

9th ATF Seminar, Towards climate smart European livestock farming
November 6th 2019, Brussels, Belgium



C sequestration in soils, restoration of abandoned lands (soils and biodiversity) with pastures, legumes and animals

By Tiago Domingos
Terraprima, CEO



Sown Biodiverse Permanent Pastures Rich in Legumes

A Biodiversity Engineering innovation by David Crespo



Permanent, because they are self-maintained during at least 10 years (in some cases, 25 years)

Sown, because improved and selected seeds are introduced (by sowing)

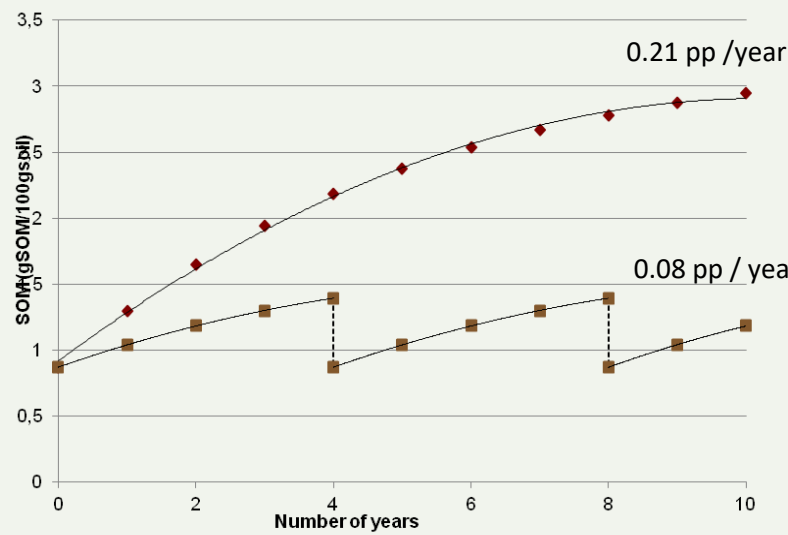
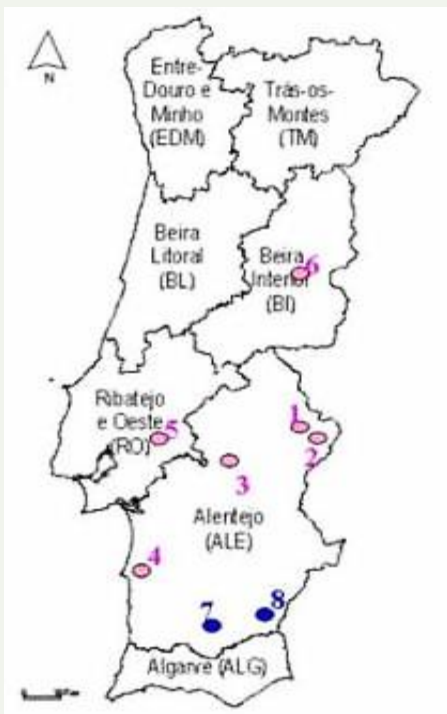
Biodiverse, because up to 20 species or varieties are sown

Rich in Legumes, because many plants are legumes, which are a “natural factory” of nitrogen, avoiding the use of synthetic fertilizers





