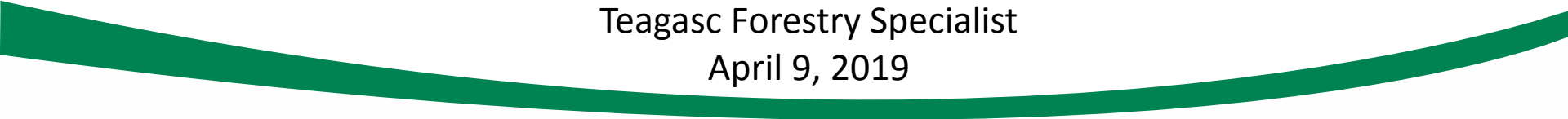




Farm Forestry: An important ally in the quest for agricultural sustainability

Tom Houlihan
Teagasc Forestry Specialist
April 9, 2019

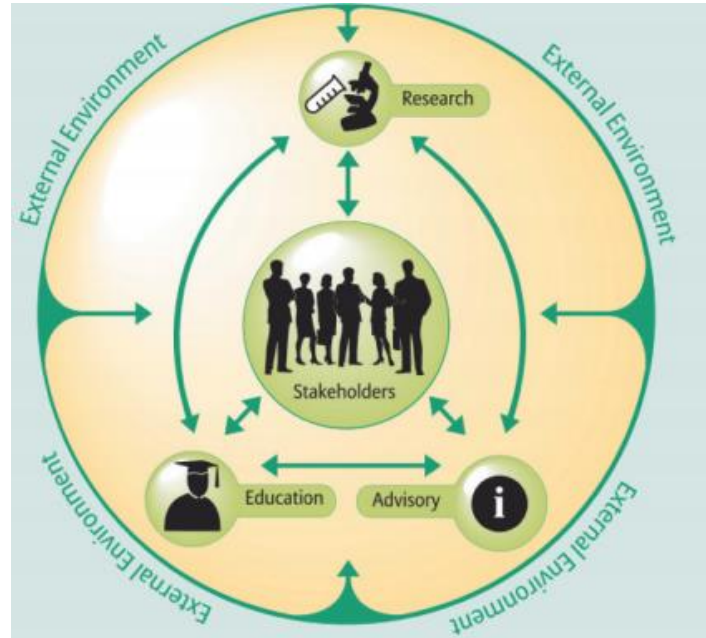


AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

Teagasc Mission

- Support science based innovation in the agri-food sector and wider bioeconomy so as to underpin profitability, competitiveness and sustainability.

Agri-food
Knowledge
Innovation
System



Teagasc Forestry Research

Tree improvement



Broadleaf silviculture /restructuring

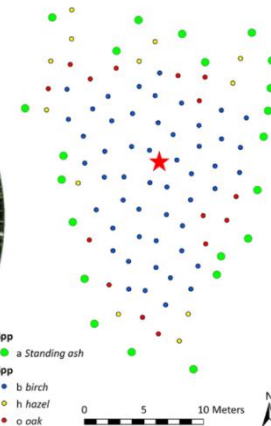
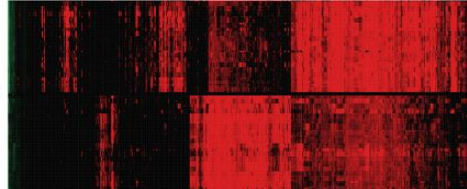


Breeding for disease resistance



Tolerant
genotypes

Susceptible
genotypes



Teagasc Forestry Research

Forest thinning /potential of other species



PW-IPM: Towards Integrated Pest Management for Pine Weevil in Ireland

FOROWN Project



Teagasc Forestry Advisory

Advisory clinics



Forestry Management Events



International Day of Forests



Conferences



Tullamore Show



Timber Marketing



Teagasc Forestry Training

Ballyhaise College



Harvesting Simulator



Hosting National Events



QQI Accredited L5 / L6 courses



Short Courses



Over 21,000 private owners
83% farmers
378,623 ha (49.2% of forest area)



Ireland's woodlands & forests and Forestry Programme supporting...



