

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

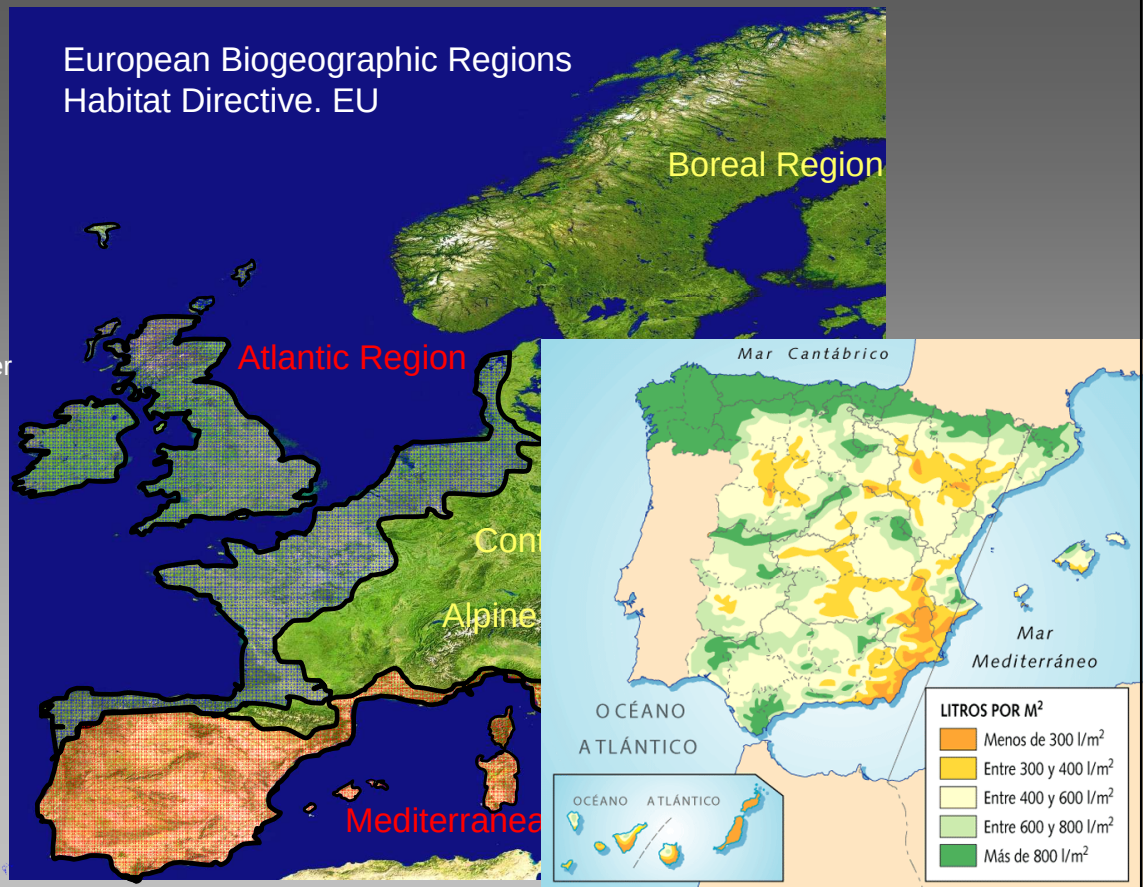
Climate

Humid Oceanic

- Mild Winter
- Cool Summer

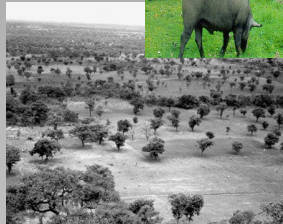
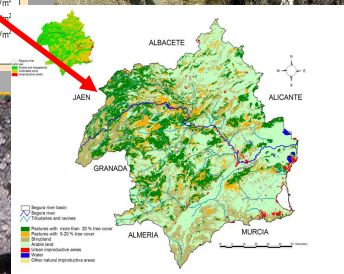
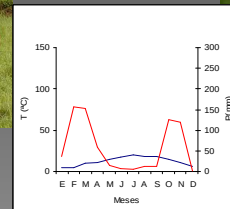
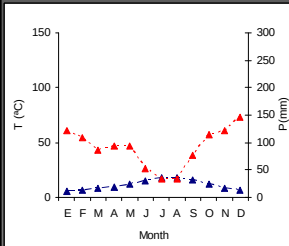
Mediterranean

