

# Carbon Farming Initiative Agroforestry case study

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1

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COWI

# Result-based mechanisms and agroforestry

## Result-based payment mechanisms

- > €/ha/ann per unit of environmental product (or indicator thereof)
- > Higher quality or quantity = €€, but no product = no payment (risk!)
- > 25+ years experience in result-based payments for biodiversity in EU (state-aid, more recently CAP)
- > Exploring application to other environmental objectives

## Agroforestry in the EU

- > Trees (or other woody plants) integrated with agriculture on the same plot
- > Agroforestry is not new!
- > Long-established, low intensity silvopastoral systems across the EU
- > New systems in past 20-30 years
- > Potential for multiple benefits, not just GHG

# Pastoral agroforestry Dehesa (Spain) and Montado (Portugal)





# Permanent crop agroforestry



# Arable agroforestry



## Mitigation potential (and avoiding emissions)

- If new agroforestry were targeted at priority arable and grassland areas, already under multiple environmental threats:
  - sequestration potential estimated at between 8 and 235 mt CO<sub>2eq</sub> y<sup>-1</sup>
  - but influenced by type of agroforestry system, management and end use of trees
- Important to avoid increasing GHG emissions as a result of:
  - establishing the trees, changes to agricultural management and leakage (displacement)
  - decline of long-established agroforestry, especially of high natural and cultural value on marginal land
- Potential at plot level is modest (c.f. peatland for example)
- Almost all farmland in the EU *could* support locally-adapted agroforestry

# Overview of the case study examples (1)

## **Carbocage** (Pays de la Loire, France)

- Pilot local carbon market in 3 areas, evaluating C storage in sustainably managed hedges

## **COOP supermarket** (Switzerland)

- Farmers in COOP supply chain are supported to grow fruit trees and produce wood of quality suitable for material use
- Emission reductions are used by COOP (not the farmer)





## Overview of the case study examples (2)

### **Montado** (Univ. Evora, Portugal)

- Working with farmers to valorise effective management of natural regeneration system
- Stack/weight result-based indicators

### **Woodland Carbon Code** (UK)

- Rewards +C sequestered in new, sustainably managed woodland
- Voluntary standard, independent verification (not soil carbon)
- Purchased credits are retired





## Key enabling factors (case study)

- › Institutional capacity was a more critical factor than system of governance
  - › local knowledge/data and technical capacity
  - › integrating stakeholders throughout design process
- › Engaging farmers to overcome significant barriers
  - › knowledge and skill gaps
  - › resistance to major change in land use and farm business; length of payback time
- › Specialist on-site advice, locally tailored to both *agro-* and *-forestry*
- › Co-operation and peer-to-peer learning

# Paying for results (case study)

## Monitoring, Reporting and Verification (MRV)

- Above ground biomass as proxy for C sequestration (values vary) in COOP and Woodland Carbon Code
- Montado is exploring use of transects and indicator plant species (for multiple indicators, not just C sequestration)
- Only Montado has indicators for both the agro- and –forestry elements of land management

## Sources of finance

- Multiple sources, including government support

# Lessons learnt from the case study

- > Involve (not just consult!)
  - > Farmers, advisers
  - > Scientists
  - > Supply chain
  
- > Agroforestry is a long-term land use change
  - > Design, test, review (takes 1-2 years for a new, locally adapted, result-based payment)
  - > Establishment phase requires significant investment
  - > Valorisation of the economic benefits to the farm business could encourage uptake



# Scaling up and evaluation

- > Clear potential for carbon farming by:
  - > incentivising better management of existing agroforestry and
  - > establishing new, locally adapted agroforestry within arable, grassland, horticultural and permanent crops
  - > spatial targeting at areas of greatest need – C savings and co-benefits
- > MRV for result-based mechanisms
  - > only indirect methods for above ground biomass, actual values vary
  - > SOC methodologies not yet fully tested or validated for agroforestry
- > How to address the trade-off - result-based payments at plot level versus rapid upscaling of agroforestry at EU-27 scale?
- > Ex-post evaluation of agroforestry result-based mechanisms – a role for improved EU-wide data on land use and soils?





# Thank you!

See Grasslands Case Study Report for mechanism description and discussion.  
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