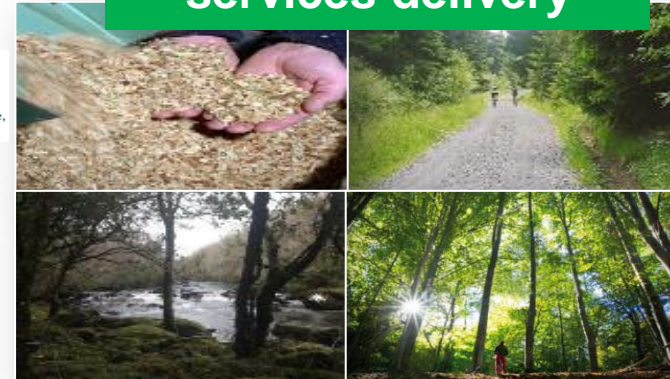
Forestry sector worth €2.3 billion



12,000 jobs (mainly rural)



Ecosystem services delivery



770,020 ha
11% of land area

Grant and Premium Categories (GPCs)

GPC 3:

10 Diverse Conifer/Broadleaf

Sitka Spruce

10% Birch

GPC 4: Diverse Conifer

Eg Scots Pine

GPC 6: Pure Oak

GPC 8: Pure Alder/Birch

Native Woodland (GPC 9/10)

- Integral to Irelands natural heritage, history and culture
- Unique in terms of biodiversity
- Numerous ecosystem services
- **Native Woodland Establishment**
 - Grant Aid €5,880 - €6,220/ha
 - Annual premium €665 - 680/ha (15 years)
- **Native Woodland Conservation Scheme**
 - Grant aid: €2,500(emergent), €5,000/ha high forest
 - Annual premium €350/ha (7 years)



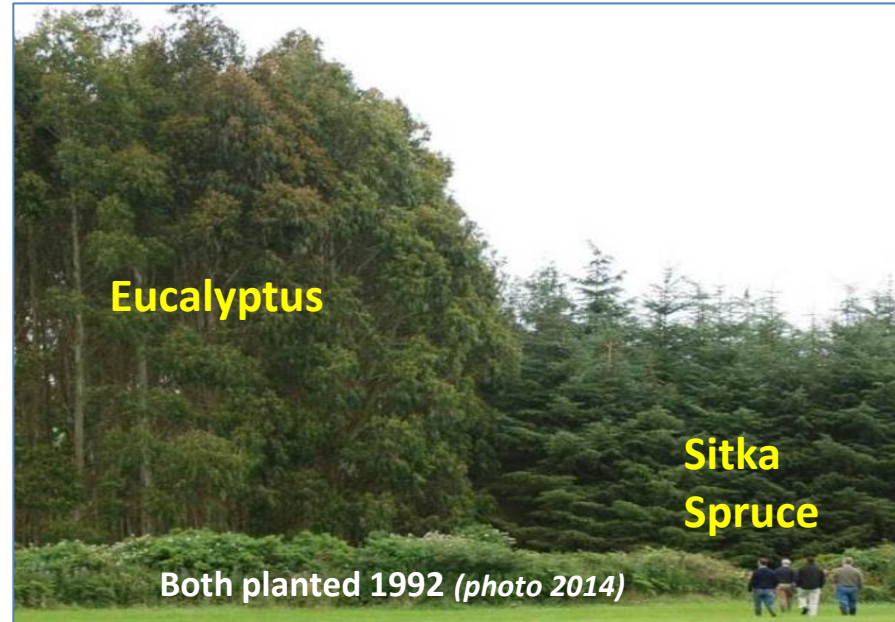
Agro-Forestry (GPC 11)

- Silvo-pastoral: combining forestry and pasture
- Oak, sycamore, cherry
 - Continued access to land
 - Reduced fertiliser/chemical inputs
 - Animal welfare
 - High quality timber
 - Biodiversity
 - Water quality
 - Landscape quality
 - Improved drainage/shelter
 - Carbon sequestration
- 5 year premium €645 - €660/ha



Forestry for Fibre (GPC 12)

- Growing productive trees to produce biomass in 10-15 years
- Eligible species
 - Italian Alder, hybrid aspen
 - Eucalyptus, poplar
- Grant €3,815 /ha
- 15 year premium: €510 - €520 /ha



