

Productivity and cost of biomass production



*Skrīveri
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LATVIJAS VALSTS MEŽI



EIROPAS REĢIONĀLĀS
ATTĪSTĪBAS FONDS



EIROPAS SAVIENĪBA

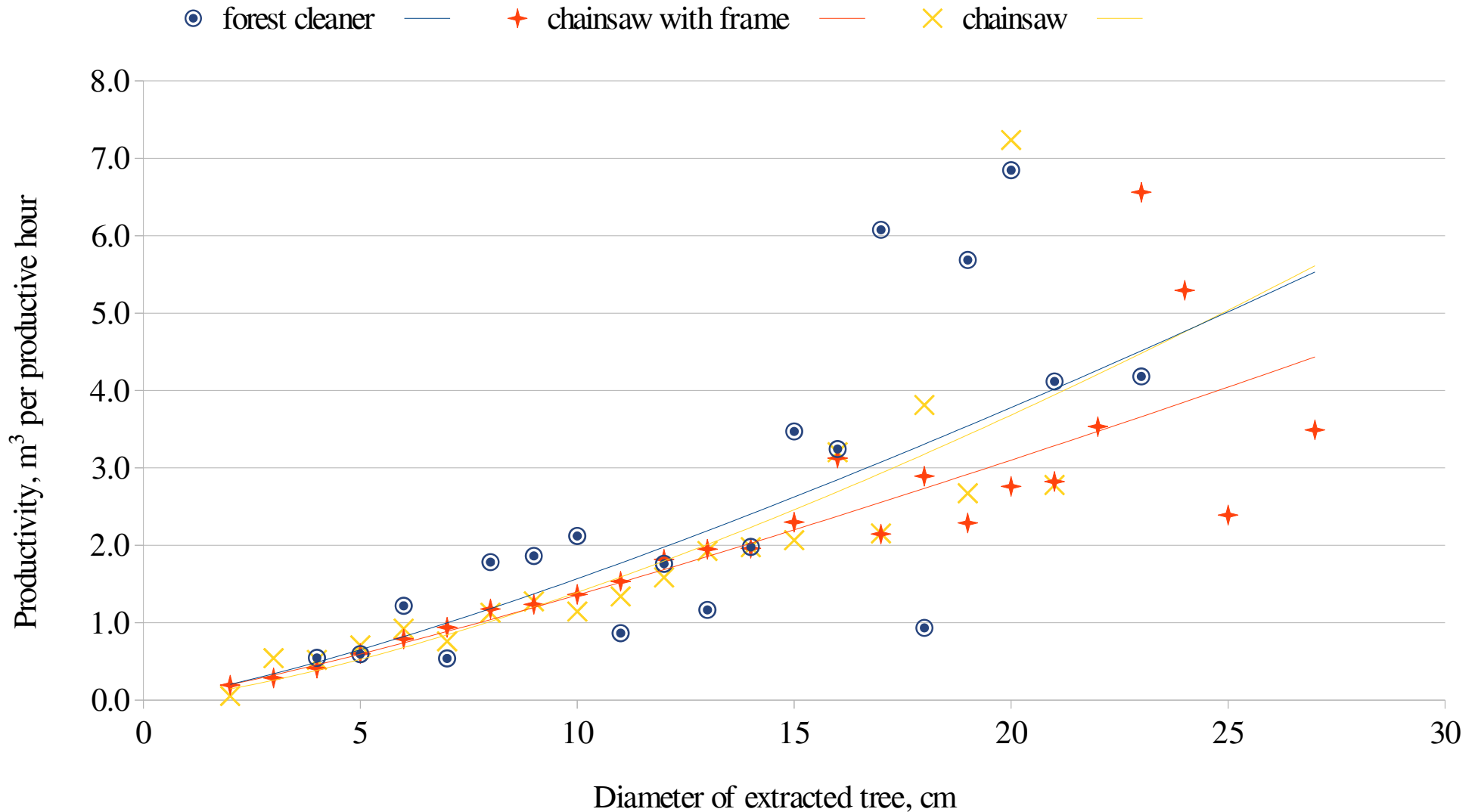
IEGULDĪJUMS TAVĀ NĀKOTNĒ

Comparison of chainsaw with frame and bush saw in thinning



- Stand characteristic:
 - diameter of average tree – 5 cm;
 - extracted biomass - 60 LV m³ ha⁻¹;
- Productivity:
 - chainsaw - 33 hours ha⁻¹;
 - bush saw - 67 hours ha⁻¹
(*additional worker to pile trees*).
- Cost of biomass at roadside:
 - chainsaw – 7 EUR LV m⁻³;
 - bush saw – 11 EUR LV m⁻³.

