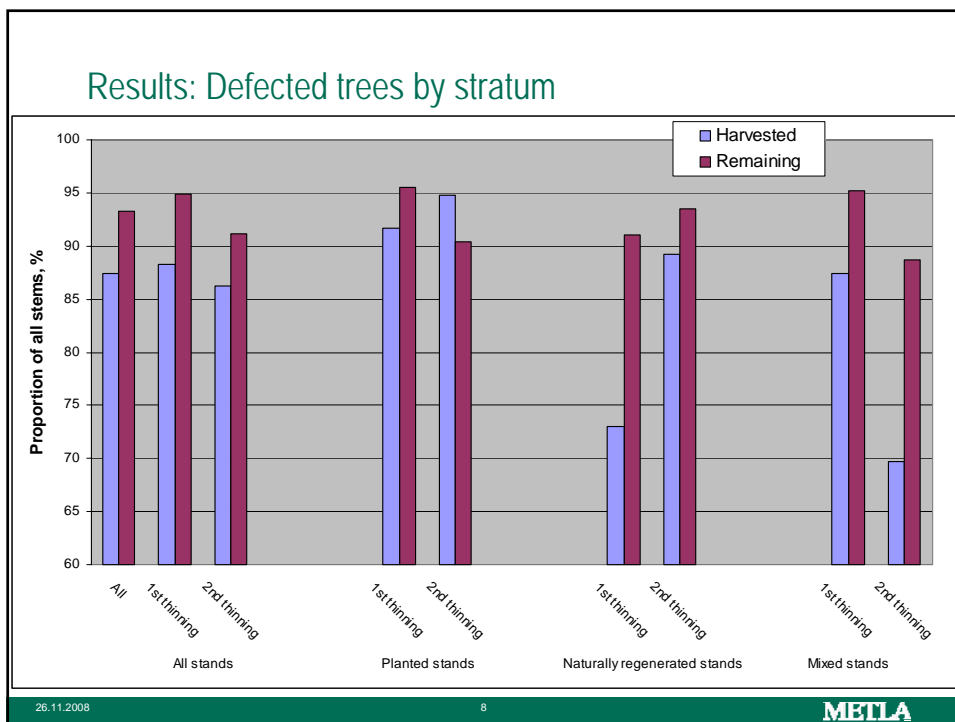
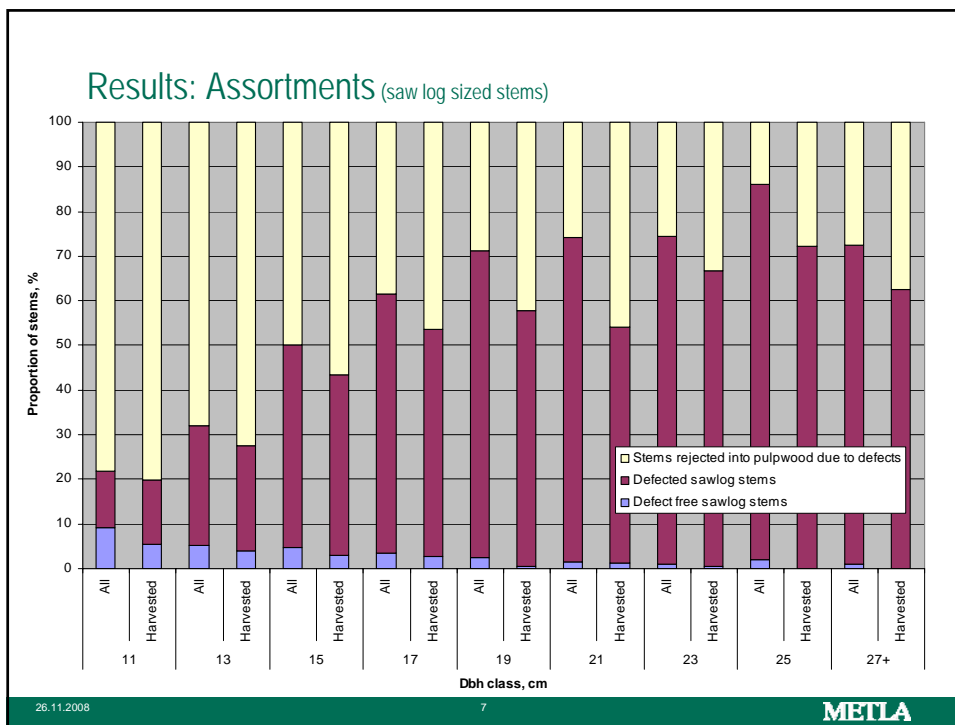
### Results: General quality (entire material)