Sustainability

Intersection of:

1. Environmental

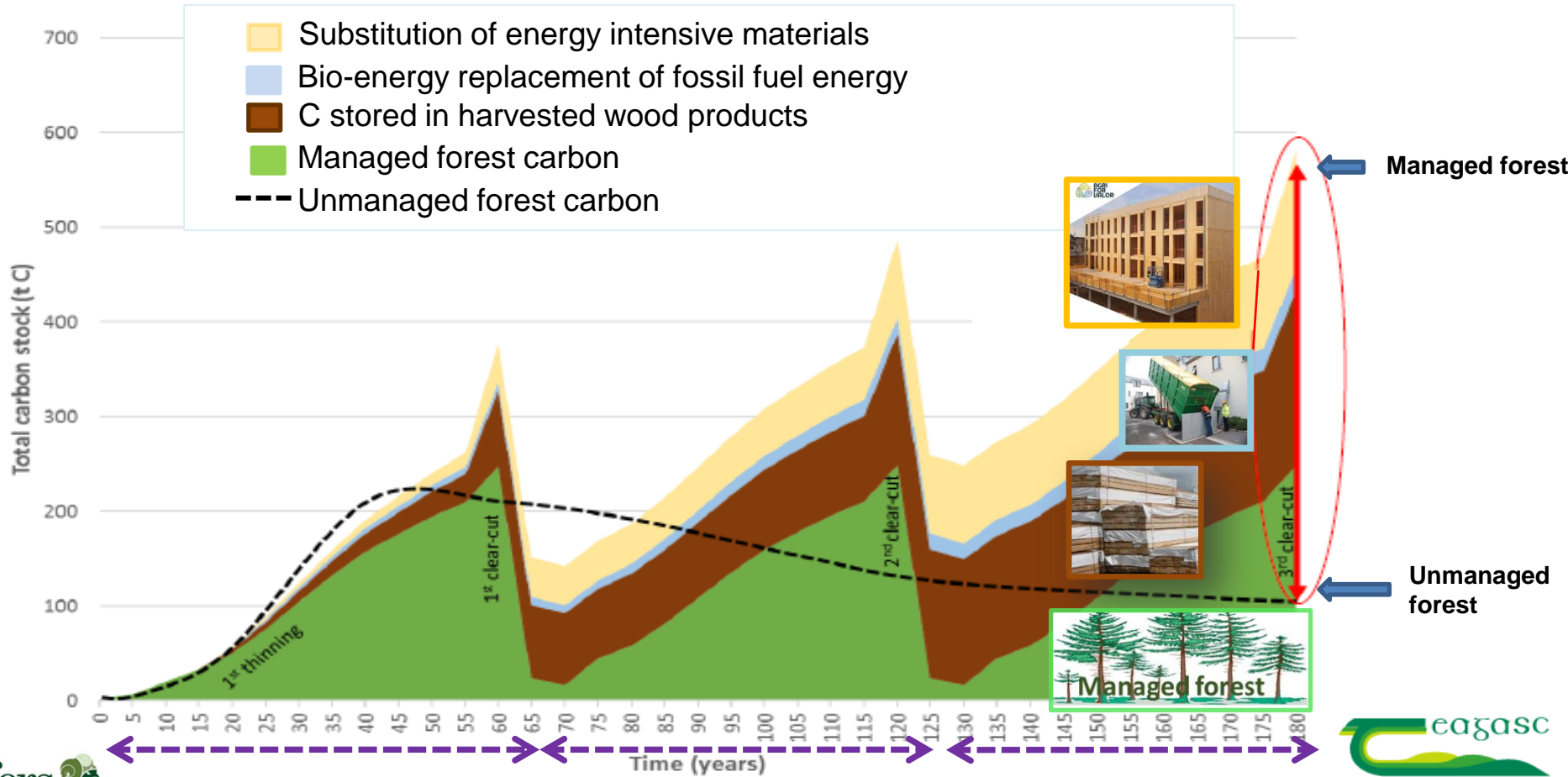
- Climate change mitigation
- Water quality
- Biodiversity

