

Recent study confirms the productivity leap of the Fixteri whole-tree bundler

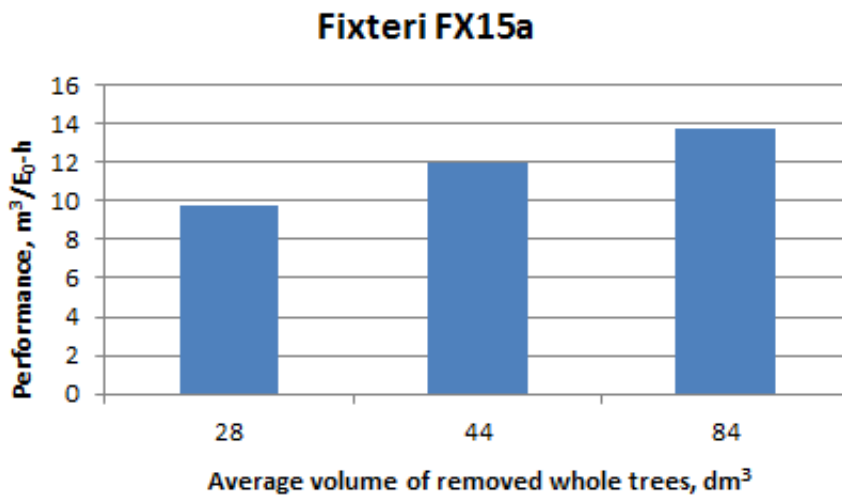
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Credit: Miika Järvinen

First thinnings have been neglected to great extent in Finland and Sweden due to high harvesting costs. The whole-tree bundler was developed in Finland by Fixteri Oy in order to rationalize the integrated harvesting of small-diameter energy wood and pulpwood and to reduce transportation costs through load compaction. In the work study of Finnish Forest Research Institute (Metla) and Skogforsk (Sweden), the performance level of the new Fixteri whole-tree bundler was over two times higher compared to previous model.

The whole-tree bundler is consists of Logman 811FC base machine, Nisula 280E+ accumulating felling head, and Fixteri FX15a bundling unit. The operation of the whole-tree bundler is comprised of cutting and compaction processes. In the study of Finnish Forest Research Institute (Metla) and Skogforsk (Sweden), the performance level and the performance characteristics of the third version of the whole-tree bundler -Fixteri FX15a- in integrated energy wood and pulpwood harvesting from first thinnings were defined based on a work study.



The results indicate that the performance of the new Fixteri FX15a whole-tree bundler is significantly higher than that of the previous prototype, Fixteri II. An average performance per effective working hour of 9.7 m³ was recorded for the new Fixteri model when the [density](#) of removal was 3213 [trees](#) per hectare and the average whole-tree volume was 28 dm³. With an average whole-tree volume of 44 dm³ and removal density of 2016 trees per hectare, a performance of 11.9

$\text{m}^3/\text{E0-h}$ was reached. At an average whole-tree volume of 84 dm^3 and removal density of 1266 trees per hectare the performance was $13.8 \text{ m}^3/\text{E0-h}$. In the study of Nuutinen et al. (2011), an average performance per effective working hour of 4.6 m^3 was achieved with the previous Fixteri II when the density of removal was 1 400 trees per hectare and the average tree volume was 40 dm^3 . Respectively with an average whole-tree volume of 31 dm^3 and removal density of 2 850 trees per hectare, a performance of $5.1 \text{ m}^3/\text{E0-h}$ was reached. Thus, the performance of the new Fixteri model is increased by 1.9–2.6 times, depending on the stand density and mean tree volume of the removal.

Preliminarily, the higher performance level of the Fixteri FX15a is a result of increased multi-tree cutting and improved capacity of the bundling unit.

Provided by Metla

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