Carbon sequestration



Sown Biodiverse Pastures
0.21 pp / year

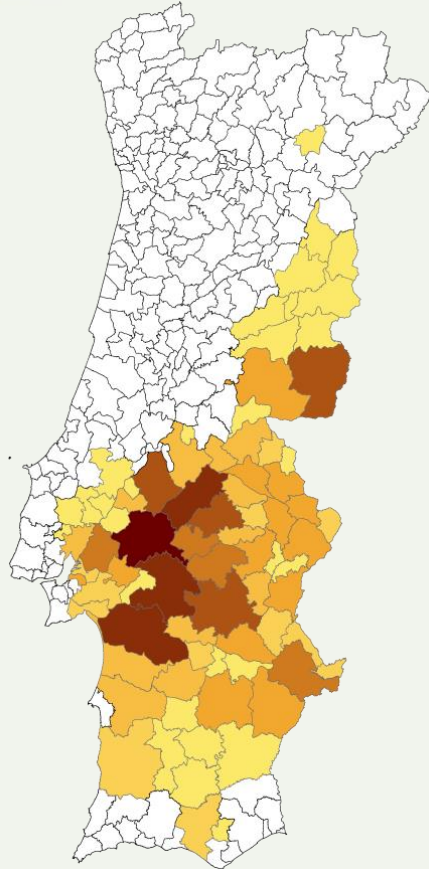
Degraded Grassland
0.08 pp / year

Teixeira, R., Domingos, T., Costa, A.P.S.V., Oliveira, R., Farropas, L., Calouro, F., Barradas, A.M., Carneiro, J.P.B.G. (2011). Soil organic matter dynamics in Portuguese natural and sown grasslands. *Ecological Modelling* 222: 993-1001

**10 year average
6.5 tCO₂/ha/y**

Project Sown Biodiverse Pastures

Project Terraprima/FPC 2009-2014



Sown Biodiverse Pastures

# Farmers	1 000
Area	50 000 ha
CO ₂ sold to the Portuguese Carbon Fund	1 Mton



Best European project 😊



Linking the past to the future



Problems

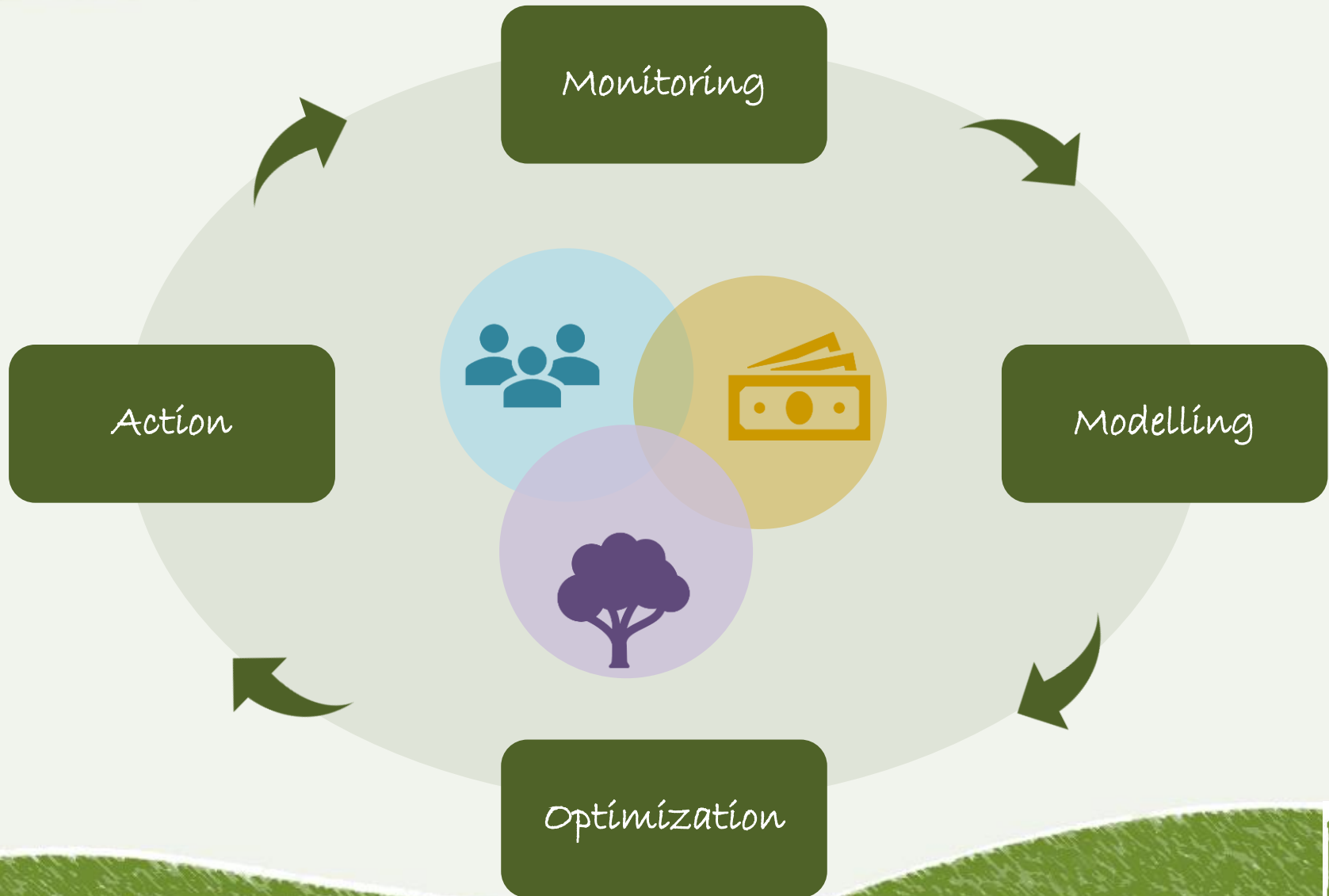
- Inadequate fertilisation
- *Ad hoc* animal husbandry
- Unattractive jobs