Productivity of chainsaw and forest cleaner in delayed thinning

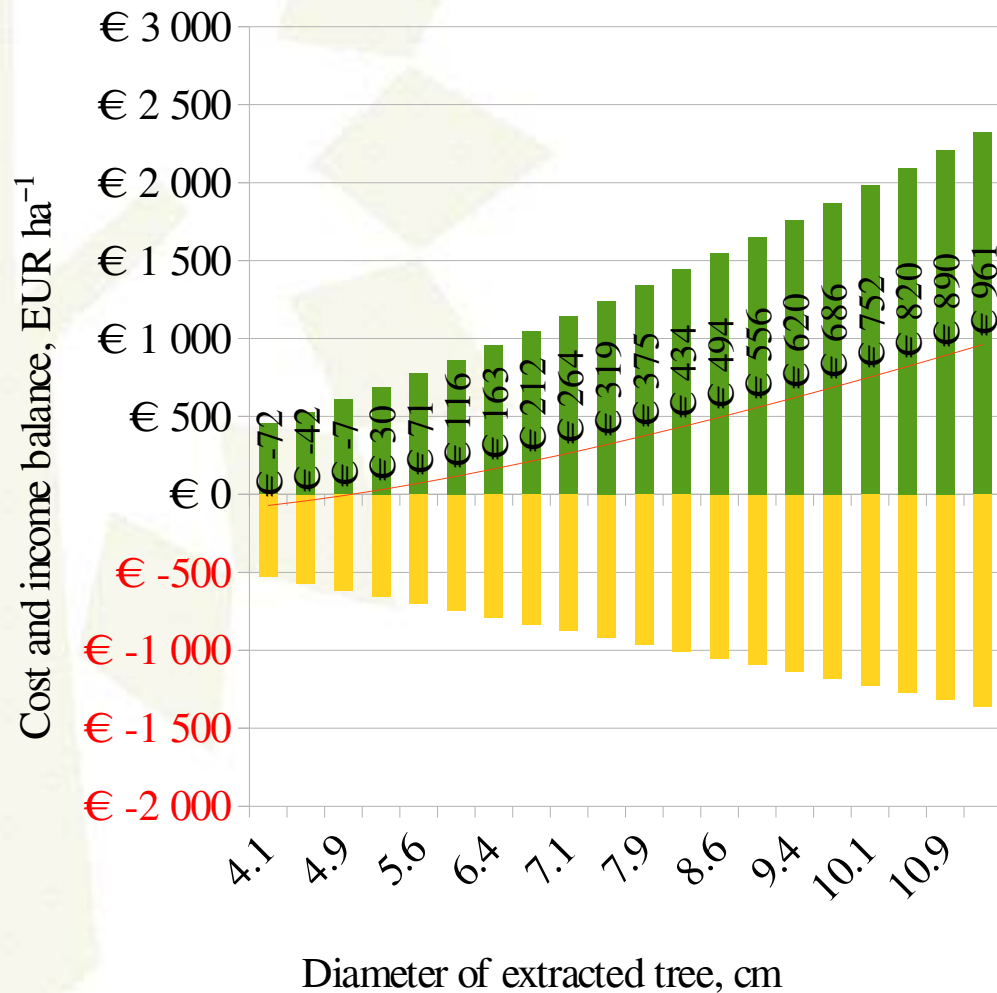


Comparison of cost and income (*wood chip scenario*)