- Mildness Winter
- Dryness Summer



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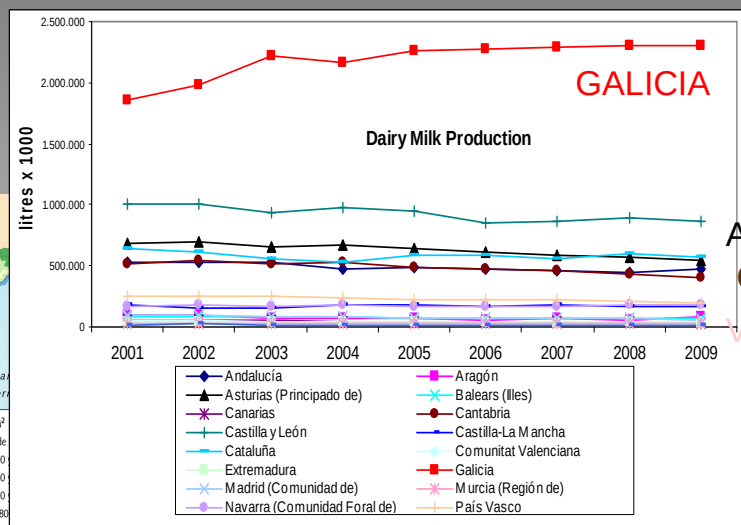
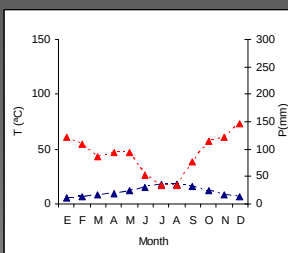
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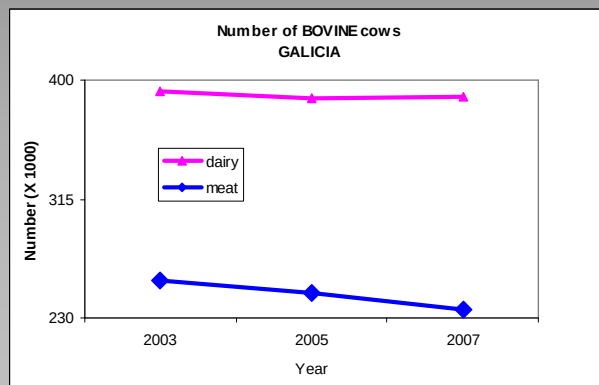
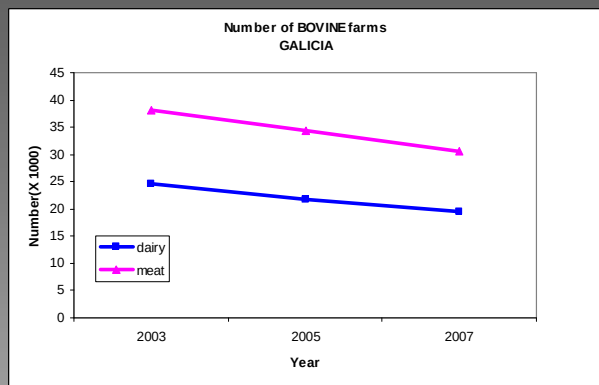
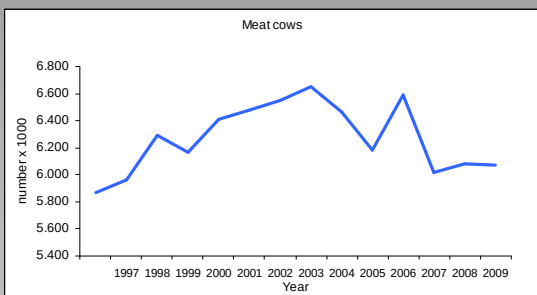
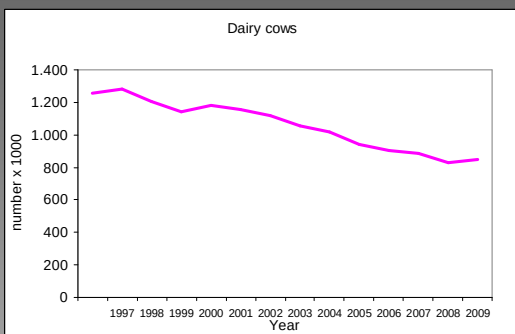


