

EFFECT OF REDUCED RAINFALL ON N₂O EMISSIONS IN AGRICULTURAL ROTATIONS WITH COVER CROPS



Oats+Vetch (O+V)



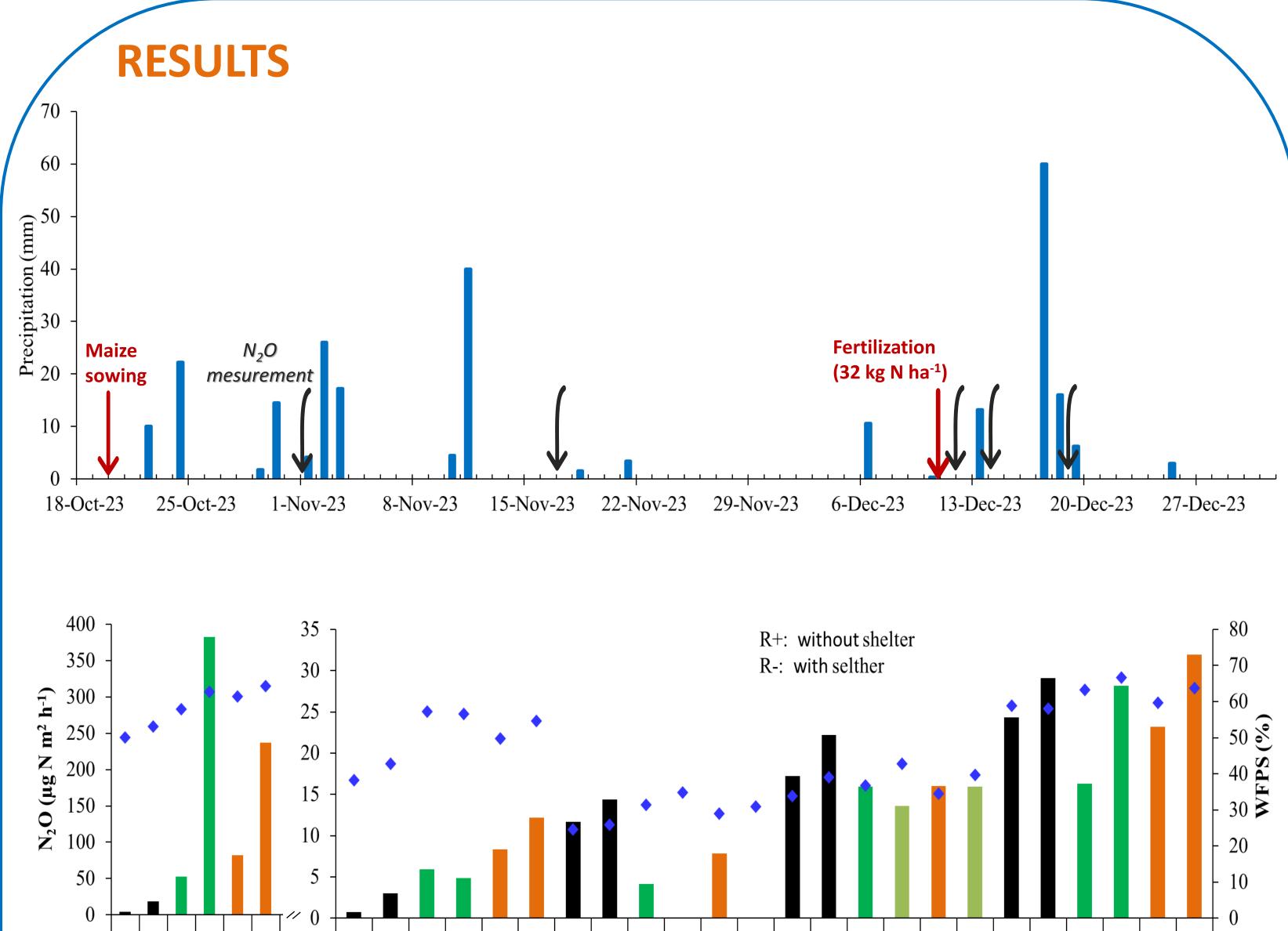
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INTRODUCTION

Cover crops can influence soil organic carbon sequestration and GHG emissions. However, in a context of climate change with a greater risk of extreme events (e.g. prolonged droughts), it is not clear how cover crops could modulate nitrogen and carbon flows.

Objective: evaluate the effect of reduced rainfall



on N₂O emissions in rotations of the Argentinean Humid Pampas.

We started measuring on maize sown on cover crop residues (vetch and oats+vetch) or on bare soil (control) and installed rain shelters that exclude 50% rainfall (R+, R-).

Vetch (V)

Control (C)

	R- R+ R-	R+ R-	R+	R- R-	R- R-	+ R- R	+ R- F	R+ R-	R+ R-	R+ R	- R+ R-	R+ R-	- R+	R- R+	R- R+	R-R	
	C	V O+	V	C	V	O+V	C	V	O+	V	C	V C	O+V	С	V	O+V	
	1-Nov-23			17-Nov-23			12-Dec-23				14-Dec-23			19-Dec-23			
200 - 200 -	R-R+	R - R+	R- R+	R-R+	R- R+	R- R+	R- R+	R- R+	R - R+	- M	+ R- R+				₹+ R- R		
	C	V	O+V	C	V	O+V	C	V	O+V	C	V	O+V		V	0+V		
	1-Nov-23			17-Nov-23			12-Dec-23				14-Dec-23			19-Dec-23			
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-Initially, treatments without rain shelters emitted more N_2O than those with rain shelters, and maize sown on cover crop residues emitted more than maize without cover crops.



-Thereafter, N_2O emissions were similar between treatments with and without rain shelters and with and without cover



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These partial results are framed in the TRUESOIL project of the European Joint Programe (2022-2025) which explores trade-offs between carbon sequestration and GHG emissions, across agroecosystems with different crop rotations, soil types and climates.