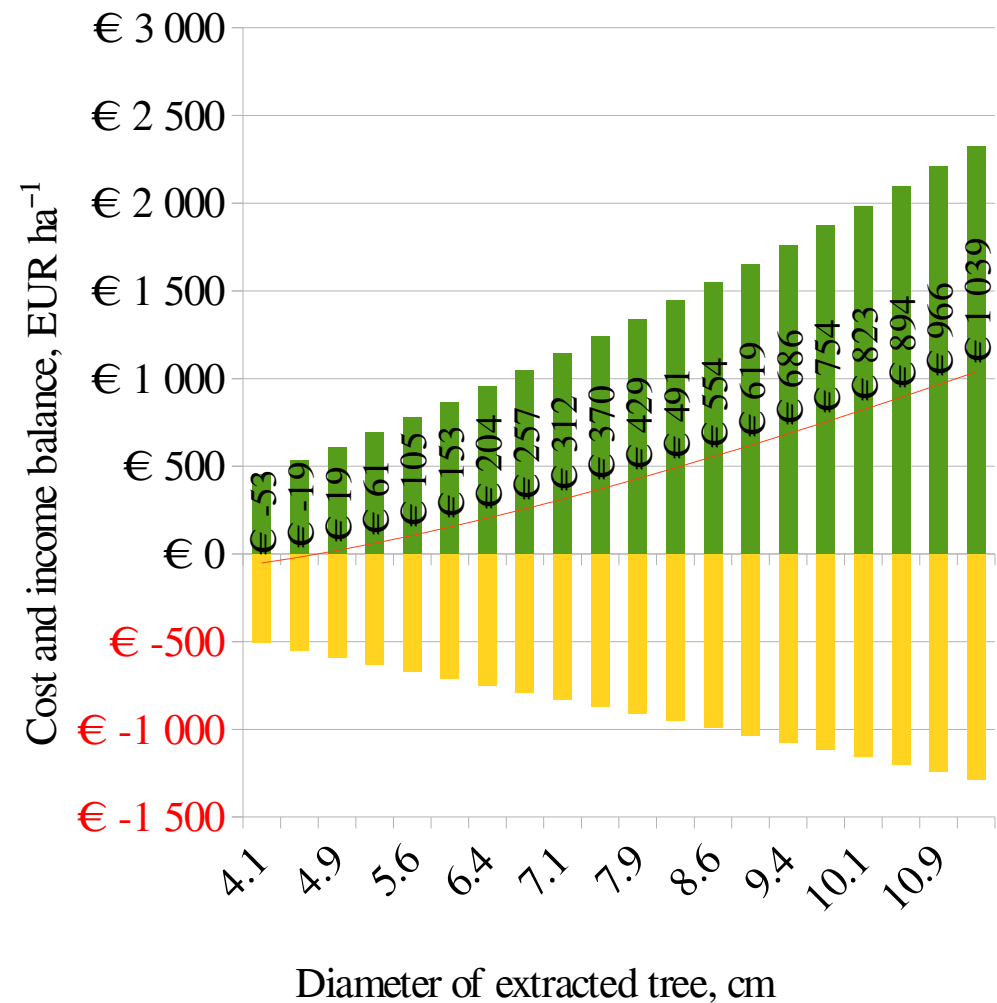
■ income
■ cost
— net income

Chainsaw



■ income
■ cost
— net income

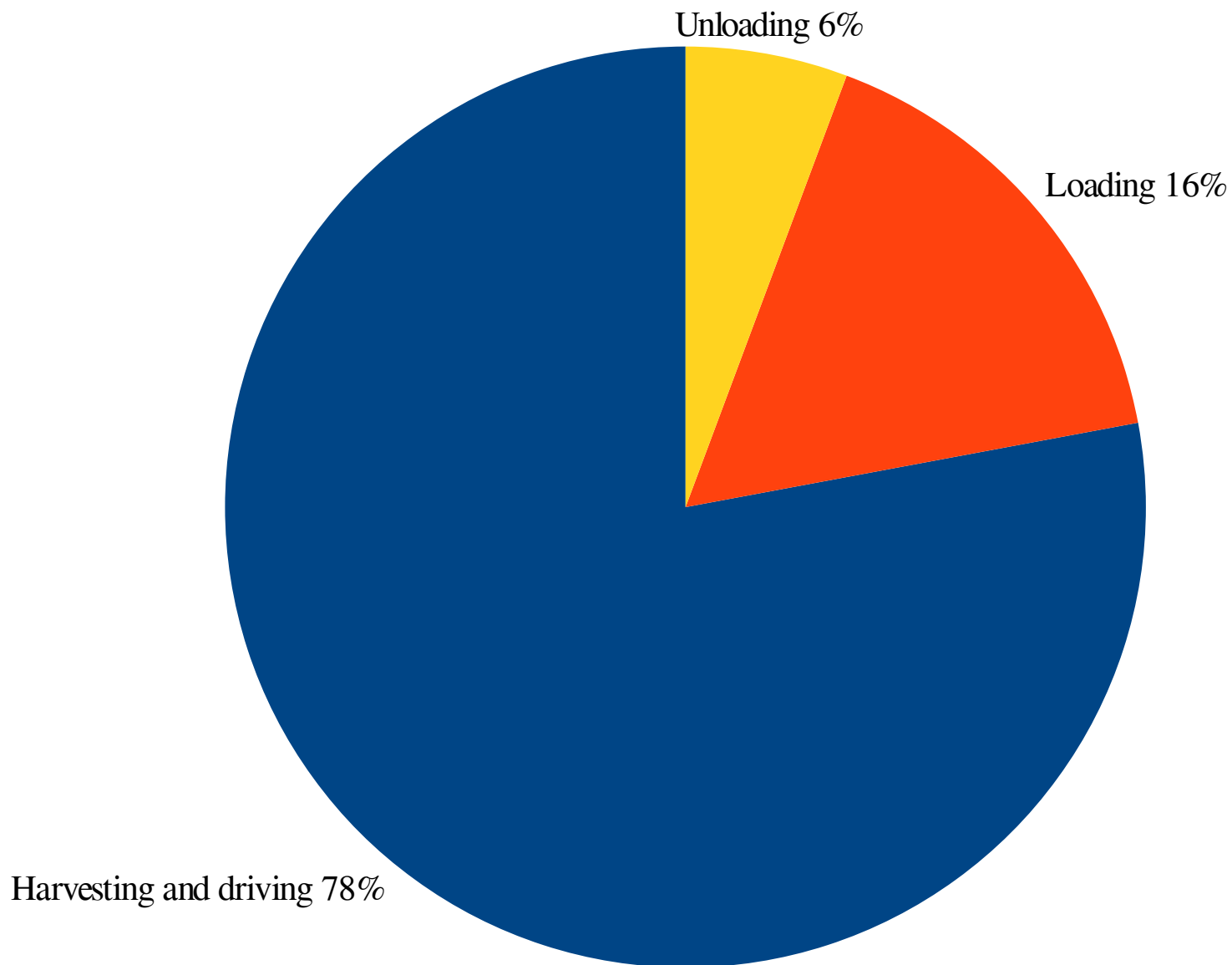
Forest cleaner



Vimek BioCombi harwarder



Structure of time consumption



Productivity and cost

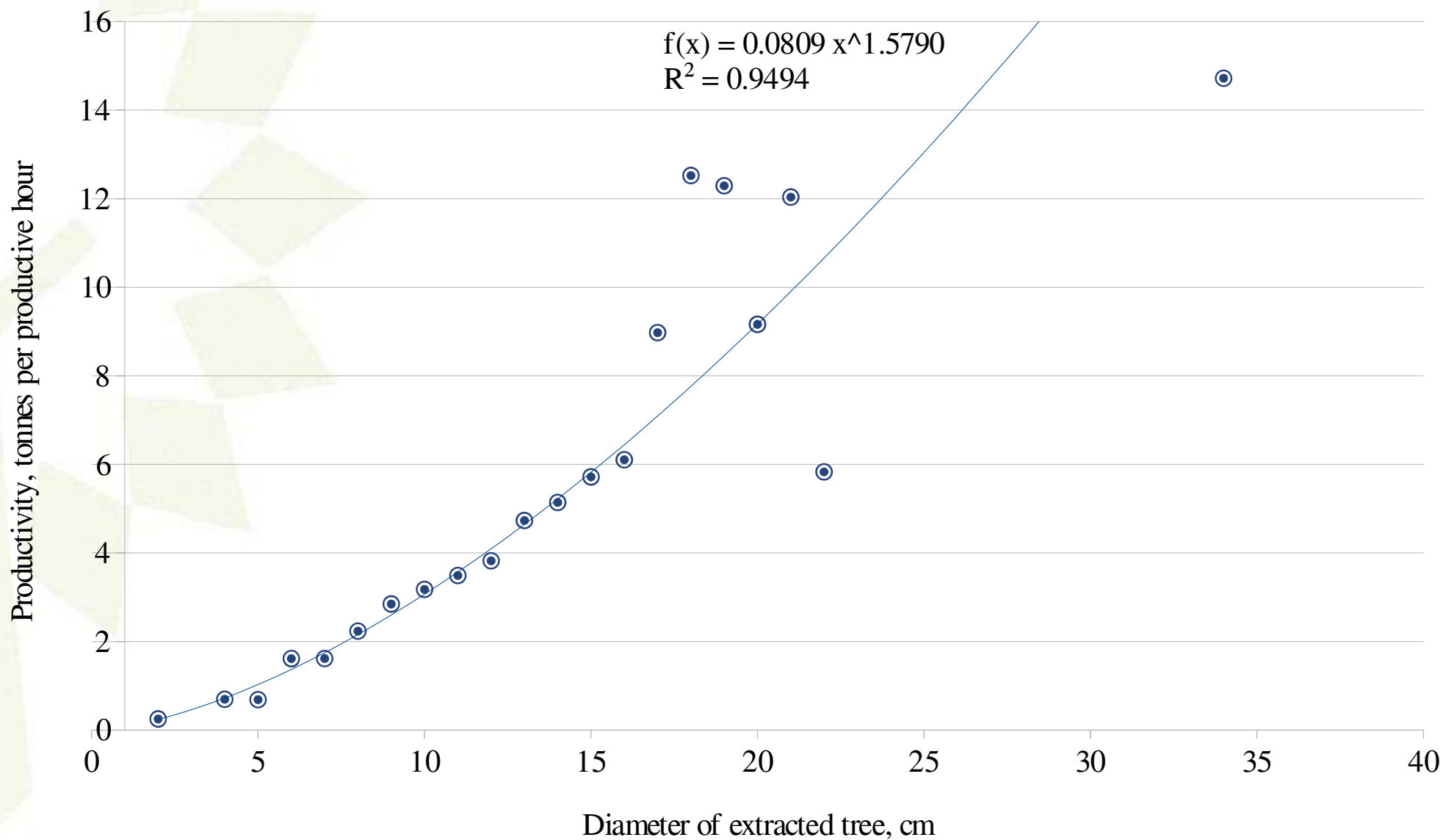


- Stand characteristic:
 - diameter of average tree – 8.7 cm, dominant species – grey alder;
 - diameter of average extracted tree – 7 cm.
- Work order:
 - thinning target – pine stand with admixture of deciduous trees;
 - number of remaining trees – 1100-1300 per ha;
 - extraction of full trees for biofuel production.
- Productivity:
 - **9.4 LV m³ productive hour⁻¹**;
 - average load – 6.9 LV m³.
- Cost of production (*felling and forwarding*):
 - prime cost of working hour – 24 EUR (32 EUR for productive hour);
 - **prime cost of biomass at roadside – 3.4 EUR LV m⁻³** (1 shift, 10 hours) or 3.0 EUR LV m⁻³ (2 shifts, 10 hours).