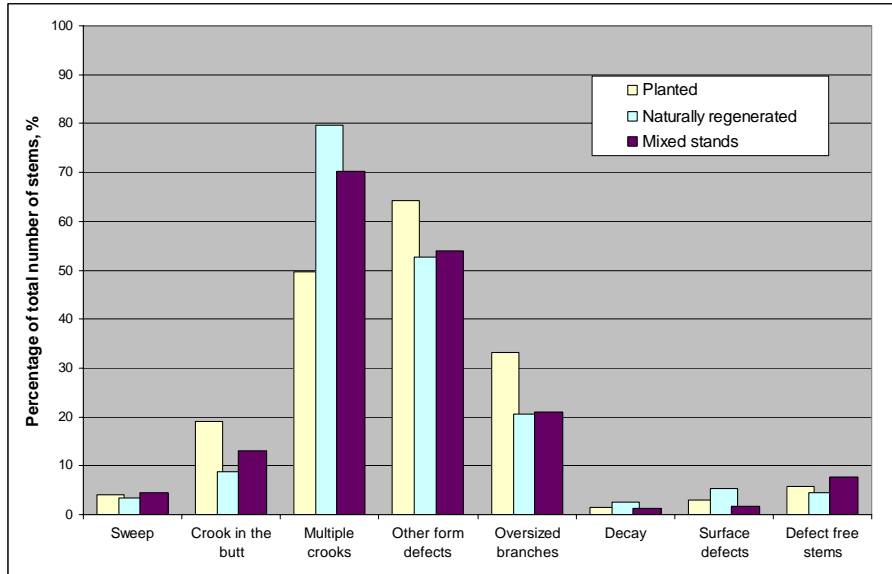
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### Results: Occurrence of defects (all trees, before thinning)



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Thinning stands vs. final fellings: small logs => poorer stem form => poorer yield in sawing or peeling



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An efficient stem form modifier: *Alces alces*



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An efficient knottiness modifier: Fiskars (or other secateur)

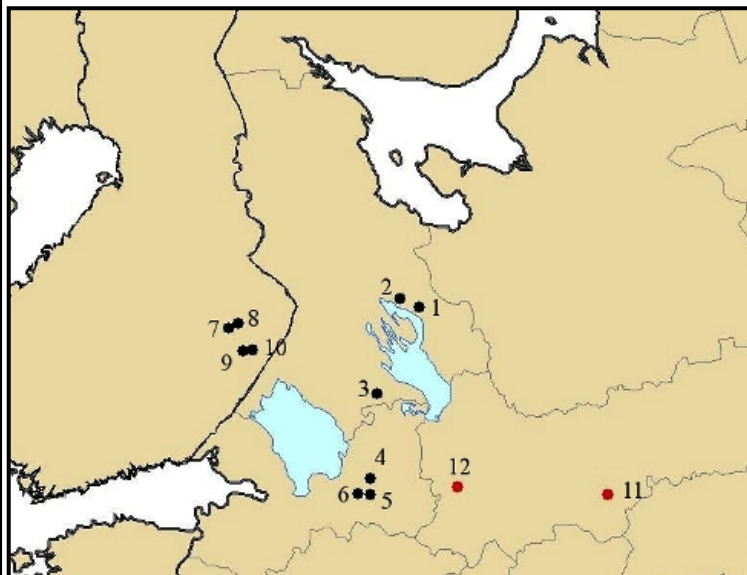


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### Materials (2): Russian birch vs. Finnish birch from thinnings?



