

# CONTEXT PROFILE

 PORTUGAL



## FARMER

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## INNOVATION

Improving grasslands by using a combination  
of cereals and a seed mixture



[Video](#)



## MAIN DOMAIN OF THE INNOVATION

Improvement of grassland management



## SOIL TYPE

Clay



## FINANCE/INVESTMENT

Mid



## AGROCLIMATIC AREA

Mediterranean south



## MANAGEMENT

Ley farming



## MARKET

Local-rural



## CLIMATE

Moderate rainfall



## TECHNICAL

Easy



## SOCIAL

Full-time farmer

Case Study: PT_02	Agroclimatic Zone								
Item (Key Innovation Elements)	Alpine	Atlantic Central	Atlantic North	Atlantic South	Boreal	Continental North	Continental South	Mediterranean North	Mediterranean South
Irrigated pastures and forages / Water for irrigation/ Extension of pasture seasonality: rainfed autumn-spring pastures and irrigated summer pastures	++	++	++	++	++	++	++	+++	+++
Arable land / Cereals and biannual pasture crops / Land suitable for arable crops	++	+++	+++	+++	+++	+++	+++	+++	+++
Multispecies permanent grassland / Land suitable for grassland	+++	++	++	++	++	++	++	+++	+++
Appropriate machineries	++	++	++	++	++	++	++	+++	+++
Seeds for grasslands	+++	+++	+++	+++	+++	++	++	+++	+++
Irrigation equipment	++	++	++	++	++	++	++	++	++
Cereal seeding in grasslands	++	++	++	++	++	++	++	++	++
Cross bred cows	+++	+++	+++	+++	+++	++	++	+++	+++
Use of self-reseeding pasture species. Biannual species.	++	++	++	++	++	++	++	+++	+++
Diversity of forage types (annual forage crops, perennial pastures)	++	++	++	++	++	++	++	+++	+++

+++ Strong transferability
 ++ Slightly limited transferability
 + Very limited transferability
 × Generic information/not relevant

## Implementation Gaps

- Need water for irrigation
- Lacking information on forage and cereal species (Tef is mentioned in the video)
- Lacking information about water quantity for irrigation and system (and cost) of irrigation
- Cost & access to arable land
- Lacking information about harvest and storage for feeding livestock
- Cross breeds might need to be adapted to the breeds used in the specific regions
- Different ways of irrigation are used in different regions; need to find out which are suitable

## Research Gaps

- Impact on biodiversity
- Best seeds to sow
- Persistence of crops and yield of crops
- Rate and frequency of irrigation
- Data on impacts on cost of production
- TEF is almost unknown the Mediterranean environment, especially as forage plant. All agronomic and nutritional aspects need to be studied.

## Suggestions to Adapt

- Rotational grazing
- Dry climates
- Access to water and finance for irrigation
- TEFF needs a very carefully prepared seedbed because of its very small seeds. Its cultivation could be difficult in stony soils which are diffused in the Mediterranean area. Better to sow it in adapted soils
- Anticipate the sowing period to use some spring rain in the establishment stage of cultivation to save irrigation
- Increase diversity of pastures: choose species and varieties that are suitable to the specific environment. Some problems may be met in the choice of perennial species (seed availability, seed origin: most seeds come from Australia)

# COST-BENEFIT ANALYSIS

## INVESTMENT COSTS

Total initial investment costs at start up:	high
• Initial authorisation costs (e.g. sanitary, veterinary, etc.)	high
• Initial advisory costs	high
• Initial buildings and machineries	high
• Initial certification costs	high
• Initial working capital (personal qualification, marketing and promotion, etc.)	high

## ON-GOING COSTS

On-going advisory costs	high
On-going certification costs	high
On-going buildings and machinery costs	high
On-going working capital	high

## BENEFITS RELATIVE TO ORIGINAL SYSTEM

### ◦ Economic

Reduction in energy consumption (electricity; fuel consumption)	none or low
Reduction in input use (fertilizers; pesticides; feed) etc.	none or low
Payback period	high
Product value added	high
Additional farm income through agroecological/agri-environmental payment schemes	not applicable/not known

### ◦ Environmental

Animal feed self-sufficiency increase	mid
Biodiversity increase	none or low
Improved nitrogen cycling	mid
Soil regeneration	none or low
Animal health and welfare improvement	mid

### ◦ Social

Workload reduction	none or low
Engagement of young generation	high

# Literature

## English

- Morais, T.G.; Teixeira, R.F.M.; Rodrigues, N.R.; Domingos, T. Characterizing Livestock Production in Portuguese Sown Rainfed Grasslands: Applying the Inverse Approach to a Process-Based Model. Sustainability 2018, 10, 4437. <https://doi.org/10.3390/su10124437>
- Soares, D.; Rolim, J.; Fradinho, M.J.; Paço, T.A.d. Climate Change Impacts on Irrigation Requirements of Preserved Forage for Horses under Mediterranean Conditions. Agronomy 2020, 10, 1758. <https://doi.org/10.3390/agronomy10111758>