



ROLE OF FOREST WINDBREAK SYSTEMS ON AGRICULTURAL PRODUCTION IN OVCHE POLE REGION



Jordanco Dimitriev^{1,2*}, Ljupco Mihajlov², Natalija Markova Ruzdic², Fidanka Trajkova²

¹Ministry of Agriculture, Forestry and Water Economy, State Inspectorate for Hunting and Forestry, Republic of North Macedonia

²Faculty of Agriculture, Goce Delcev University, Stip Krste Misirkov, 10-A, 2000 Stip, Republic of North Macedonia

*Corresponding author: joco_dimitriev@yahoo.com

INTRODUCTION

The subject and primary objective of this study is to analyze the role of windbreaks in the protection of soil resources, the stabilization of agricultural production, and the improvement of microclimatic conditions. In this context, the agroecological effects of windbreaks on agricultural production in the Ovche Pole region are systematically examined.

RESULTS & DISCUSSION

The findings indicate a predominance of strengths and opportunities, alongside fewer identified weaknesses and a limited number of threats, highlighting the significant benefits associated with the existence, proper management, and maintenance of windbreak systems in the Ovche Pole region.

The analysis of the three studied types of protective forest belts showed that in the main and additional belts (permeable and semi-permeable), the dominant tree species is common ash, while in the main impermeable belts the dominant species is common maple.

In the permeable protective belts, no secondary tree species were identified, whereas in the main protective forest belts the secondary species is common oak. In the main semi-permeable belts, common oak was also recorded as a secondary tree species, while in the additional belts the secondary species is common hornbeam.

In the impermeable protective forest belts, the secondary species identified was common ash.

CONCLUSIONS

the main mistakes were caused by neglect, lack of experience, and insufficient expertise. The identified problems and challenges are related to changes in environmental conditions. Currently, the most serious specific issue is the widespread dieback of *Fraxinus* spp. Undoubtedly, there is a great need to develop a comprehensive management concept for the windbreak belts in the Ovche Pole region. This concept should be based on: a scientifically grounded methodology for assessing the condition of the windbreak belts, a differentiated approach to their management, and a solid financial plan that ensures a stable mechanism for restoring degraded belts and their subsequent monitoring and cultivation.

MATERIALS AND METHODS

- ❖ The research was conducted within a defined section of the Ovche Pole valley, located in the Municipality of Sveti Nikole with coordinates ranging from 21°92'27" to 21°92'81" East Longitude and from 41°87'18" to 41°88'44" North Latitude, where predominantly unfavorable agroecological conditions prevail.
- ❖ Data collection and analysis were carried out through precise geospatial positioning of the windbreak belts, combined with field observations and measurements using GPS devices, as well as the assessment of orthometric characteristics of the terrain.
- ❖ The results obtained during the 2023–2024 research period are synthesized and presented in the form of a SWOT analysis.
- ❖ The studied protective forest belts in the Sveti Nikole area were classified according to the degree of porosity in their cross-sectional structure into permeable, semi-permeable, and impermeable belts.



Windbreak in Ovche Pole