Opportunities

- Differentiated fertilisation
- Knowledge-based animal husbandry based
- Highly qualified jobs

Sustainable Agriculture 4.0

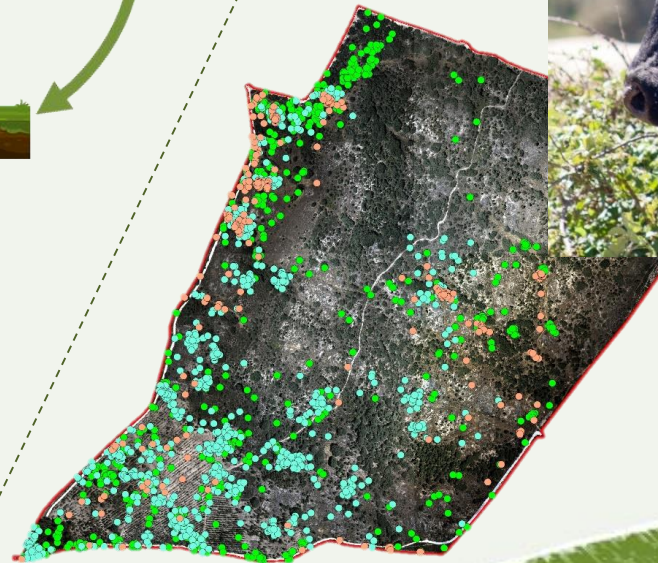
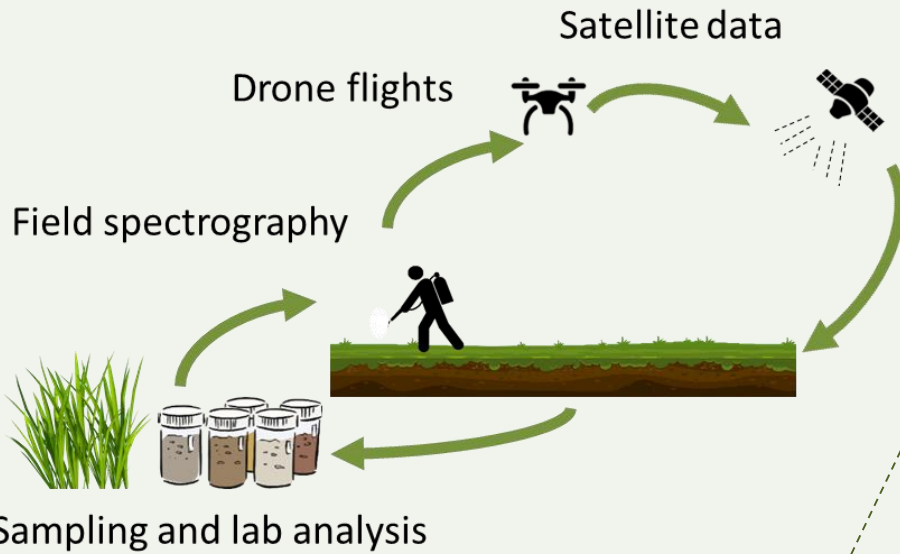


