

Forest

Knowledge

Know-how

METLA

Well-being

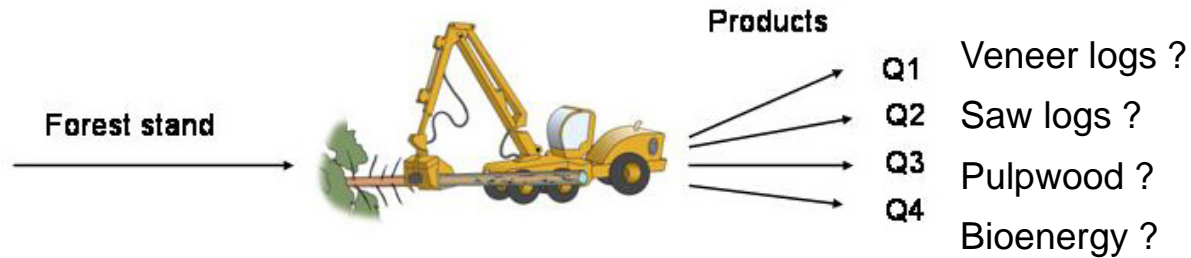
Activity-based costing in wood value chain: Sawmilling case

Heikki Korpunen & Jori Uusitalo

WSE, Oslo, 27.10.2011



Backgrounds of the study



- Need for information to support decisions in forest
 - In CTL-method, the harvesters need information for tree bucking control
 - Each link of a wood value chain affects the other
- Market information of timber assortment prices is not objective
- A costing model that describes the relations of raw material and end products?

Aims of the study

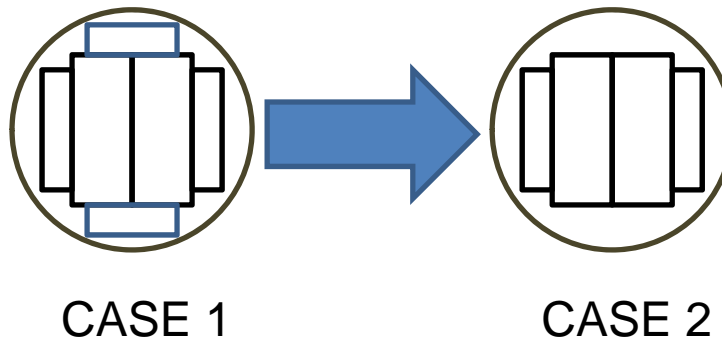
- An activity-based costing (ABC) model for a large scale industrial sawmill (Scots pine and Norway spruce)
 - Adaptable model for sensitivity analysis: how does the log distribution or sawing pattern affect the production costs
→ production costs direct the upstream flow of raw materials
- Simple test for the applicability of the ABC model

General structure of the “virtual” sawmill ABC model

- Annual production: max 180 000 m³ finished lumber
 - Roughly 350 000 m³ roundwood
- Production was divided into processes
 - Seven production processes + wood chip and sawdust line and general administration
 - 32 workers
- Establishment expences of the sawmill: 29,4 million Euros

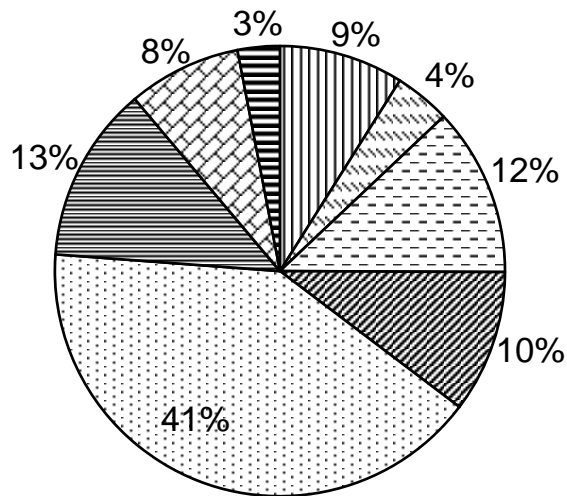
Case calculations

- The aim was to test how the sawing pattern affects the production costs and profits
- Fixed factors of production:
 - 16 log classes
 - Prices of rawmaterials and products
 - Configuration of the production
- Variable factor:
 - Sawing pattern



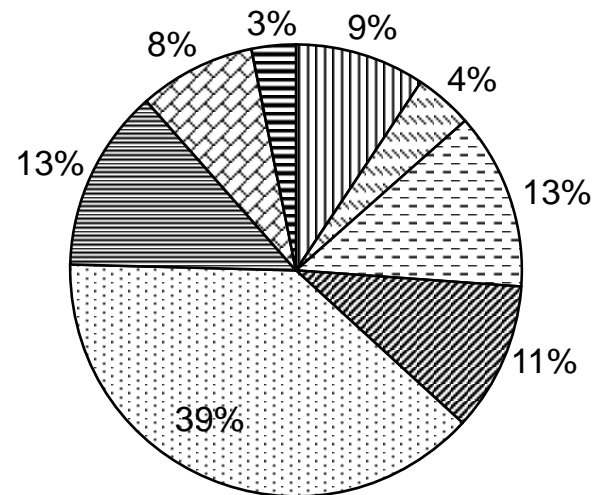
Results: Costs

CASE 1



187 546 m³ lumber
Annual costs 6 million €

CASE 2



157 514 m³ lumber
Annual costs 5,6 million €

- ▣ Receive, unload, log sorting
- ▣ Debarking
- ▣ Sawing and edging
- ▣ Green sorting and stickering
- ▣ Drying
- ▣ Quality sorting and packing
- ▣ Storing and shipping
- ▣ Lower floor of sawmill

Results: Profits

- **Case 1, costs (€/solid-m³)**
 - Lumber: 32,38
 - Chips and sawdust: 7,43
 - Bark: 2,34
- ✓ **Total profit: +1 029 231 €**
- **Case 2, costs**
 - Lumber: 35,46
 - Chips and sawdust: 6,95
 - Bark: 2,34
- ✓ **Total profit: -2 547 329 €**

Conclusions

- Sawing pattern has a strong effect on the production costs
- Low production costs are not necessarily directly connected to high profitability
 - High utilisation rate of machinery is important
- Future challenges: We will enhance the model further (quality issues) and connect it more closely to raw material guidance at the forest end of the wood value chains

Forest

METLA

KNOWLEDGE

Well-being

Know-how

Thank you

Further reading: Korpunen, H., Mochan, S. ja Uusitalo, J. 2010. An Activity-Based Costing Method for Sawmilling. *Forest Products Journal* 60(5). (2010). pp. 420–431.