ASTURIAS
CANTABRIA
VASQUE COUNTRY

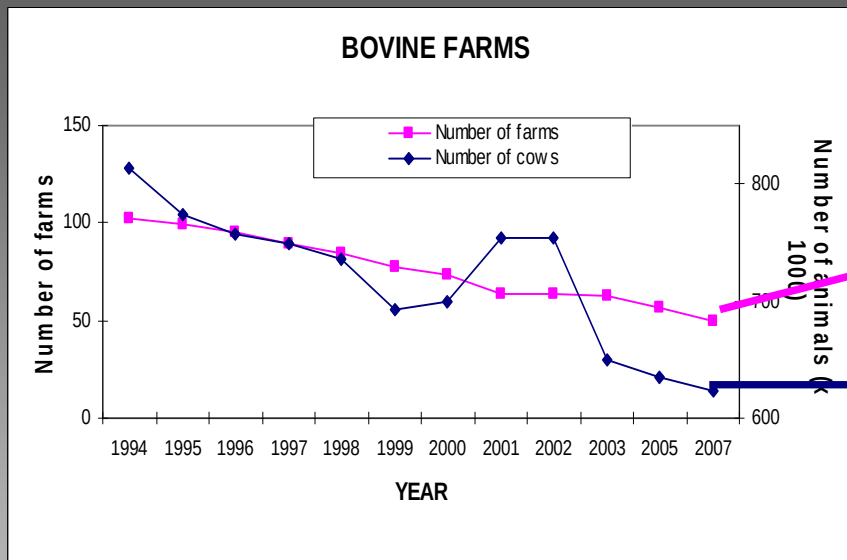
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SPAIN



Grazing systems in Spain



- *Increase number of animals/farm*
- *Profitability*
- *Intensification*

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

Grazing systems in Spain

Innovations

- System
- Soil fertility
- Sown
- Management

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Grazing systems in Spain

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

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Innovations

System:

Soil fertility

Sown

Management

- * Silage: grass vs maize

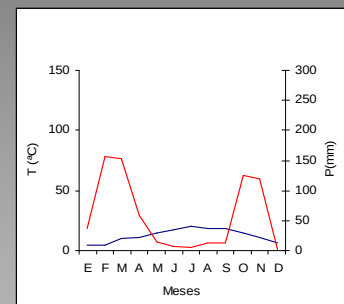
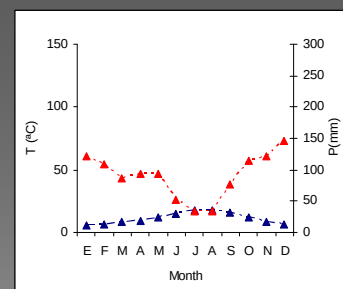
- * System: rot vs cont

- * 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

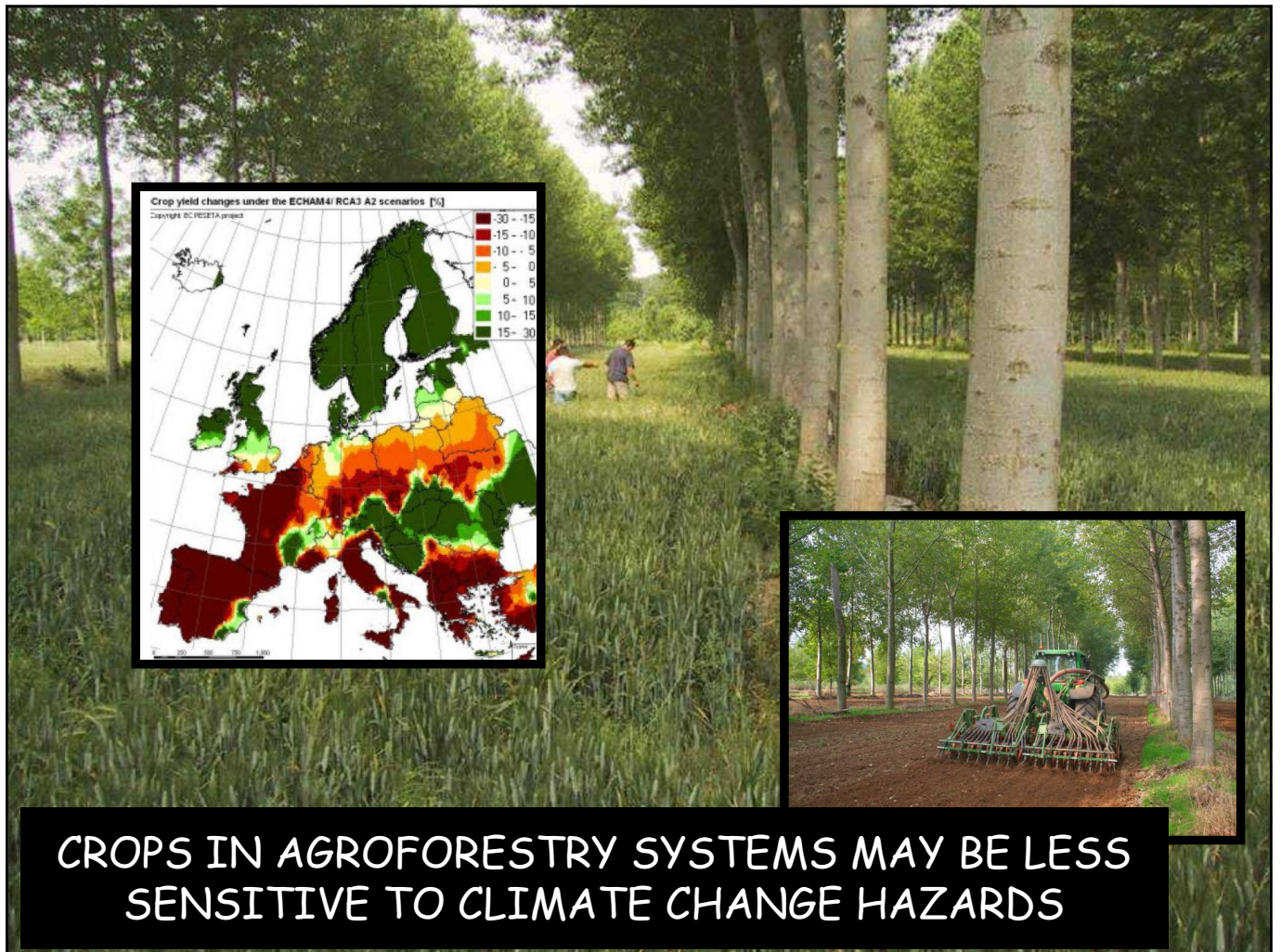
Fruits:

