

Impact of Short Rotation Coppice Windbreak Systems on Soil Wind Erosion: A Case Study

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INTRODUCTION

Introduction of trees into agricultural fields have increased recently with the aim of soil improvement and protection of fields from strong winds.

OBJECTIVE

The aim was to to determine the impact of an established alley cropping system of short-rotation coppice on the reduction of the wind erosion.

MATERIALS AND METHODS

Soil wind erosion was measured using improvised “dust catcher” devices made from plastic bottles to collect airborne soil particles. Each station had openings facing north, south, east, and west to identify the dominant erosion direction. Stations were placed at 15 cm, with four also measured at 50 cm. Monitoring was conducted from February 26 to April 9, 2024, during a vegetation-free period.

RESULTS

The erosion results (Table 1) show that the wind speed and mass of airborne particles was statistically significantly lower within the alley cropping system—three times lower—than in open areas.

	Wind speed		Airborne particles (15 cm)		Airborne particles (50 cm)		Airborne particles (Total)	
	n	m/s	n	g	n	g	n	g
Open field	259	0.0160 ^A	8	0.027 ^A	8	0.004 ^A	16	0.015 ^A
Within the alley	271	0.0046 ^B	20	0.005 ^B	8	0.002 ^A	28	0.005 ^B



Picture 1 orange dots indicate the location of collecting wind erosion residue. Yellow rectangles show the location of meto stations



Picture 2 – Meto station and improvised „dust catcher” made out of plastic bottles.

