

Baltic ForBio, WP 2, GA 2.4

Information about thinning demonstrating biofuel and roundwood production

Information about stand

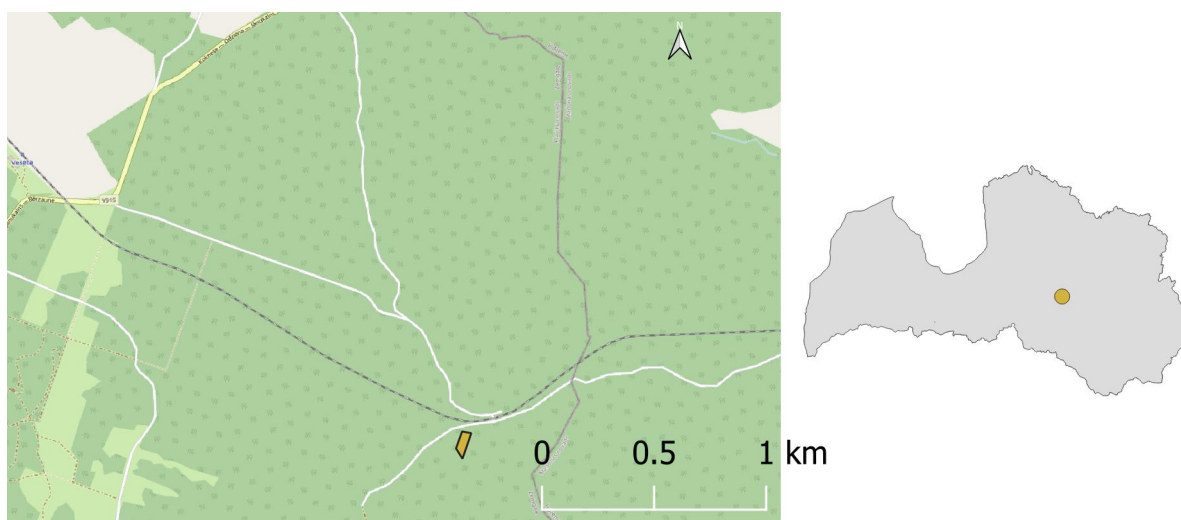
Basic information

State	Latvia
Region	Vidzemes
Stand ID	93-5, <i>Vietalvas region</i>
Area (ha)	0.42
Thinning year / season	2020
Topic	Thinning using Malwa harvester

Characteristics of work environment and soil bearing capacity

Poor logging conditions.

Location of demo site



Coordinates of plot centre: X - 611670 Y - 287440 (LKS92)

Figure 40: Location of compartment⁵⁰.

Stand characteristics before harvesting

Average DBH (cm)	27
Average height (m)	23
Number of trees (trees per ha⁻¹)	516

⁵⁰ Background map from Google maps and map of Latvia from www.envirotech.lv

Growing stock (m³ ha⁻¹)	154
Stand composition	4E4P2B
Stand age during thinning	61
Dominant species	Spruce
Stand type	Dm (<i>Hylocomiosa</i>)

Stand management targets

To increase forest value by extraction of damaged and small size trees and to ensure favorable growth conditions in the stand. Harvesting is done so to reduce negative impact to environment (avoid ruts formation, mechanical damages of remaining trees and soil compaction). Small dimension trees should be used for biofuel production and from bigger trees standard roundwood assortments (small logs and pulpwood) should be produced.

Stand characteristics after thinning

Average DBH (cm)	21
Average height (m)	19
Number of trees (trees per ha⁻¹)	410
Growing stock (m³ ha⁻¹)	123
Stand composition	10E
Dominant species	Spruce

Mechanical damages due to thinning

Damage to the remaining trees does not exceed 2%, no ruts have been detected.

Applied work method in thinning

Work order considers thinning to minimal basal area or number of trees according to average tree height after thinning.

Distance between technological corridors 20 m with "ghost paths" between the corridors, which are used only by harvester.

Logs are located along the technological corridors. Undergrowth trees are not extracted before mechanized thinning.

Harvesting is done using compact class harvester Malwa. Forwarding is done using compact class machine Malwa.



Figure 41: Harvester Malwa and forwarder Malwa⁵¹.

Harvesting productivity

While producing biofuel in pre-commercial thinning (average extracted tree $D_{1.3}$ 13 cm), average productivity of harvester is $8.2 \text{ m}^3 \text{ h}^{-1}$.

⁵¹ Photo G. Saule