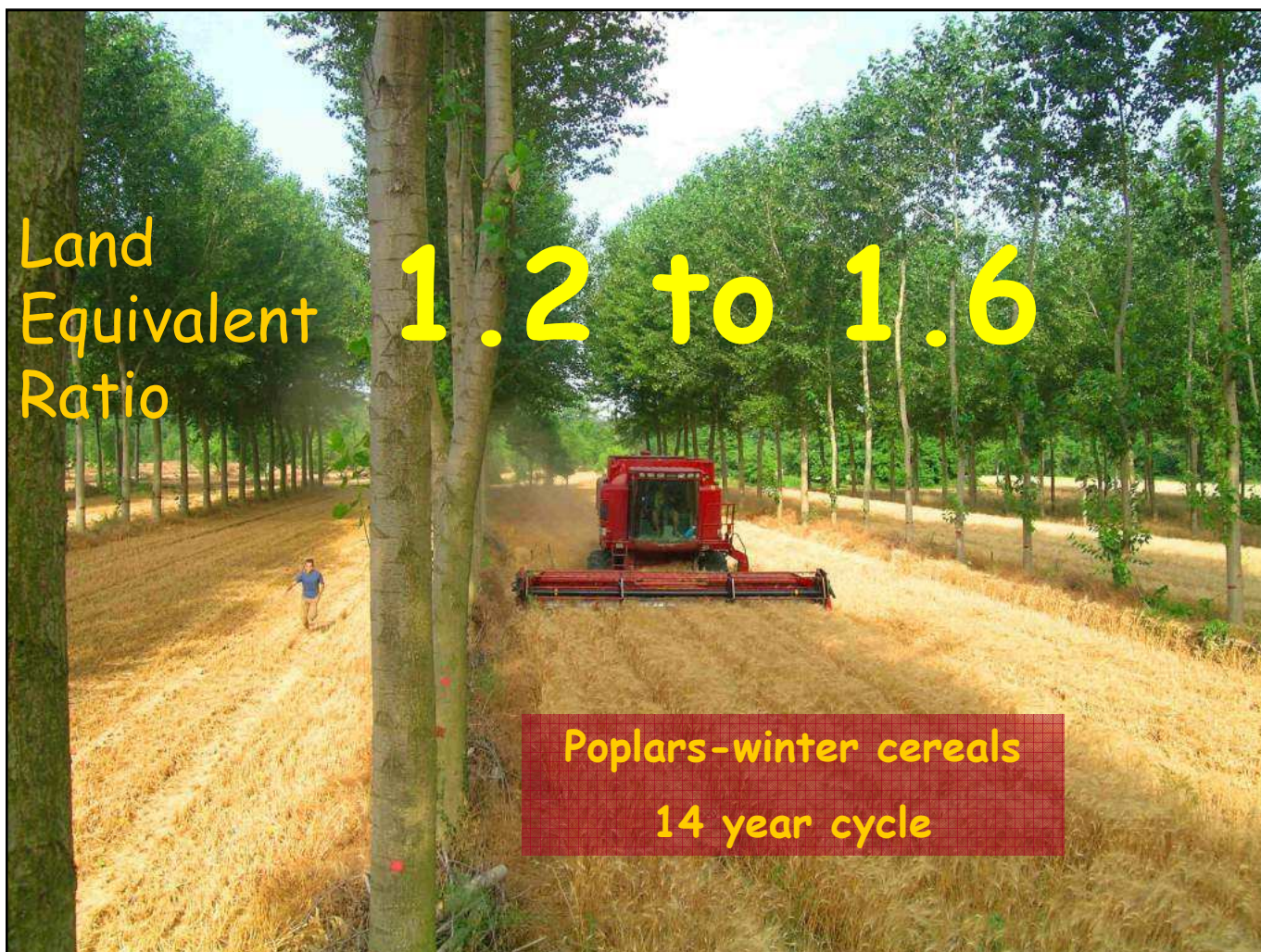
Acorns
Uncommercial chesnut fruits



Reduce climate change future impacts

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RIVERS

Secuestro de Carbono

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Animal Manure

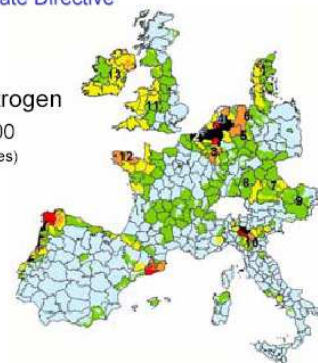
