Project Meeting QLK5-CT-2002-30221 IMACFORD

"Improving and Advancing Co-ordination of Forest Research and Development in Europe"

SONAE INDÚSTRIA

Óbidos - April, 7th and 8th 2003

"Different Logs Have Different Values"

Company: SOMIT - Sociedade de Madeiras Industrializadas e Transformadas, S.A.
Souselas - Portugal

Scope: Supply of *Pinus pinaster* roundwood for sawmilling, during 2002

Contents:

A. Somit Policy
B. Raw Material
C. Conclusion

A. Somit Policy: "Different Logs Have Different Values"

Goal:

- consider both quality and quantity, in order to obtain the best yield.

Principles:

I. Harvesting

- Felling - minimize material losses, with clean felling cuts;
- Bucking - optimize the operation, in order to minimize the effects of sweep and crook and considering the wood quality distribution along the tree (once the logs are sorted upon their external characteristics, the same grades can be applied both to standing trees and logs);
- Handling and transportation properly made, with pre-sorting.

A. Somit Policy: "Different Logs Have Different Values"

II. Direct purchase

- buy with quality, in the right quantity;
- know where to buy;
- periodical analysis of roundwood suppliers, based on their margin contribution.

III. Reception at the mill

- Inspection on reception:
  - visual inspection
  - log scanning: information on the length, diameter, sweep and taper
- Types of defects:
  - qualitative: related to the wood quality and determine the quality class of the log, with its value
  - quantitative: influence on yield loss, while processing the log
- Log piles managed by length, diameter and quality grades.

A. Somit Policy: "Different Logs Have Different Values"

IV. Trends

- Apply the concept:
  - Quality Logs (Q.L.) ⇔ End Product Quality (E.P.Q.) → Qualidade Index (Q.I.)
- Quality Index (Q.I.) - establishes the relation between the log quality and the end product quality (sawn timber), with the following advantages:
  - allows a direct comparison between the quantity and the quality of the logs;
  - supplies a tool for a comparative analysis of the sawn timber yields;
  - allows the value analysis over different time periods, without price influence.

B. Raw Material: Log Parameters and Their Influence on the Activity

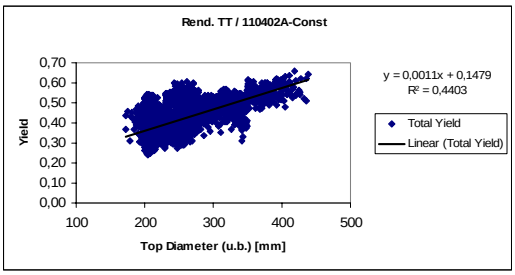
Parameter	Raw Mat. Cost	Sawing Yield	Runnability	End Product Quality
Log length	✓	✓		
Bark content	✓	✓		
Density	✓	✓		
Diameter (u.b.)		✓		
Taper		✓	✓	
Sweep / Crook		✓	✓	
Knots			✓	✓
Resin pockets				✓
Sap- Heartwood				✓
Decay	✓	✓	✓	✓

B. Raw Material: Somit Profile - 2002

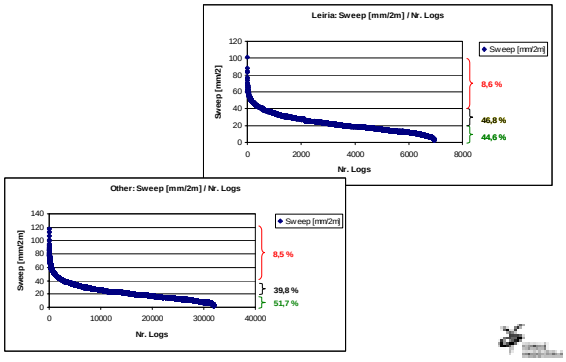
Parameter	YTD – 2002
Roundwood purchase	100.000 ton (w.b.*[1])
Bark content	11,0 – 13,0 % (weig.)
Density (kg wt.b.*[2] / m^3 wt.b.)	1050 – 1070 kg/m^3
"Density" (kg w.b. / m^3 w.b.)	1180 – 1230 kg/m^3
Timber defects:	(vol.)
- Metal	2,0 %
- Others	3,0 %
Overlength (>50mm)	45,0 %
Diameter classes (u.b.):	(vol.)
< 140mm	1,5 %
140 – 179mm	25,0 %
180 – 239mm	40,0 %
240 – 329mm	26,0 %
330 – 430mm	7,0 %
> 430mm	0,5 %

*[1] w.b. – with bark | *[2] wt.b. – without bark

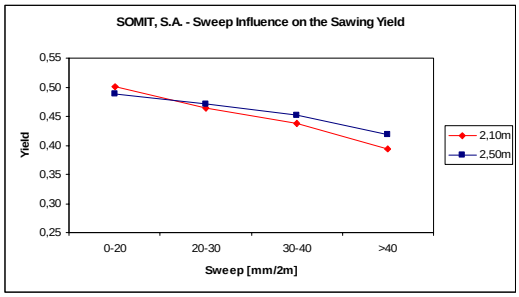
B. Raw Material: Top Diameter *vs.* Sawing Yield



B. Raw Material: Sweep - Differences Between Leiria and Other Sites



B. Raw Material: Sweep - Influence on the Sawing Yield



B. Raw Material: Producing Timber for Carpentry - Knots / Resin pockets / Sap- Heartwood

Sawn Timber Quality Grading	Ratio
AA	4,8 %
AB	11,2 %
BB	21,6 %
Pallet	61,4 %
Decay	1,0 %
TOTAL	100,0 %

Grade	Description
AA	Without defects on 4 sides
AB	Without defects on 3 sides
BB	With allowable defects on 4 sides

C. Conclusion

Conclusion:

- Map the forestry areas, regarding:
  - available quantity
  - available quality (quality classes)
  - diameter classes, for length classes
  - diameter breast height
  - bark content
  - density
- Control the log geometry:
  - diameter
  - sweep
  - taper

C. Conclusion

- Control the log quality:
  - knots
  - resin pockets
  - heartwood content
- Control the decay:
  - blue stain
  - others (with detection methods)