

## Boom corridor thinning - a harvester's working method for young dense stands

Boom corridor thinning (BCT) is a harvester's working method for young stands. In BCT, trees are harvested in corridors from the strip road at the length corresponding to the harvester's used crane's reach (about 10 m) and the width and density of the corridors depends on the stand structure. Respectively, in the Nordic countries, forests are usually thinned using selective thinning from below (ST), where, primarily, the smallest, poorer and possibly damaged trees are removed. The BCT was first studied in the early 2000s in Sweden in young dense small diameter stands. The idea of BCT was further developed for the Finnish forests in 2017-2019 in cooperation between Luke, the Finnish Forestry Center and UPM.

Compared to the ST the advantage of BCT is that the harvester head is able to move in corridors more smoothly and faster, whereas in ST the constant care of standing trees slows down the crane movement. In Sweden, in actual test cuttings of dense small-diameter first thinning, the productivity of BCT was 15% higher than in ST. Respectively, in Finland, in pulp wood first thinnings with bigger stem volume of removal, BCT reached at its best productivity jump of 44%.

After BCT, the number of stems per hectare is higher and the stand is more uneven structured as in ST. However, the number of future crop trees is at same level. According to the latest study (Nuutinen et al. 2021) the saw log volume per hectare of BCT will stay at the same level compared to ST if the intermediate thinnings are made by ST. The reason for this is that ST smoothes the spatial grouping of BCT-stands.

BCT is primarily suitable for dense unmanaged young stands where traditional ST is not profitable. Moreover, BCT can be conducted without cost-intensive pre-clearing of the undergrowth (about 300 € per hectare) creating post-stands with higher biodiversity enabling the management of continuous cover forestry.

BCT is a potential forest management method but it requires the cooperation of actual forestry and research and educational organizations.



Figure 2. In the study of Nuutinen et al. (2021), boom corridor thinning (left) and selective thinning from below (right) in young birch stand with dense spruce undergrowth (Photo Luke/Mikko Tirkkonen)

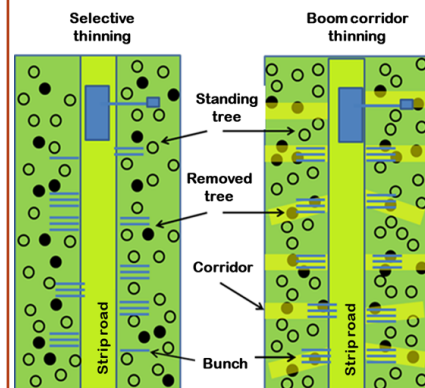


Figure 1. Schematic representation of the boom corridor thinning and selective thinning from below methods (Figure Yrjö Nuutinen & Timo Muhonen/Luke)

### KEY WORDS

Forest biomass, first thinning, systematic thinning

### COUNTRY

Finland

### AUTHORS

Yrjö Nuutinen (Luke)  
Timo Muhonen (Luke)

### DISCLAIMER

This Practice Abstract reflects only the author's view and the Branches project is not responsible for any use that may be.

### DOWNLOAD

[www.branchesproject.eu](http://www.branchesproject.eu)

## ADDITIONAL INFORMATION

### Possibilities of boom corridor thinning:

- If the BCT-system is planned by the operator, it is possible to make a choice of dominant trees to be grown as in selective thinning.
- The BCT stands meet the Finnish forest management recommendations (stand density, basal area, logging damage).
- In young unmanaged stands, BCT without pre-clearing leaves the forest uneven structured and thereby an option for continuous cover forestry also for young forests.

### References

Bergström D., Bergsten U., Nordfjäll T. 2010. Comparison of boom-corridor thinning and thinning from below harvesting methods in young dense Scots pine stands. *Silva Fennica* 44(4): 669–679. <https://silvafennica.fi/article/134>

Nuutinen ym. 2019. Käytäväharvennus – Menetelmä nuorten metsien ensimmäiseen koneelliseen harvennukseen. Kehittämishankkeen loppuraportti [Boom corridor thinning – a method for harvester’s thinning of young stands. Final report of the development project]. 41 p. More information in the final report here. [In Finnish].

Nuutinen Y., Miina J., Saksa T., Bergström D., Routa J. 2021. Comparing the characteristics of boom-corridor and selectively thinned stands of Scots pine and birch. *Silva Fennica* vol. 55 no. 3 article id 10462. <https://doi.org/10.14214/sf.10462>. Nuutinen Y. (2021). Corrigendum: Comparing the characteristics of boom-corridor and selectively thinned stands of Scots pine and birch. *Silva Fennica* vol. 55 no. 4 article id 10619. <https://doi.org/10.14214/sf.10619>.

Boom corridor thinning video. [In Finnish]: <https://www.youtube.com/watch?v=C5vIQPKAzhg>



Figure 3. In the study of Nuutinen et al. (2021), boom corridor thinning corridor with energy wood bunch (left) and pulp wood bunch (right) (Photo Luke/Mikko Tirkkonen)



This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 101000375

## ABOUT BRANCHES

BRANCHES is a H2020 “Coordinaton Support Action” project, that brings together 12 partners from 5 different countries.

The overall objective of BRANCHES is to foster knowledge transfer and innovation in rural areas (agriculture and forestry), enhancing the viability and competitiveness of biomass supply chains and promoting innovative technologies, rural bioeconomy solutions and sustainable agricultural and forest management.

### PARTNERSHIP

