Grazing systems in Spain

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INTRODUCTION

DAIRY PRODUCTION IN SPAIN

REDUCING CONCENTRATE USE

ENVIRONMENTAL BENEFITS

CONCLUSIONS
Grazing systems in Spain

European Biogeographic Regions
Habitat Directive. EU

Climate
Humid Oceanic
- Mild Winter
- Cool Summer

Mediterranean
- Mildness Winter
- Dryness Summer

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SPAIN

Number of BOVINE farms

GALICIA

Dairy cows

Meat cows

Number of BOVINE cows

GALICIA
Grazing systems in Spain

- Increase number of animals/farm
- Profitability
- Intensification

Sixties-Seventies
300000 farms (+6)
1.030.577 animals (65 %)
Innovations

- System
- Soil fertility
- Sown
- Management
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Innovations
System:
  - Intensification
    * Use of silage replacing hay: maize silage
    * Use of concentrates (protein resource): enriched mixtures but also red clover grazing

Soil fertility

Sown

Management
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Innovations
System:

Soil fertility
  * Use of fertilizers
    N: Type (urea vs nitramon)
    Date (early vs late)
    Dose
    P: deficiencies vs excess
  Organic fertilizers

Sown

Management
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Innovations

System:

Soil fertility

Sown

* Crop rotations: rye + maize
* Legumes and grasses varieties

Management
Grazing systems in Spain

Innovations

System:

Soil fertility

Sown

Management

* Silage: grass vs maize
* System: rot vs cont
* Stocking rate
* Grazing:
  Residual and offer grazing height
  First grazing period

INNOVATIONS: REDUCING CONCENTRATE USE AS FEEDING ANIMALS REPRESENTS THE 60-70% OF PRODUCTION COSTS

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REDUCING ANIMAL PRODUCTION COSTS: agroforestry systems

Transhumance:
- High altitude areas
- Tree low density areas

Forage trees or shrubs:

Leaves and branches:
- *Morus alba*
- *Robinia pseudoacacia*
- *Fraxinus excelsior*
- *Betula alba*

Fruits:
- Acorns
- Uncommercial chesnut fruits

Reduce climate change future impacts
CROPS IN AGROFORESTRY SYSTEMS MAY BE LESS SENSITIVE TO CLIMATE CHANGE HAZARDS
Land Equivalent Ratio

1.2 to 1.6

Poplars-winter cereals
14 year cycle
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Secuestro de Carbono
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Animal Manure

(3.5 cows/ha) 25 mg/l N-NO₃ (10 month)

60% forestry area
DEEP ROOTS: NITRATE AND PESTICIDE LEACHING REDUCED
Deep roots ecosystem services
Strong reduction of Nitrogen transfers to water tables

Site: Restinclières, Prades Le Lez, France

Average nitrate leaching (kg.ha⁻¹.an⁻¹)

- Agroforestry
- Agriculture
- Forestry
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+ shade

+ light
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FRAGMENTED HABITAT

AGROFORESTRY SYSTEMS CORRIDORS

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Product and Protect
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Edges, Tree groups, Alley cropping

Interaction in separate lands

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Agroforestry could help to solve some of the future problems of intensive dairy systems through:
– Increasing combined production
– Reducing environmental problems
• Thanks at all

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