

## Introduction

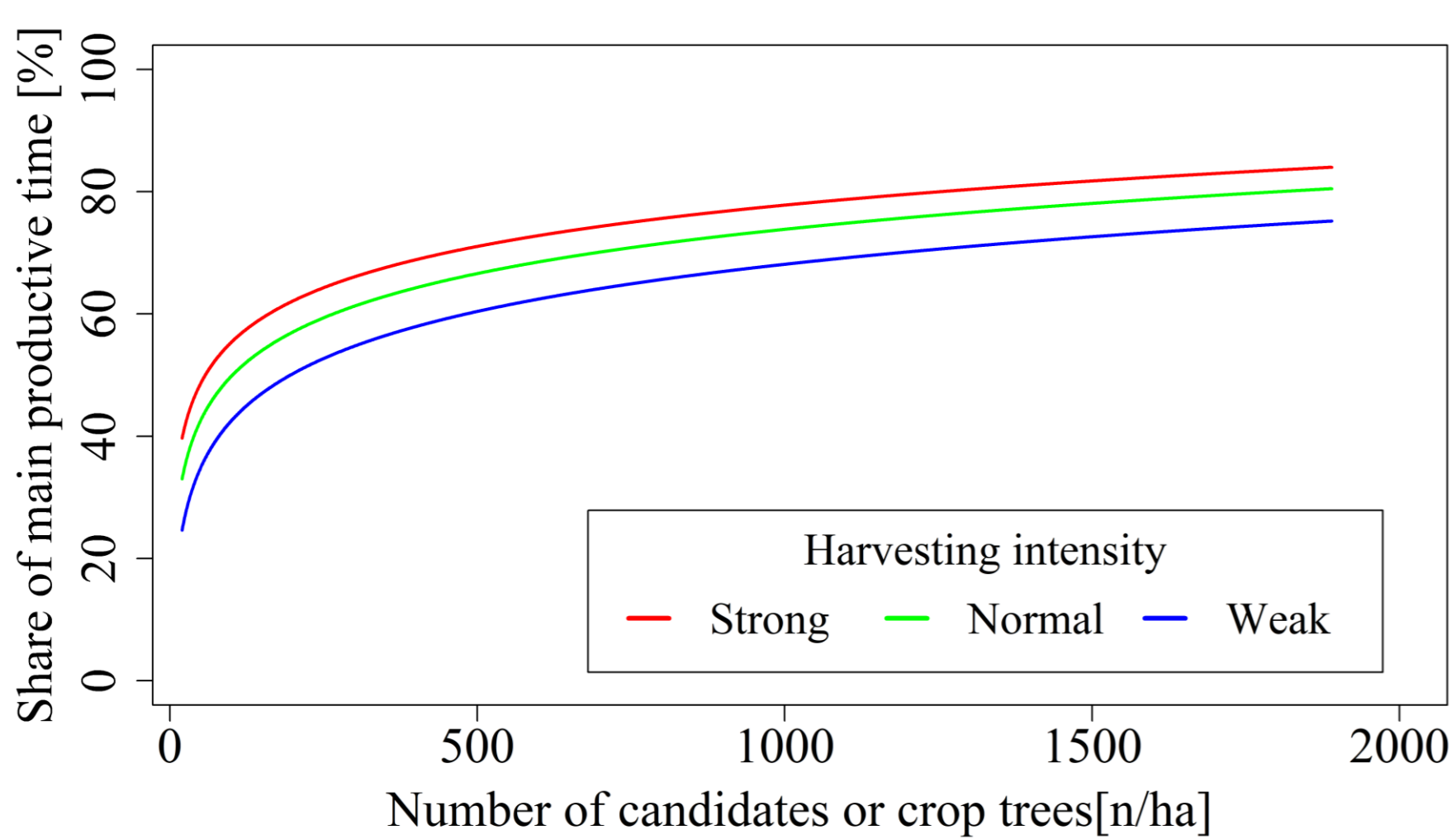
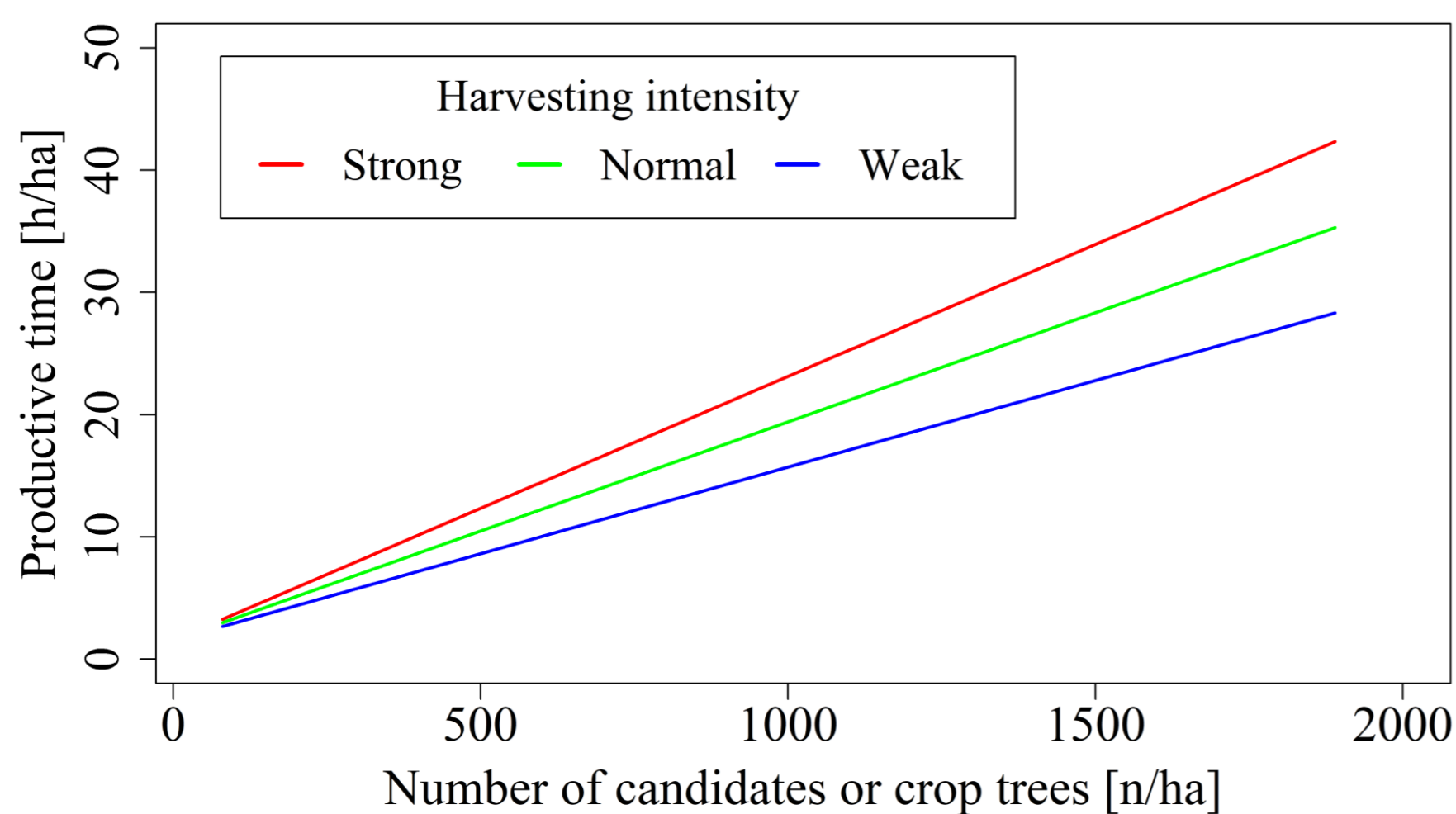
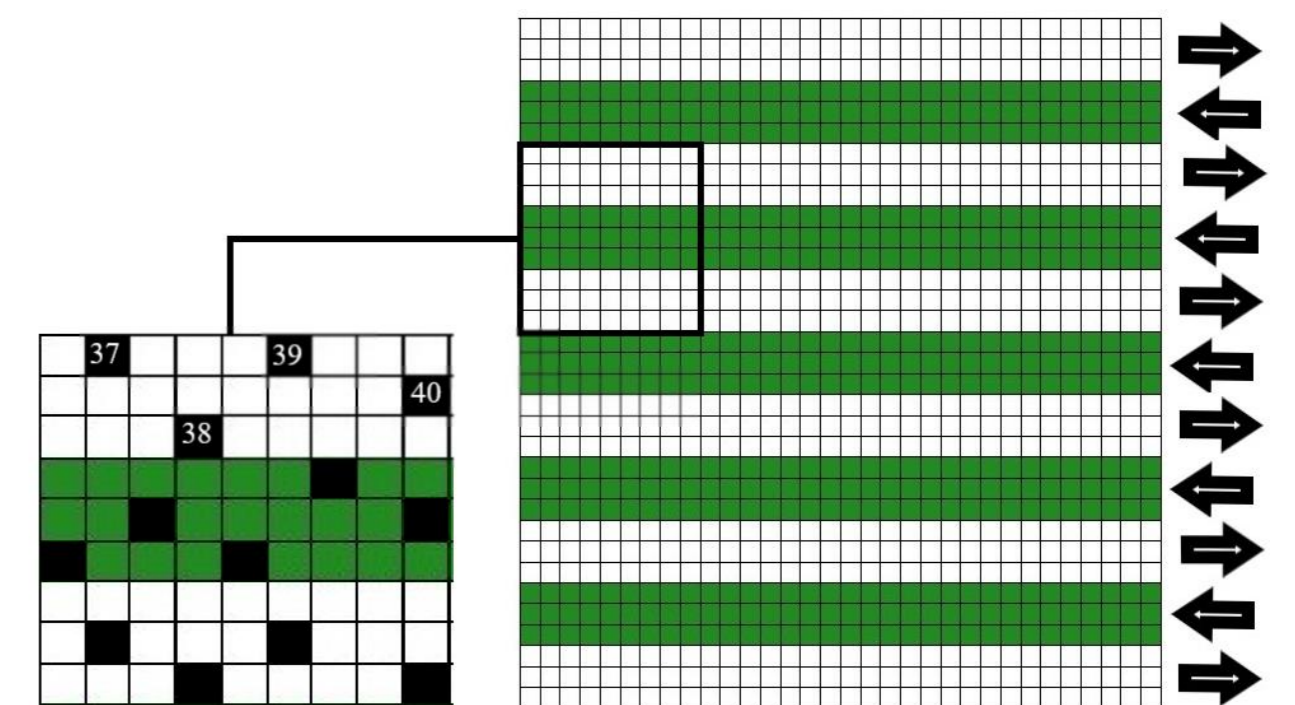
Rationalization and optimization of forest operation is becoming increasingly important in the European forestry sector. In this study, three different thinning models in beech pole stands were developed using Visual Basic computer programming language. We assessed the impact of the number of candidates per hectare and the impact of thinning intensity on productive time.