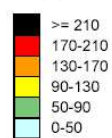


I - Implementation of the Nitrate Directive

2000

Animal Manure Nitrogen
per ha AA in 2000
(french animal references)

N (mg/l) / ha AA



Source : Eurostat 2000

EEA Agri-Water 21-22/02/05

3

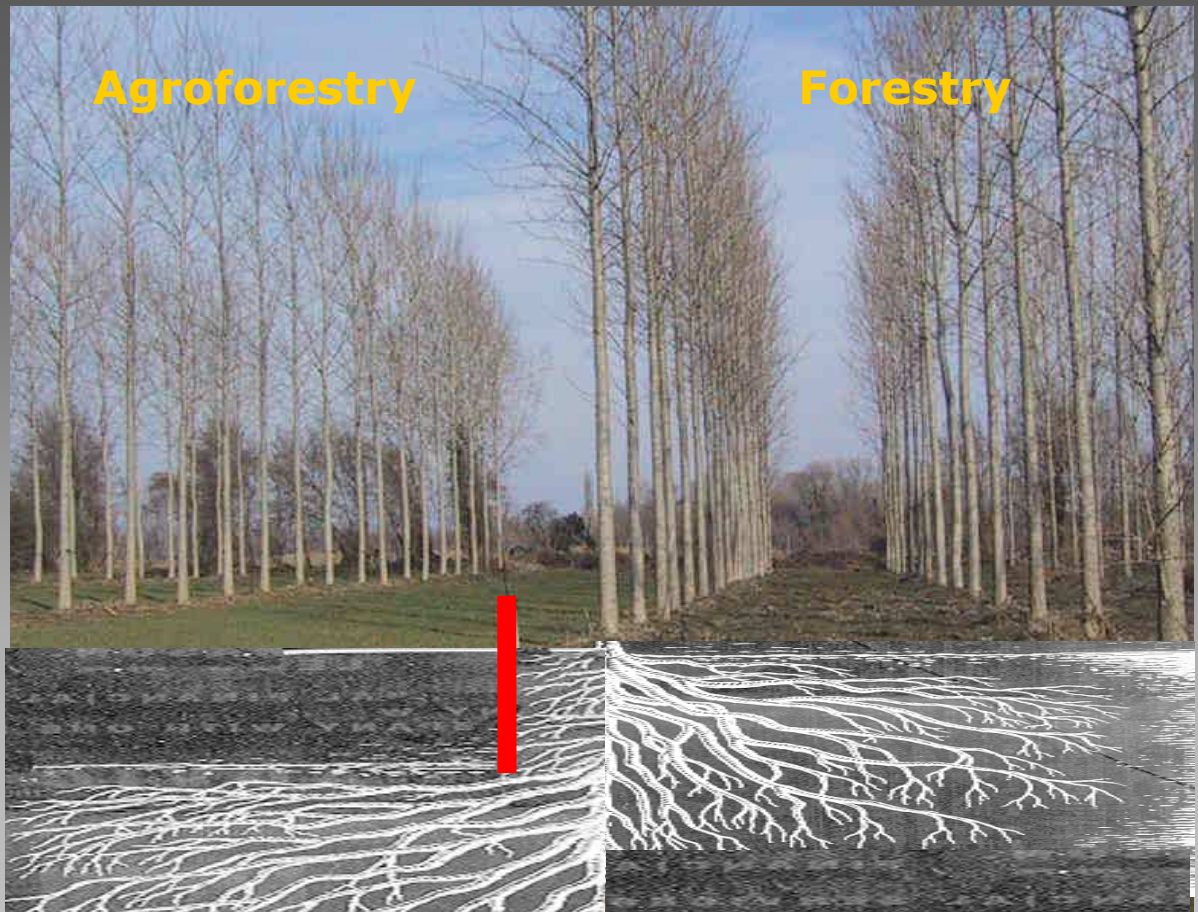
(3.5 cows/ha) 25 mg/l N-NO₃ (10 month)