Monitoring



Soil & Pastures

Animals

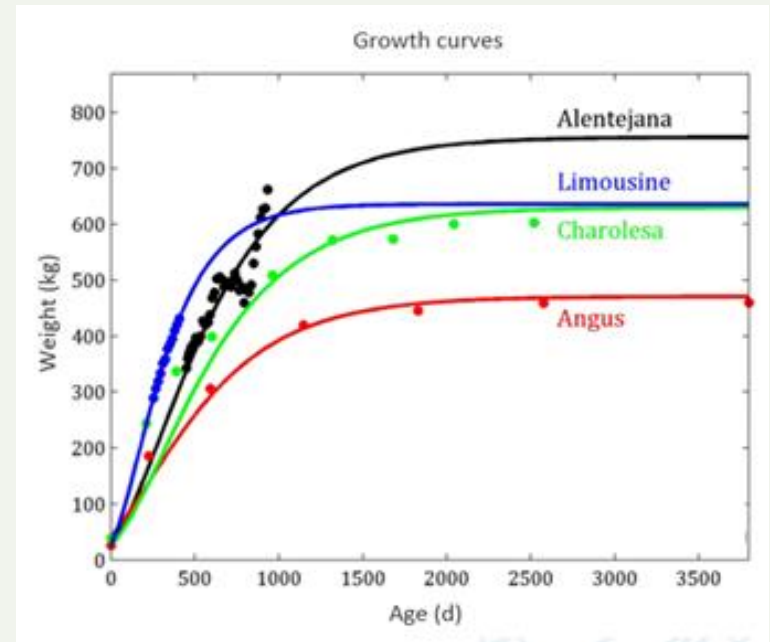
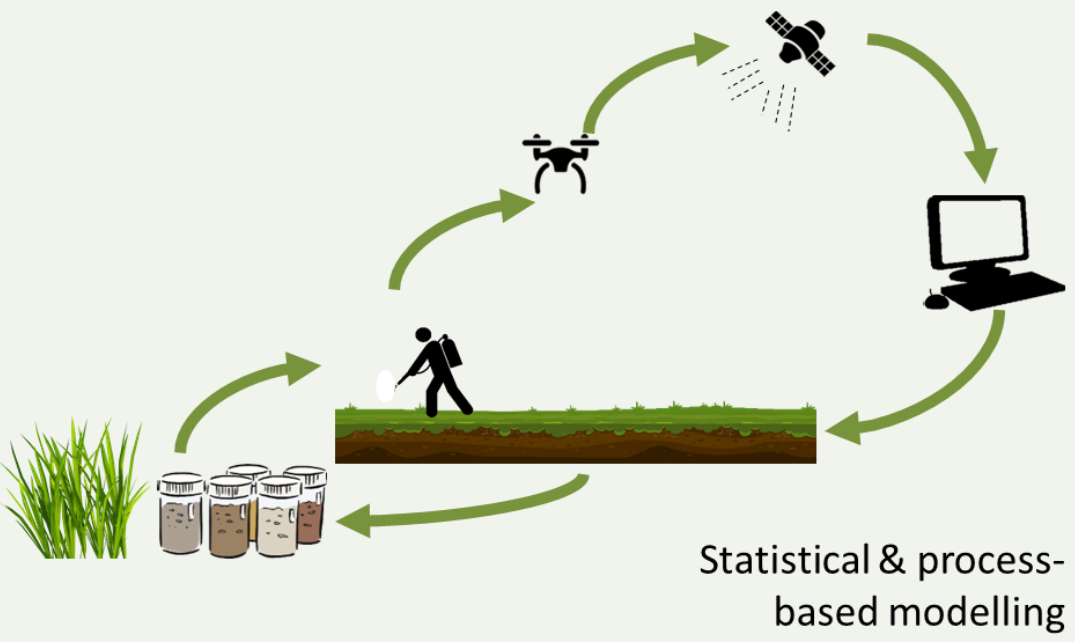