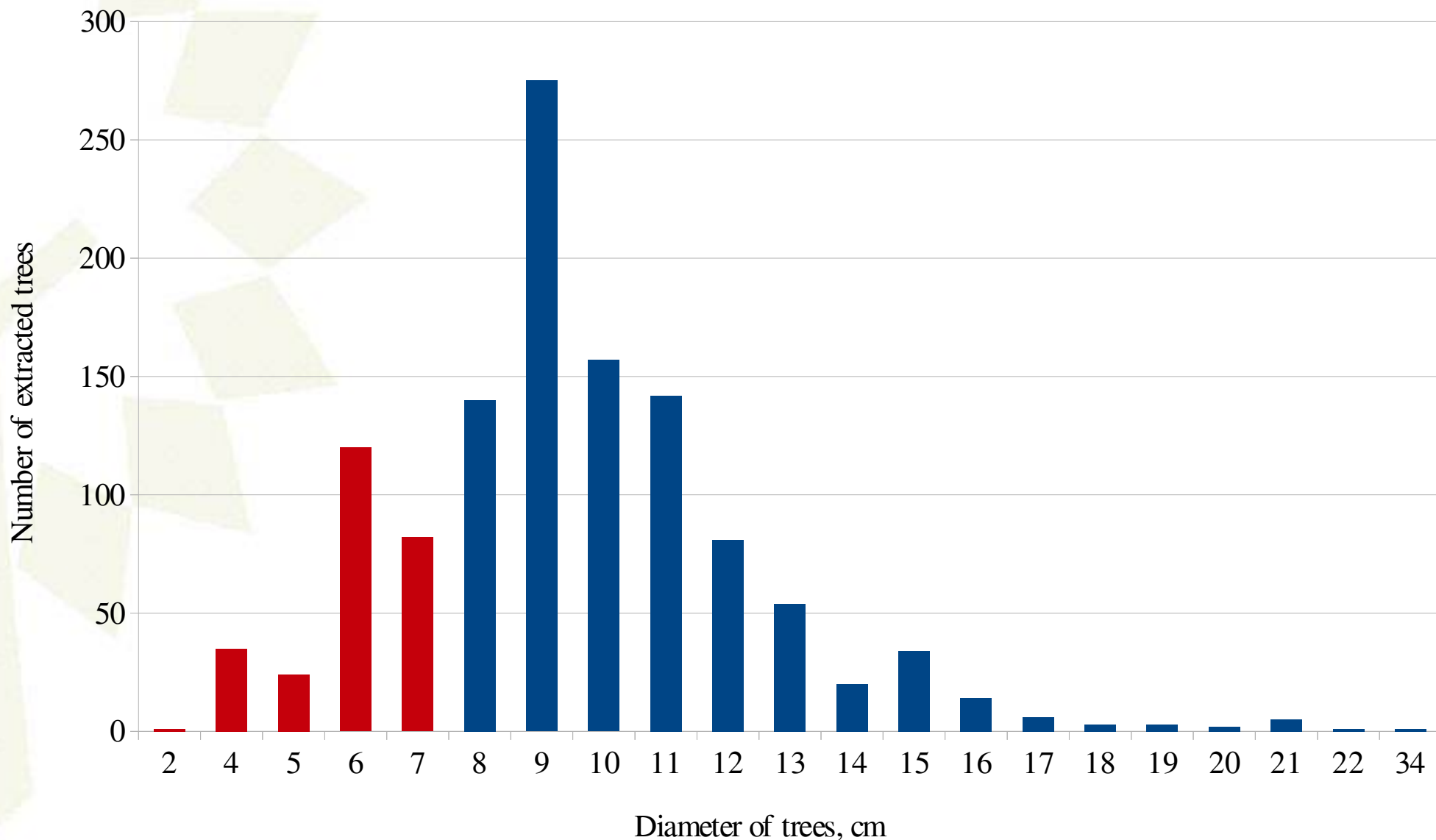
Vimek harvester



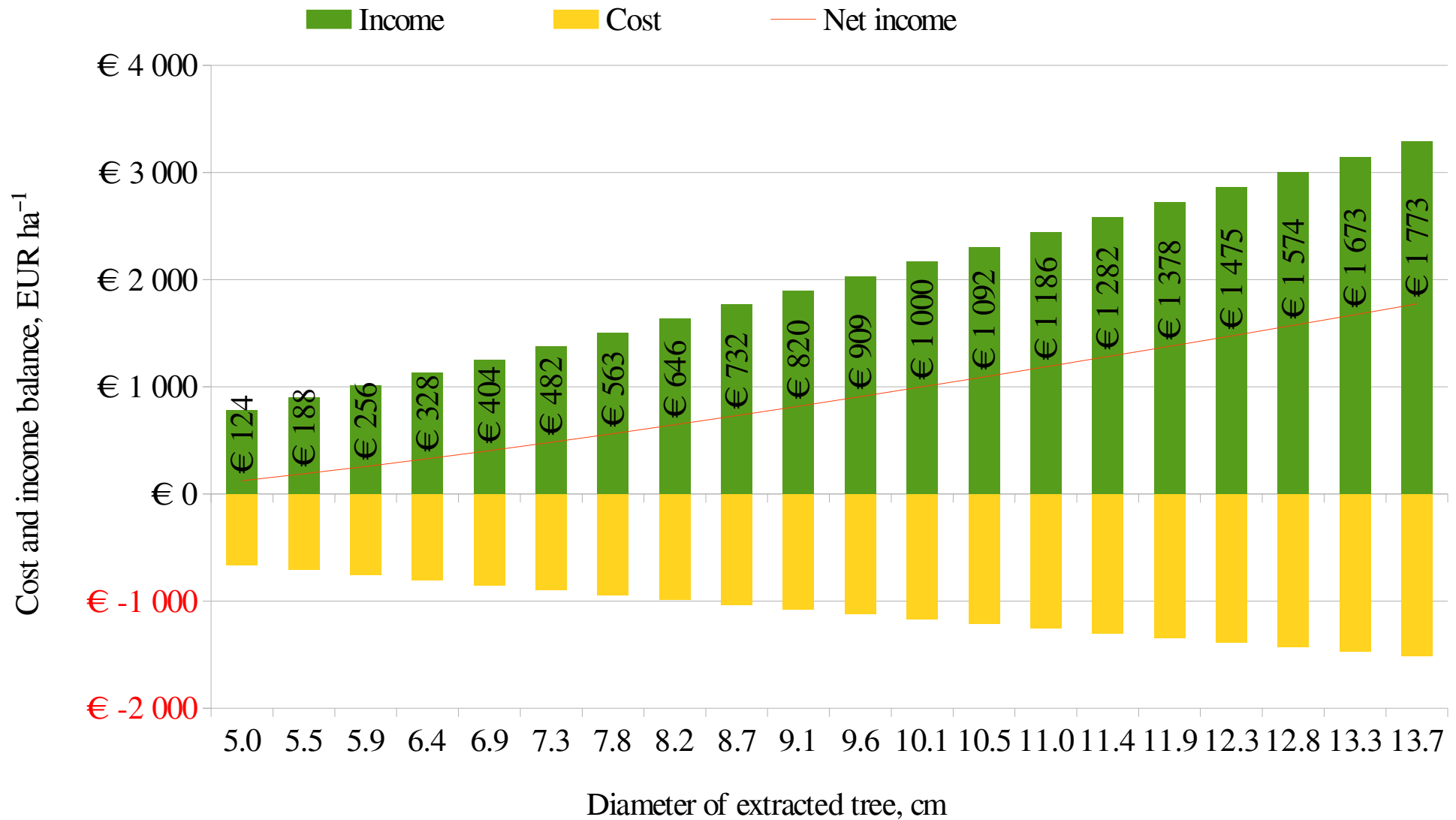
Productivity of harvesting