## Research questions

- How the consumption of productive time changes in different types of thinning approaches, depending on the thinning intensity?
- How the structure of productive time changes with the number of candidates?

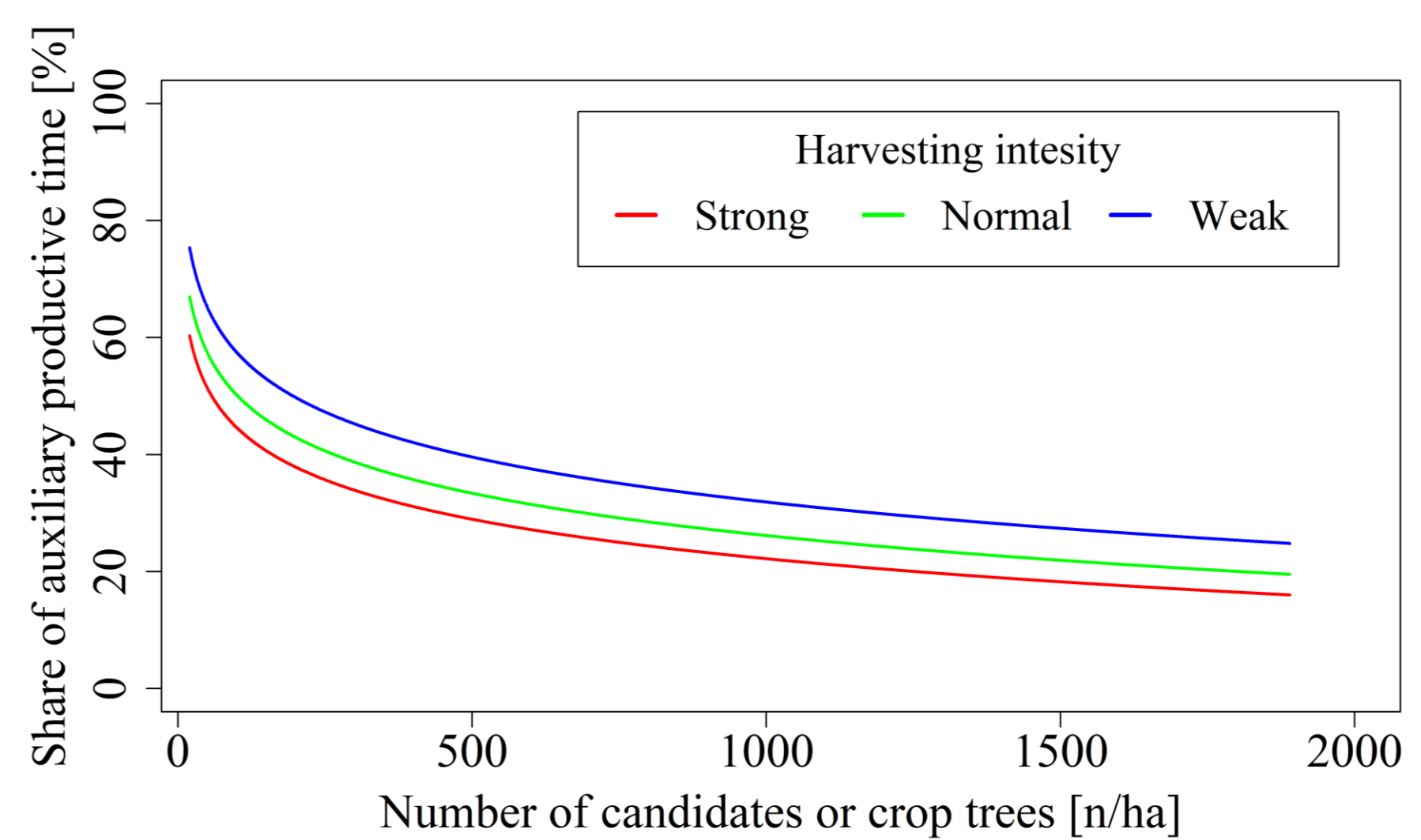
## Methods

The program consists of modeling of candidates or crop tree position networks and tending simulation of younger stands based in 1000 m<sup>2</sup> virtual forest plot. Simulation of tending differs three ways of thinning intensity for selective thinning and for two sorts of crop tree situational thinning based on the principle of concentration (lower number of crop trees)



## Results

- Productive time consumption linearly increase depending on: (1) number of candidates or crop trees per hectare and (2) thinning intensity.
- Share of main productive time (tree harvesting time) logarithmically increases according to number of chosen candidates or crop trees.
- Share of auxiliary productive time (Change position) logarithmically decreases according to number of chosen candidates or crop trees.



## Conclusions

Based on modeled structure and consumption of productive time we can conclude that thinning approaches with lower numbers of candidates (situational thinning) represent an alternative to classical tending (selective thinning) especially from economic and ergonomic perspective.