Modelling

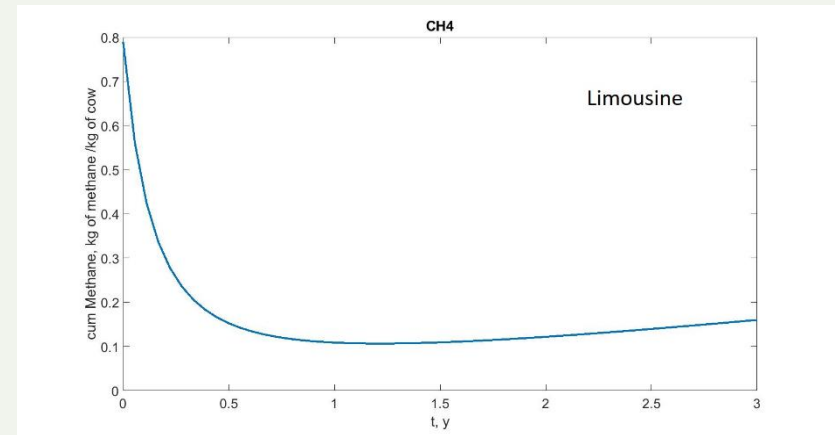
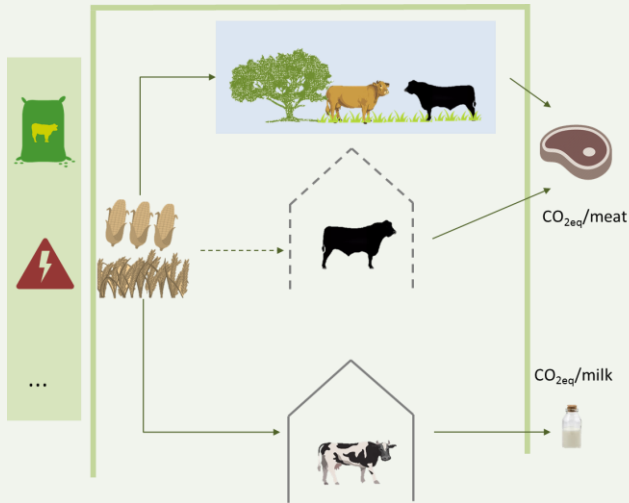


Soil & Pastures

Animals



Optimisation



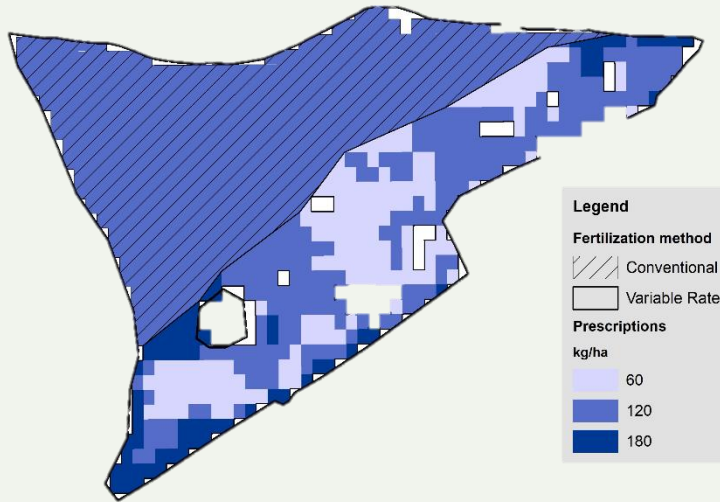
Parcelas

Mostrando de 1 até 8 de 30 registros.

Arquivos	Parcela	Sub Parcela	Parcela Ativa	Categoria	Classe	Área
	avacal					1,7063
	canalhal_ufa_neto					2,8876
	canalhal_pano					202,2882
	canalhal_baixo					0,9453
	canalhal_cima					0,3263
	canalhal_pesqueiro					0,9062
	passagem natural_casa_branca					0,8458
	passagem natural_livral_telhado					11,9453

Mapa de satélite mostrando a localização das parcelas.

Action



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