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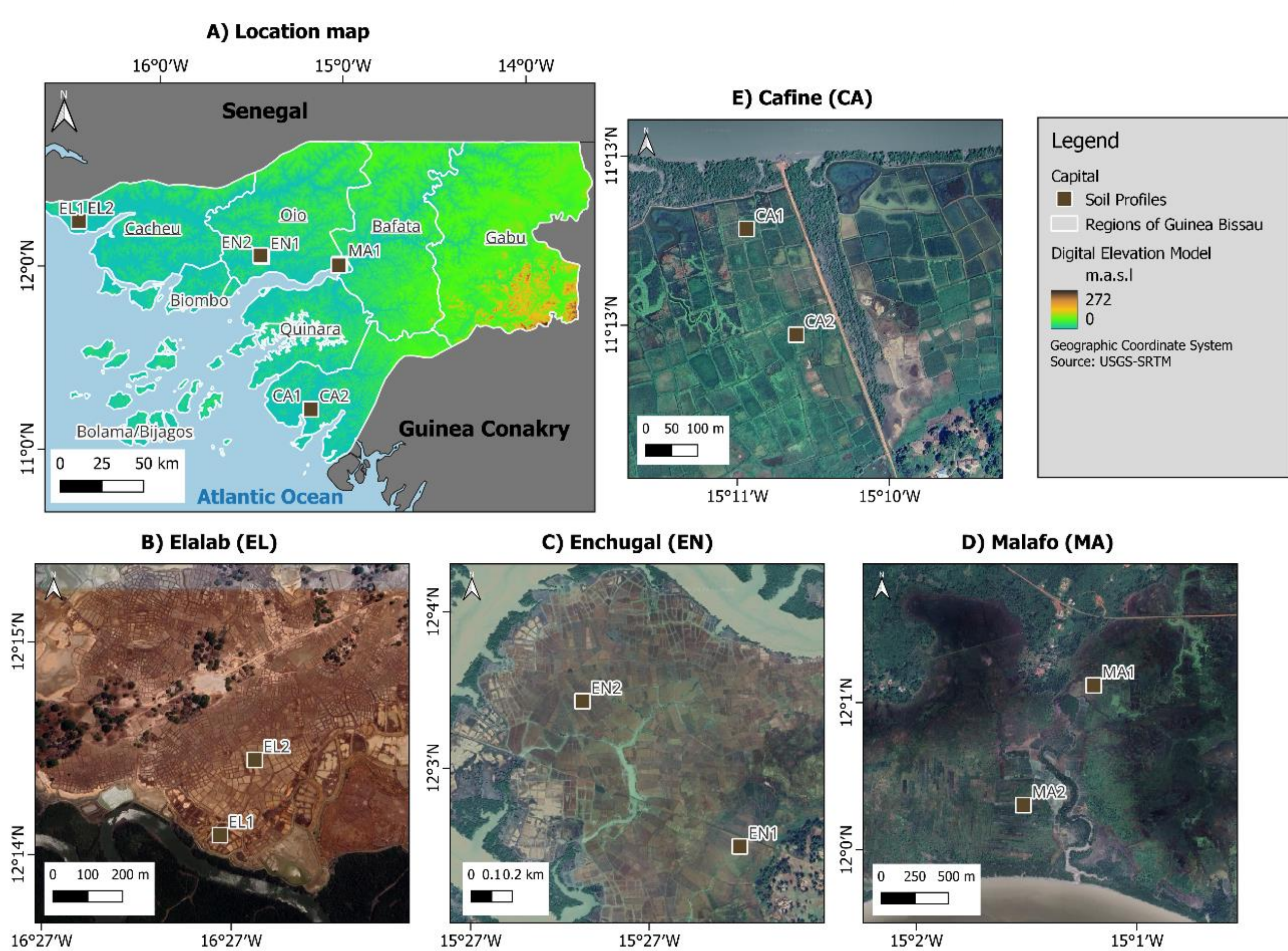
## 1 INTRODUCTION

- Rice cultivation is crucial for Guinea-Bissau small scale farmers
- Natural and well-preserved agro-ecologies without chemical fertilization
- Very low crop yields due to numerous challenges, **natural**: climate change, low soil fertility, water scarcity, pests & diseases, etc. and **social-economic**: poverty, labour shortages, migration, etc.
- Soils morphological, physical, and chemical properties likely impact and limit rice cultivation
- It is key strengthening their adaptive capabilities by bridging farmers' local knowledge with scientific insights