60% forestry area

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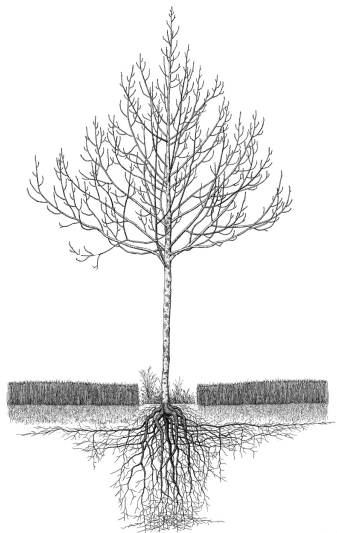
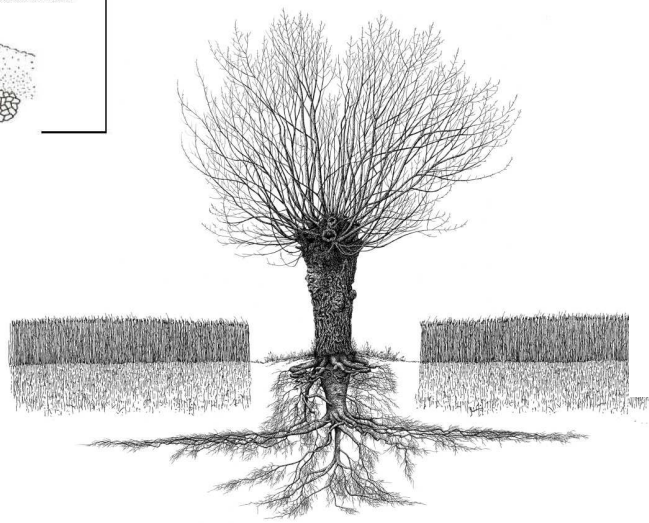
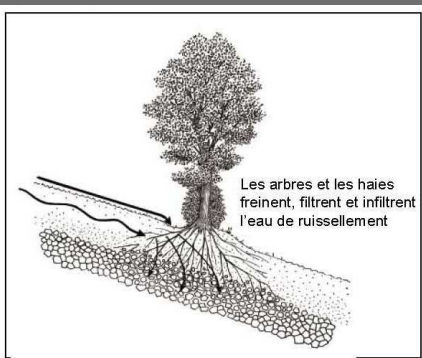
Agroforestry

