INTENSE – Intensify production, transform biomass to energy and novel goods and protect soils in Europe

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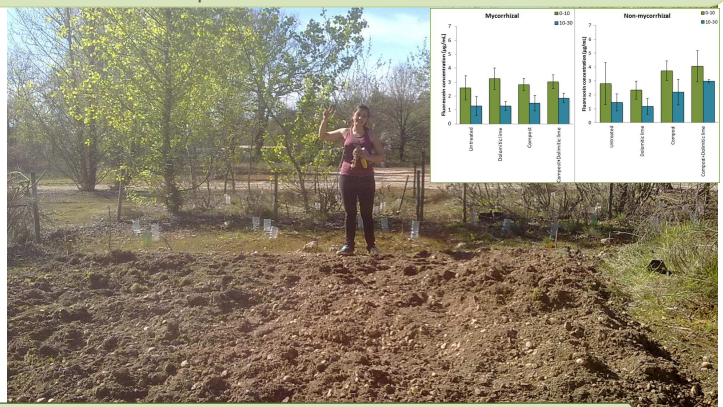
INTENSE

Main aims of INTENSE are:

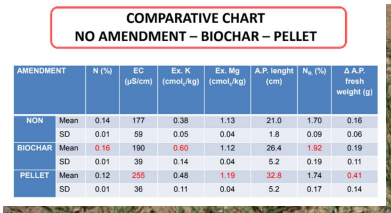
- Determine and harmonize methodologies for identification and recuperation of degraded soils of specific degradation status
- Develop, and optimize novel cropping systems, using precision agriculture and modeling tools, which are capable of improving soil quality
- Develop and implement suitable production systems applicable for land amelioration in complex degradation situations
- Develop and implement sustainable and financially attractive production alternatives for production on recovered farm land

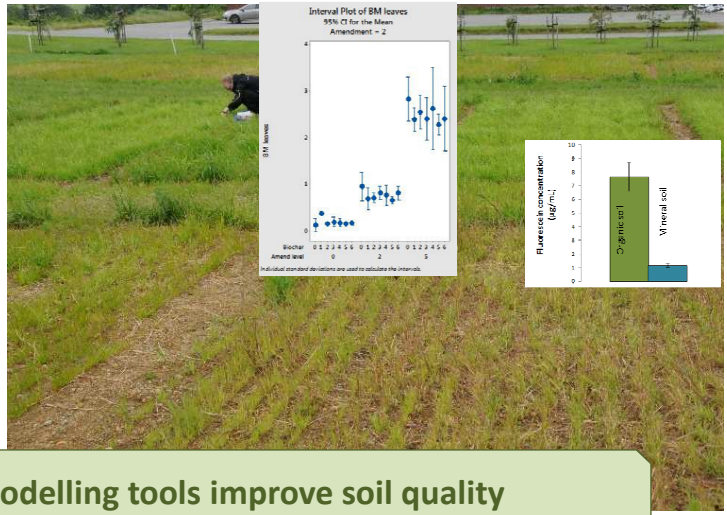


Remote sensing allows exact localization of critical soil condition

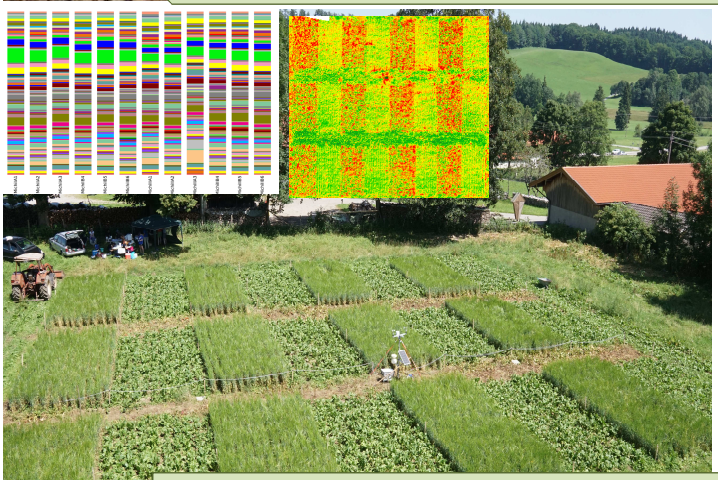
COMPARATIVE CHART
NO AMENDMENT – BIOCHAR – PELLET

AMENDMENT		N (%)	EC (µS/cm)	Ex. K (cmol$_c$/kg)	Ex. Mg (cmol$_c$/kg)	A.P. lenght (cm)	N_{tot} (%)	Δ A.P. fresh weight (g)
NON	Mean	0.14	177	0.38	1.13	21.0	1.70	0.16
	SD	0.01	59	0.05	0.04	1.8	0.09	0.06
BIOCHAR	Mean	0.16	190	0.60	1.12	26.4	1.92	0.19
	SD	0.01	39	0.14	0.04	5.2	0.19	0.11
PELLET	Mean	0.12	255	0.48	1.19	32.8	1.74	0.41
	SD	0.01	36	0.11	0.04	5.2	0.17	0.14





Precision agriculture and modelling tools improve soil quality



Apropriate amendments and crop rotation increase yield and producitvity

Outlook

- Pellets (spent mushroom substrate) and composts increased yield (barley, maize and fodder beet) and improved soil quality
- Pellets and composts combined with mineral fertilizer outkined the best plant performance (field and greenhouse)
- Soil microbial activity and functional diversity is influenced by the organic amendments
- Effects of biochar on yield and soil quality were not observed on the short-term field trials but are expected on a longer experimental scale