

Contribution 160 in session "Wood supply chain management and decision support tools"

Optimized scheduling of harvesting teams

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Accurate planning of harvest activities is crucial for an efficient and profitable procurement of round wood. The planning is however complicated due to many decisions with a large number of alternatives to consider. First, the choice of stands to harvest has to match the present demand from mills. The demand can be met differently depending on which bucking pattern that is used in each stand. Second, the choice of which harvest team should be assigned to which stand and in which order is depending on the stand prerequisites, the harvest machinery configuration and where the stands are located compared to home bases of the teams. Third, decisions must be made on which volumes should be allocated to which mill and if some volumes need to be stored.

We describe a system where a sequence of models is used to solve the overall problem while minimizing costs and maximizing revenues. The solution gives a detailed schedule (day by day) of the harvest activities on a monthly level and an aggregated solution on a yearly level. The detailed schedule shows on a daily level which stands to harvest by which teams, which bucking pattern should be used and to which mills the volumes should be transported.

The system is tested in a case study with real life data at a large forest company in Sweden. Results and experiences from the case study are presented as well as how the models can be implemented using existing systems for wood procurement planning.