Forestry



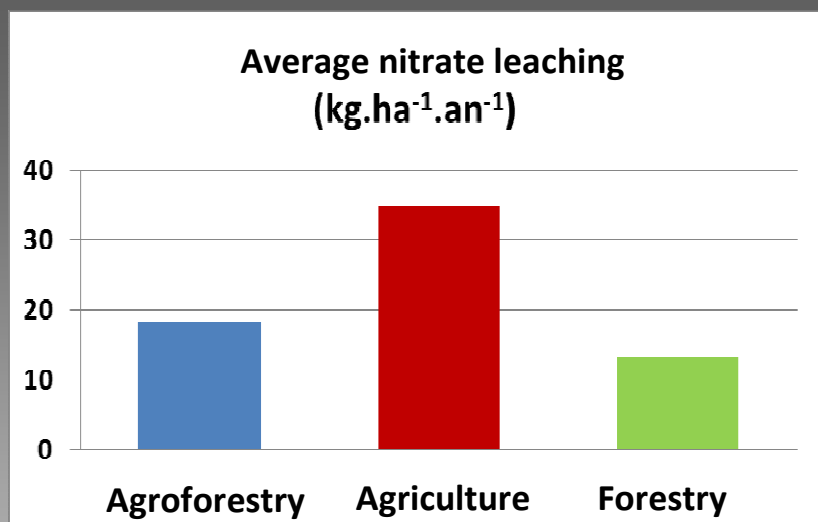
DEEP ROOTS : NITRATE AND PESTICIDE LEACHING REDUCED

Deep roots ecosystem services

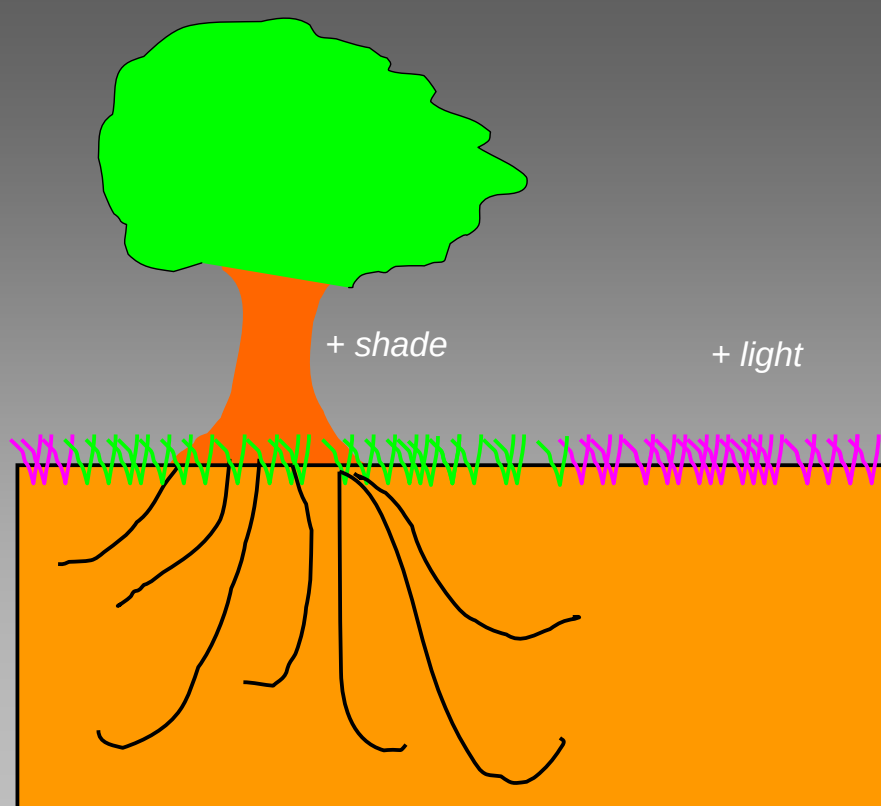


Strong reduction of Nitrogen transfers to water tables

Site : Restinclières,
Prades Le Lez,
France

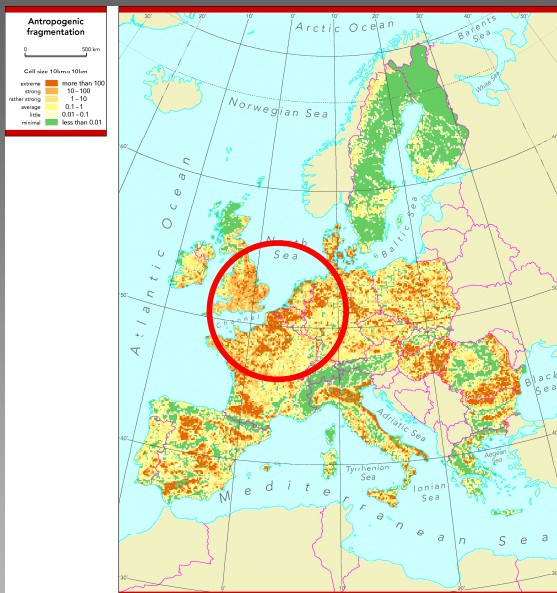


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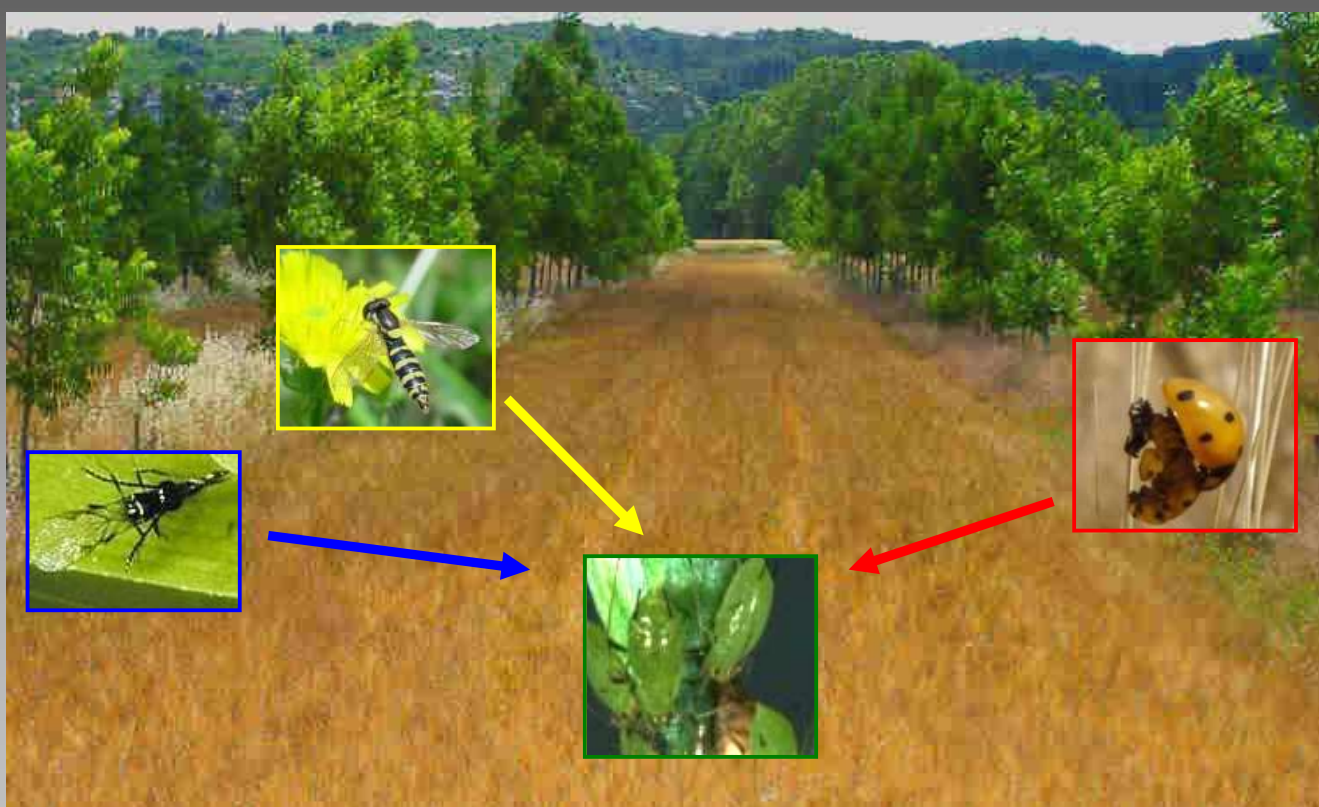
AGROFORESTRY SYSTEMS
CORRIDORS

FRAGMENTED HABITAT