- Measured sample stands
- Departure stations of train samplings

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### Timber procurement chain from Russia to Finland

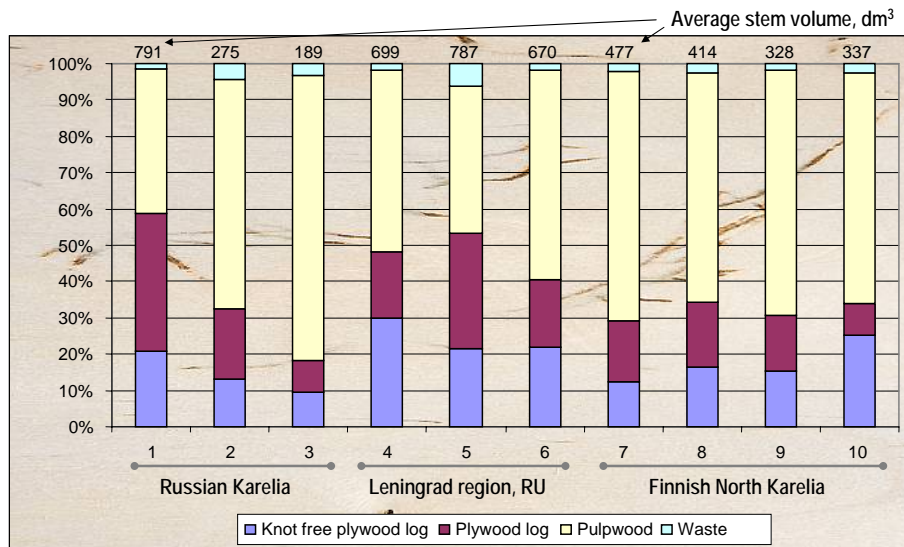


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### Distribution of timber assortments, simulated plywood log bucking (based on measurements of standing trees)

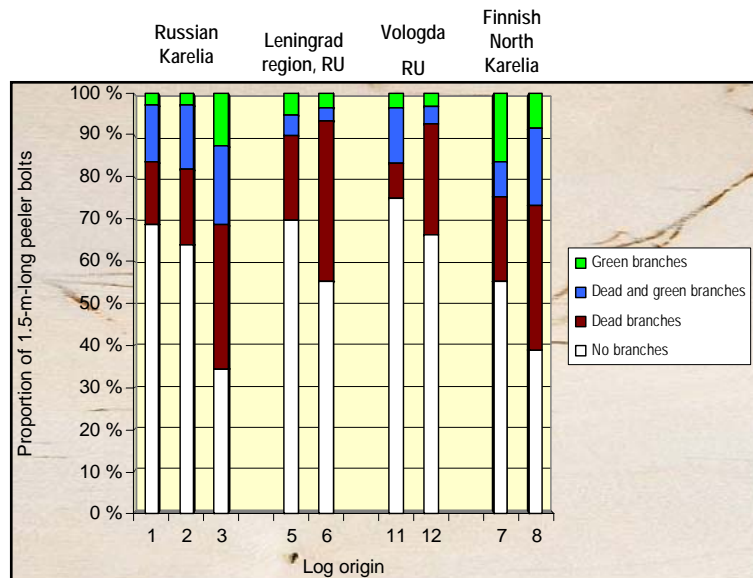


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### Branchiness of peeler bolts



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## Peeling



- Peeling experiments
    - 9 lots, ca. 30–60 m<sup>3</sup> each
- => totally ca. 500 m<sup>3</sup> of peeled logs

