CONTINUOUS COVER FORESTRY: A PEST MANAGEMENT STRATEGY

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INTRODUCTION

Forests contain significant biological diversity such as fungi, insects, wildlife and plants which interact directly or indirectly with trees and environment to produce the health of forest ecosystems. Sylvicultural systems through continuous cover forestry represent an alternative for pest management and may require less or no use of chemical products and increase the health of forest ecosystems. It is argued that continuous cover forestry increases tree species diversity and the biological diversity and can be used as an efficient low cost pest management strategy.

Fig. 1. View of clear-felling for a rotation forest management system.

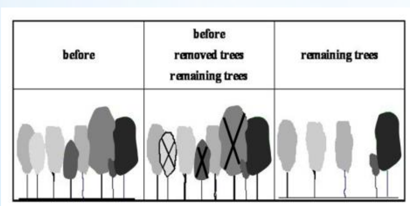

Fig. 2. Structure of the forest before and after haverst. Trees marked with X sign (centre) will be removed to reduce the competition on crop trees to give the resulting stand shown in the righ.

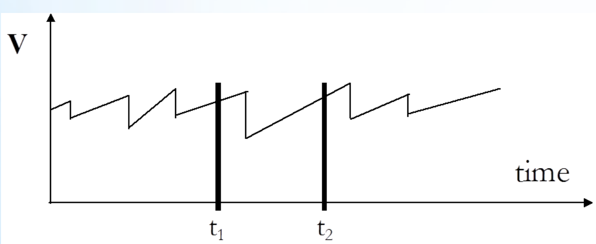

Fig. 3. Variation of stock in continuous cover forest system. Selective trees are felled from the forest stand which reduces the stock in the forest. With time, trees will grow to reach more or less the initial stock and at that time a thinning operation will be scheduled to lower again the stock. The process continues throughout the life cycle of the stand to produce a horizontal dental curve of the stock. t_1 and t_2 are two times in the life cycle having equal stock (Source: modified from Gadow, unpublished).

METHODS

- The studied area was constituted of uneven-aged mixed species with diameter range between 7 and 38 cm and a mean diameter of 16 cm. 35 plots located at equidistance of 23.9 m were selected within the study area at a sampling intensity of 70%. Plots were of circular form with radius of 11.29 m, and subplots of 1 m^2 in each where natural regeneration was assessed. All trees with diameter more than 8 cm were measured in the entire plot. A total of 1466 trees were recorded for analysis.

- Trees designed for harvest were recorded with the initial H and target trees with the initial T and the forest structure before and after harvest was analyzed.

RESULTS

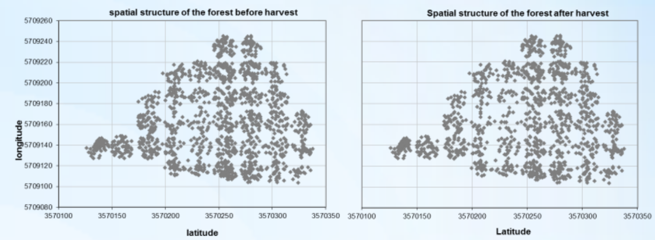

Fig 4. Spatial structure of the forest before and after harvest.

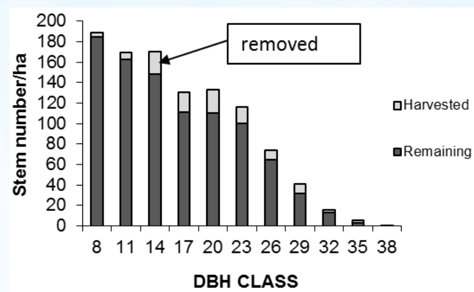

Fig 5. Diameter distribution before and after thinning in the studied forest.

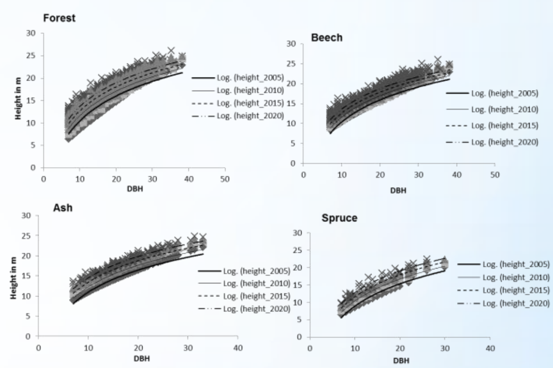

Fig 6. Growth curve after each group of five year (2005 – 2020) for the entire forest and for Beech, Ash and Spruce.

DISCUSSIONS

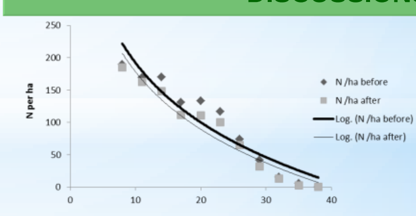

Fig. 7. Guide curve for assessing the thinning regime and the severety of intervention to protect healthier trees.

A guide curve will help to monitor, decide on the time and intensity of the interventions, and to control the health and status of the forest

CONCLUSION

The thinning has modified forest structure, forest density, species composition, basal area and volume of the forest. It also eliminates diseased trees and reduces competition on target trees which are left on site for the future interventions, and also for ecological and financial return; this may lead to the fast grow of healthier target trees and of incoming regeneration in the gap created.

Acknowledgements
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