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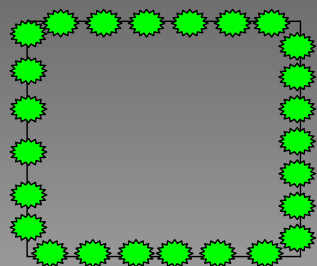


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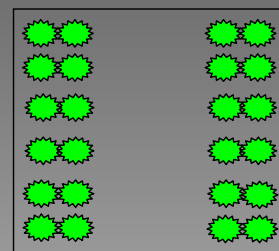
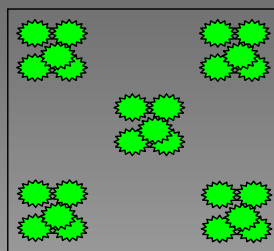
Product and Protect



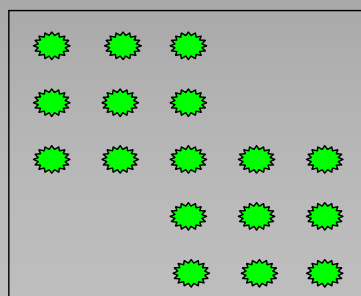
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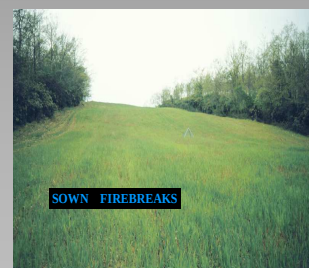
Edges,



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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