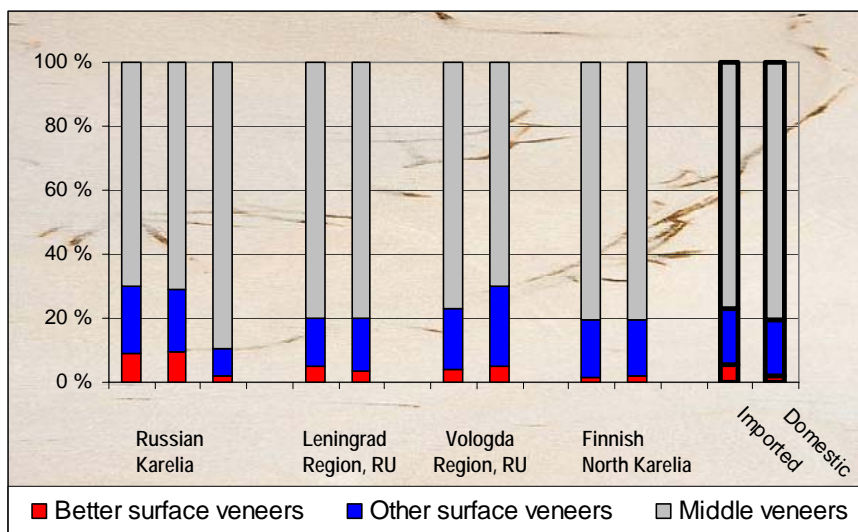


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## Veneer grade distributions



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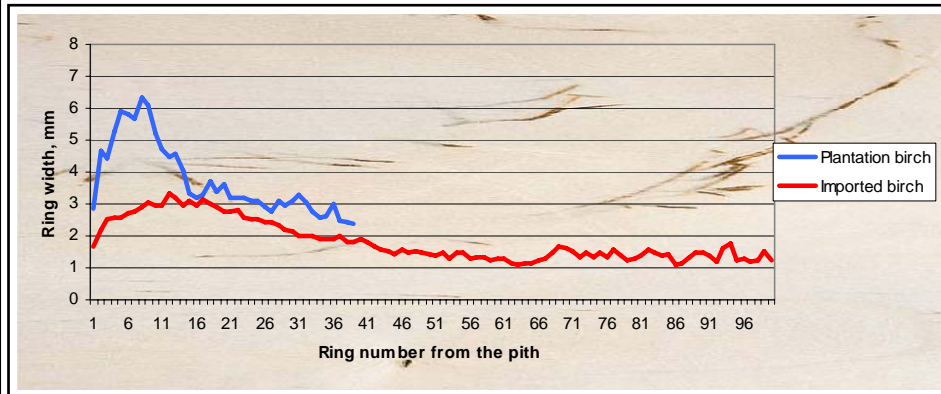
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## Wood density and growth rate

### Average basic densities

- Imported materials: 483 kg/m<sup>3</sup>
- Finnish materials: 464 kg/m<sup>3</sup>



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## Summary

- Some 10-30 per cent of the thinning removal of birch stands is suitable to plywood production or sawing
- Stem form defects are most often the reasons for degrading
- Until a certain size (dbh at least 7+ cm), birch seedlings/young trees are very susceptible to moose damages => stem form defects, discolouration, growth decline
- Pruning small enough trees is an effective way to increase the value of trees
- Quality fluctuations among the Russian materials are significant in comparison to the Finnish cultivated birch stands with relatively homogeneous trees
  - Percentage of waste (at mill) varies from 0 to 20
- In Russia, bucking the stems according to the customer needs is a major challenge
- Quality of imported birch timber strongly depends on the supplier of the material
- *What is going to happen to the 15-20 Million m<sup>3</sup> of birch timber harvested annually in N-W Russia, as the Russian use covers max. 1/3 of that volume?*

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## Questions

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