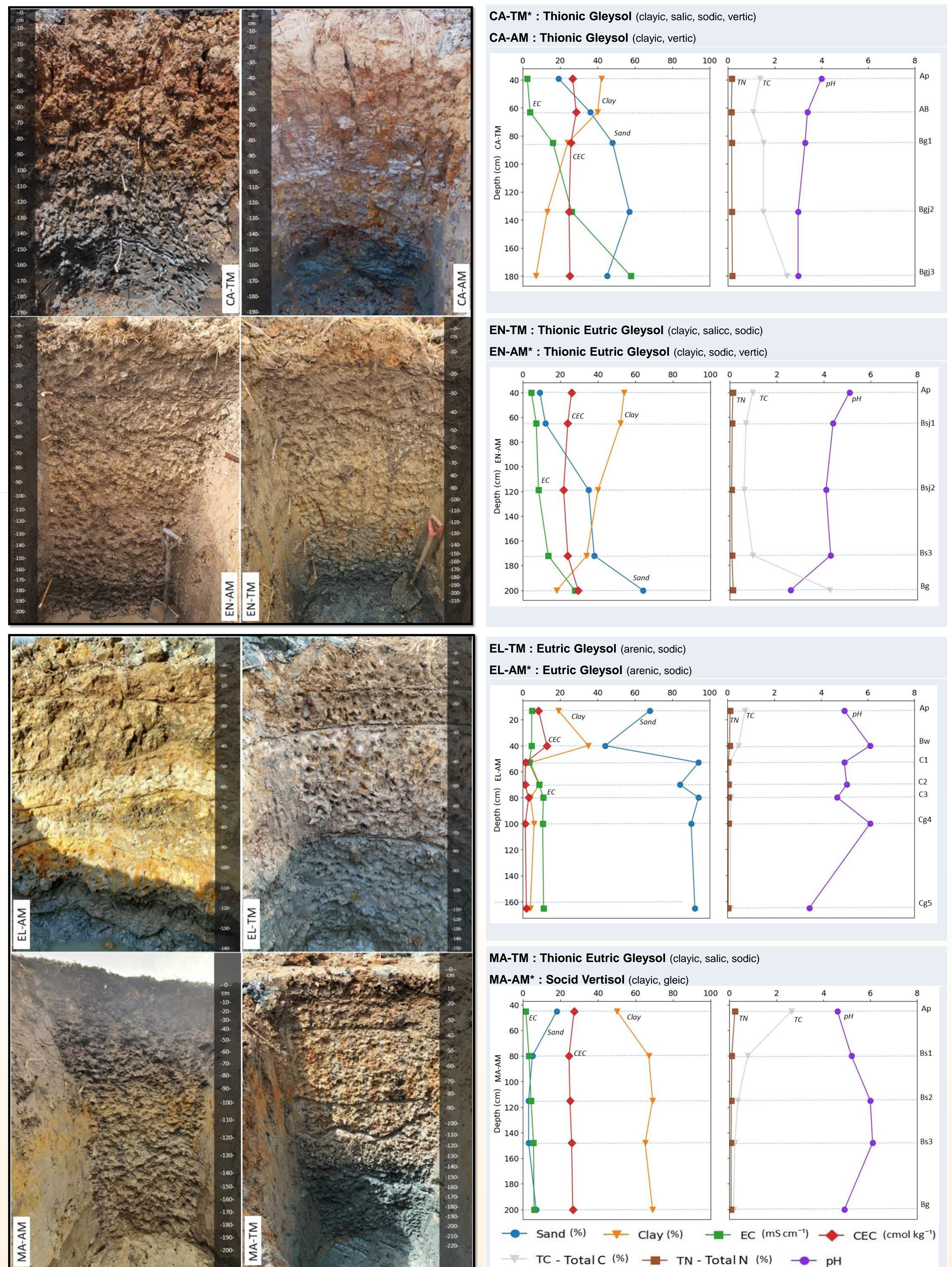
## 2 METHODS AND ANALYSIS

## 3 RESULTS AND CONCLUSIONS

### A. Study Area



### A. Profile Description & Classification



### B. Soil sampling and Laboratory methods

8 Profiles and 3 Replication samples in each horizon

Region	Villages	Soil profile ID	Map labels (Figure 1)	W	N	Holdridge's life zones system
South Tombali	Cafiñe	CA - TM*	CA1	15°10'35.5"	11°13'07.4"	Tropical moist forest
		CA - AM**	CA2	15°10'32.4"	11°13'00.6"	
Central Oio	Malafu	MA - TM	MA1	15°01'04.6"	12°0'40.2"	Tropical dry forest
		MA - AM	MA2	15°01'21.8"	12°0'10.9"	
Central Oio	Enchugal	EN - TM	EN2	15°27'03.6"	12°03'25.2"	Tropical dry forest
		EN - AM	EN1	15°26'38.2"	12°03'01.8"	
North Cacheu	Elalab	EL - TM	EL1	16°26'43.1"	12°14'31.6"	Tropical dry forest
		EL - AM	EL2	16°26'39.8"	12°14'38.7"	

\*TM = Tidal Mangrove, \*\*AM = Associated Mangrove.

Physical Analyses		Chemical Analyses	
Bulk density	[ g cm <sup>-3</sup> ]	pH, Exchangeable Acidity	[ cmol(+) kg <sup>-1</sup> ]
Total Porosity	[ % ]	EC	[ mS cm <sup>-1</sup> ]
Field Capacity	[ % ]	CEC & BS	[ cmol(+) kg <sup>-1</sup> ]
Permanant wilting	[ % ]	Ca, Mg, K, Na	[ cmol(+) kg <sup>-1</sup> ]
Available water	[ % ]	Fe2O3	[ % ]
Sand	[ % ]	Al2O3	[ % ]
Silt	[ % ]	TC	[ % ]
Clay	[ % ]	TN	[ % ]
Structure		Available P	[ mg kg <sup>-1</sup> ]
Consistence			

### C. Soil classification

IUSS Working Group WRB (2022)

- Reference soil groups
- Qualifiers

- Soil characterization revealed important spatial differences among regions and agroecologies.
- Identified limitations will be further scrutinized concerning the productivity constraints associated with farmers local knowledge and practices.