LifeRegen Farming

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The implementation of some regenerative practices to improve the sustainability of latxa dairy sheep system

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INTRODUCTION

Dairy sheep production system

Challenges:
Technical viability
Economic profitability
Environmental impact
Social acceptance

Changes (intensification):
Land use
Grazing practices

Consequences:
Environmental impacts

Needs:
Design grazing practices suitable to cope with the existing challenges

Dairy sheep production in the Basque Country:
Traditionally based on grazing (valley and mountain)

LIFE REGEN FARMING-
Innovate in grazing management to enhance the potential of grasslands to fix carbon, improve pastures' fertility and livestock sustainability.

OBJECTIVE

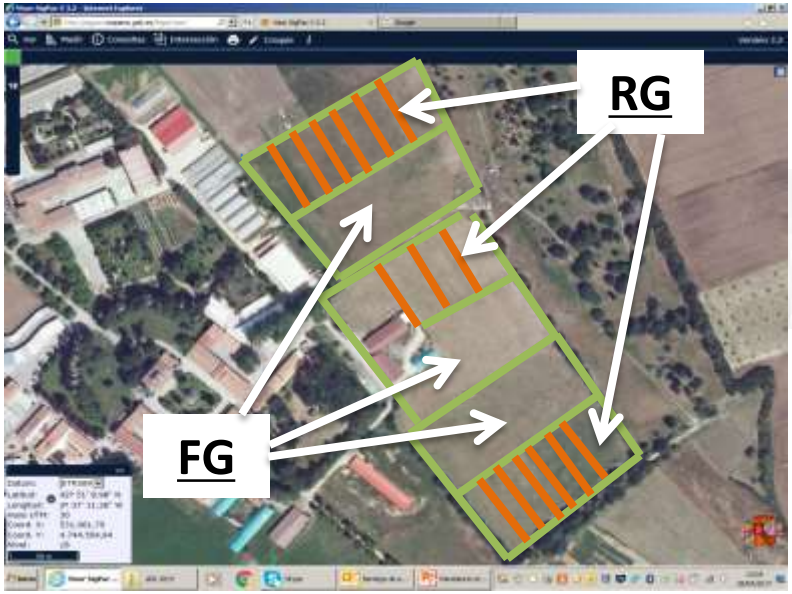
The main objective of the current paper was to determine the effect of two different **grazing management regimes** on pasture parameters and on dairy sheep production variables during the spring lactation period.

Soil, pasture, livestock parameters and carbon footprint were monitored in order to determine the effectiveness and the sustainability of these grazing regimes.

MATERIAL AND METHODS (1)

Two assays (2014-2015): during spring lactating period (april-june)
Sheep blocked homogeneously in 2 groups: free grazing (FG) and regenerative grazing (RG).

	FG	RG
Grazing days/plot	8±2	2±1
Resting days/plot	15±3	24±2
Grazing times/plot	4	3



Soil samples (10 cm depth): chemical parameters and POM.

Grazing herbage mass (kg DM/ha): cutting, dried and weighed.
Grass nutritive composition: CP, ADF and NDF contents.
Harvested herbage mass (HHM): the surplus of grass harvested and bales of hay were weighted in each paddocks.
Grass biodiversity

MATERIAL AND METHODS (2)

Daily milk yield (DMY) and DMYs (Boquier et al. 1993).
Milk composition: CF and CP content.
Individual LW and BCS as described by Russel (1984)

Carbon footprint: methodology described by Batalla et al. (2015), considering the Intergovernmental Panel on Climate Change (IPCC, 2006) and Carbon Calculator tool (Bochu et al., 2013).

Regenerative practices applied for the calculation:

- (+7%) of grazing time,
- (+14%) harvested grass
- (-4%) of concentrates for feeding
- 0% chemical fertilizations

Data were analysed by SAS (2010) considering as fixed effects: grazing management regime (FG and RG), month (April-June) and their interactions.

RESULTS (1)

POM: Higher in RG regime

Due to: higher resting time which allows soil time to recovery

	Variables/ treatment	FG	RG	P value
Soil parameter	POM	28.0±5.30	25.7±1.75	-
Pasture parameters	Grazed, kg DM ha^{-1}	1590 ±234	1591 ±207	0.99
	CP, g kg DM^{-1}	160 ±36	161 ±25	0.26
	ADF, g kg DM^{-1}	250 ±30	251 ±30	0.73
	NDF, g kg DM^{-1}	500 ±90	486 ±60	0.85
	Harvested kg DM ha^{-1}	4387±460	4890±252	-

Average harvested biomasses: 10-15% higher for RG.

Due to: higher resting time.

Advantage: reduce forage purchase, improve autonomy.

Grass biodiversity: 3% higher for RG.

RESULTS (2)

DMY, CF and DMYs were similar.
Ewes had similar LW and BCS.
Seasonal reduction in DMY and increase in CF between April-June.

	Variables/ treatment	FG	RG	P value
Animal parameters	DMY (mL d^{-1})	1510 ±420	1533 ±453	0.99
	DMYs (mL d^{-1})	1320 ±351	1357 ±382	0.39
	CF (%)	6.63 ±0.9	6.50 ±1.0	0.12
	CP* (%)	4.91 ±0.7	5.04 ± 0.7	0.39
	LW (kg)	60.0 ±7.6	59.5 ±8.8	0.19
	BCS	2.50 ±0.08	2.37 ±0.08	0.24

Carbon footprint : - FG: 3.78 kg CO2-eq/kg fat corrected milk.
- RG: 3.31 kg CO2-eq/kg fat corrected milk

Regenerative practices: reduced 10% the carbon footprint of milk production activity.

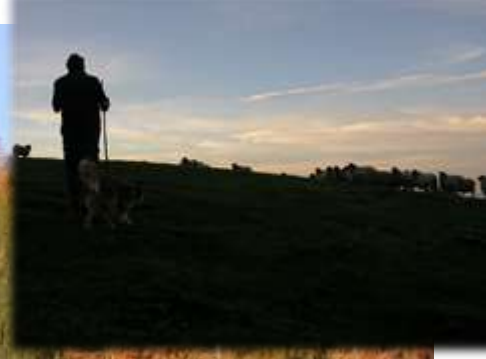
CONCLUSIONS

The regenerative grazing seemed to be linked with an increase of conserved herbage and a reduction of carbon footprint, without compromising livestock productive parameters.

There are opportunities for the sheep farming to face the existing challenges and to improve their sustainability through the introduction of regenerative practices for the management of grazing resources.

Work in progress (medium-long term):

- Maintain regenerative practices.
- Soil quality (POM, carbon fixation, …), biodiversity, carbon footprint, etc.



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Eskerrik asko ...

.... Merci beaucoup

... Many Thanks !!