Secret (*one of*) of high productivity



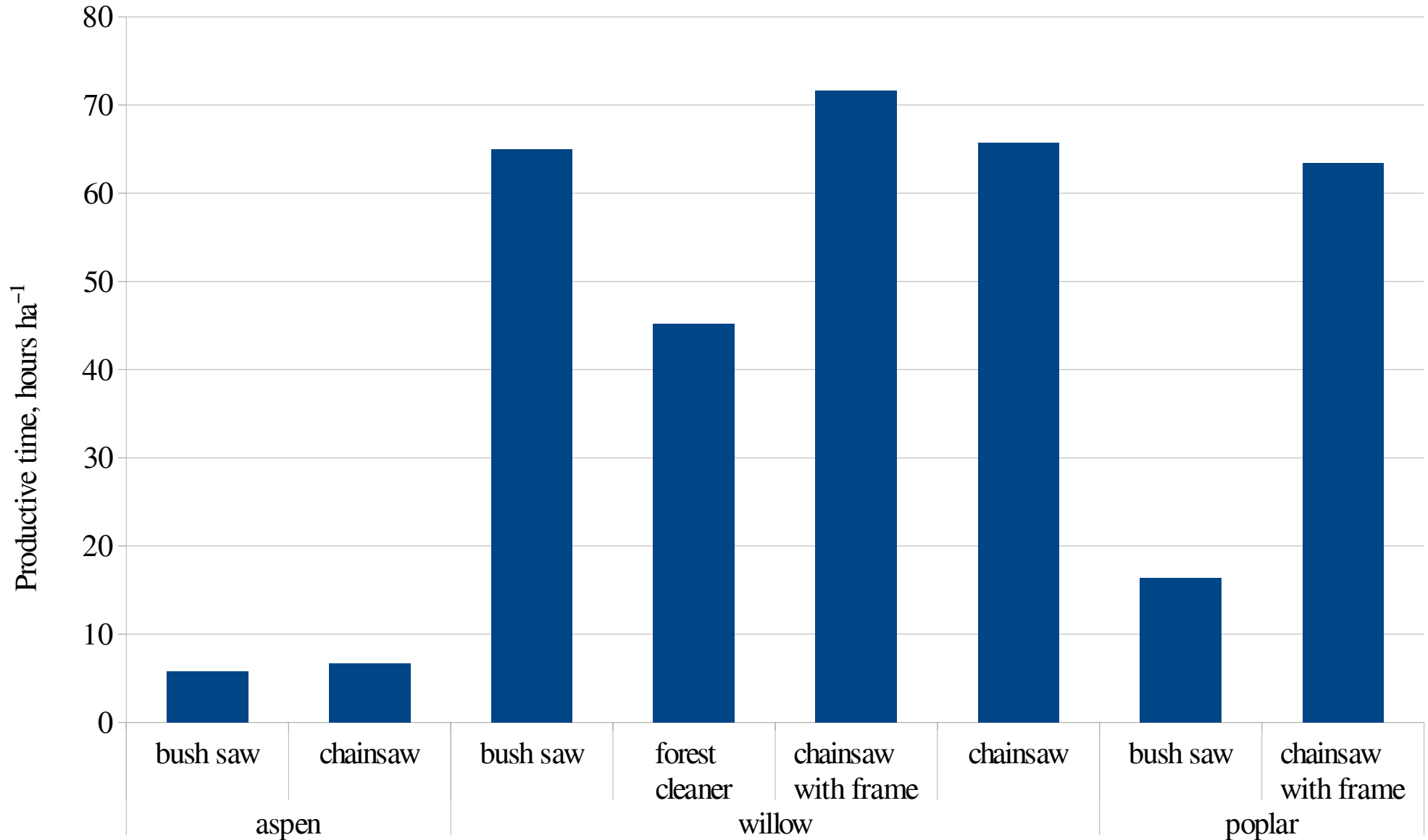
Comparison of cost & income (*wood chip scenario*)



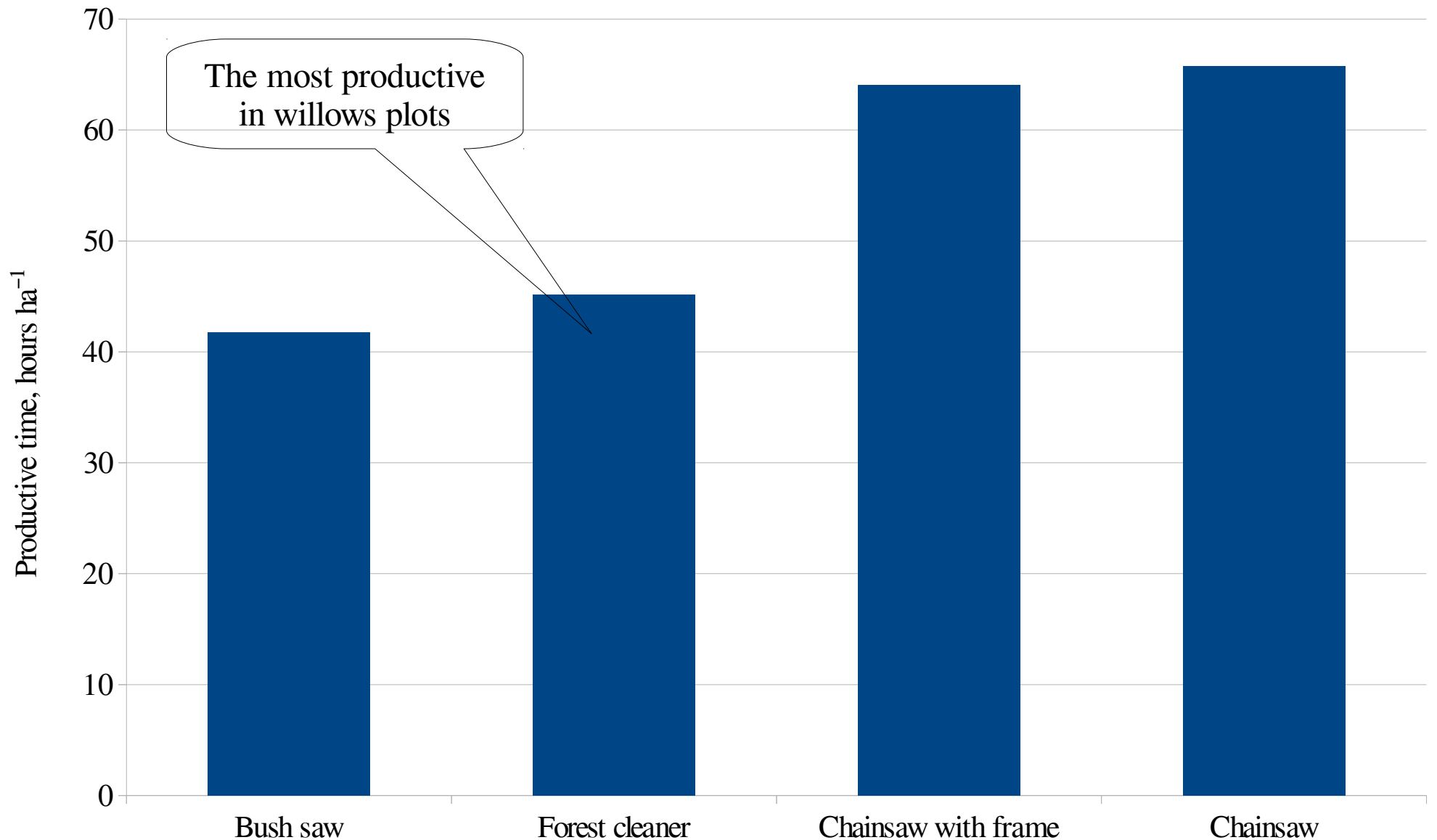
Opportunity to increase productivity in small tree harvesting



Harvesting productivity in demo field



Comparison of different tools in poplar and willow plots



Yet another opportunity for mechanized harvesting