2. Economic

3. Social



Stand Level Processes



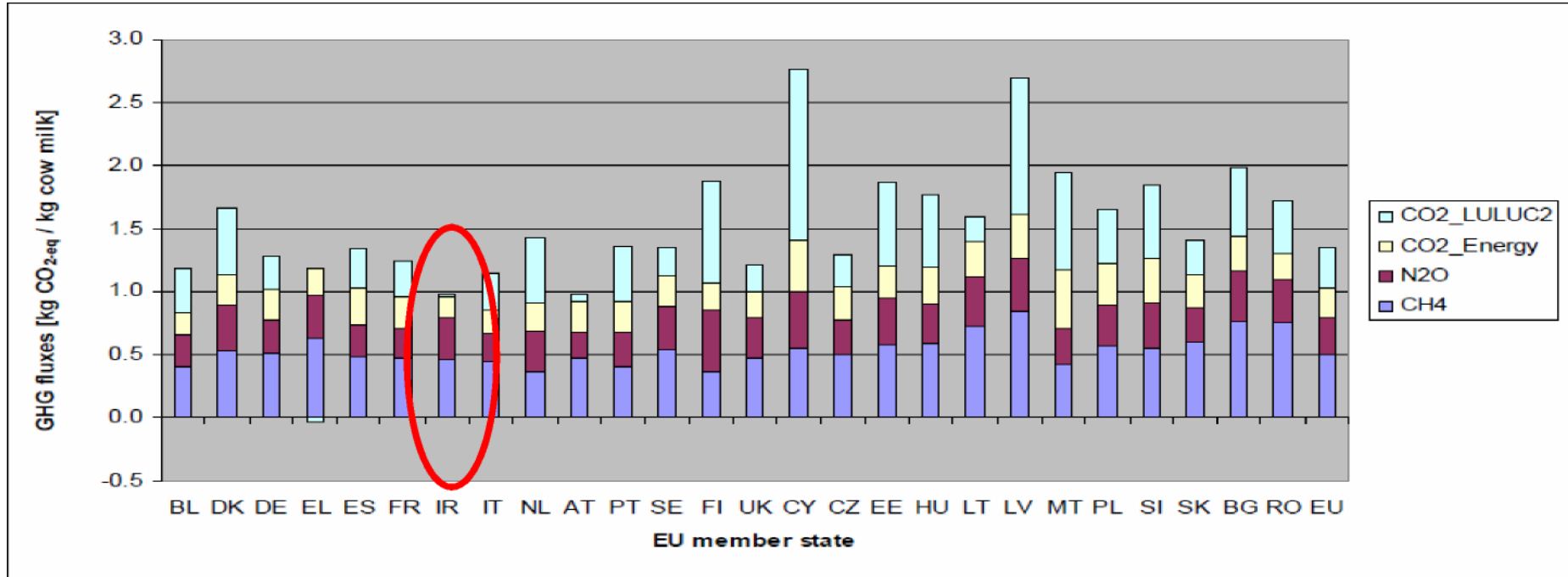
Indicative Sequestration Rates

Forest Type (including 15% Area for Biodiversity Enhancement)	Indicative Mean Sequestration * (tCO ₂ equivalent/ha/yr)	
	Less productive site	More productive site
Mainly conifer (10% diverse spruce/broadleaf)	4.5	10.0 +
Fast grow broadleaves (birch, alder, sycamore)	3.5	6.0+
Slow growing broadleaves (oak, beech)	2.5	3.0

* Potential sequestration rates normalised over 2 rotations

•Irish milk has a very low carbon footprint

Our grass-based systems are very efficient in terms of greenhouse gases per kg of milk or meat



•EU Commission - JRC. Leip A, Weiss F, Wassenaar T, *et al.* 2010.

Climate Challenge

- Mitigating of Agricultural Greenhouse Gases (GHGs) -target
- **30% reduction relative to 2005 levels**
 - 2005 level: **18.70 Mt CO₂e**
 - 2016 level: **19.24 Mt CO₂e**
 - Higher animal numbers, increasing trend



Climate targets extremely challenging

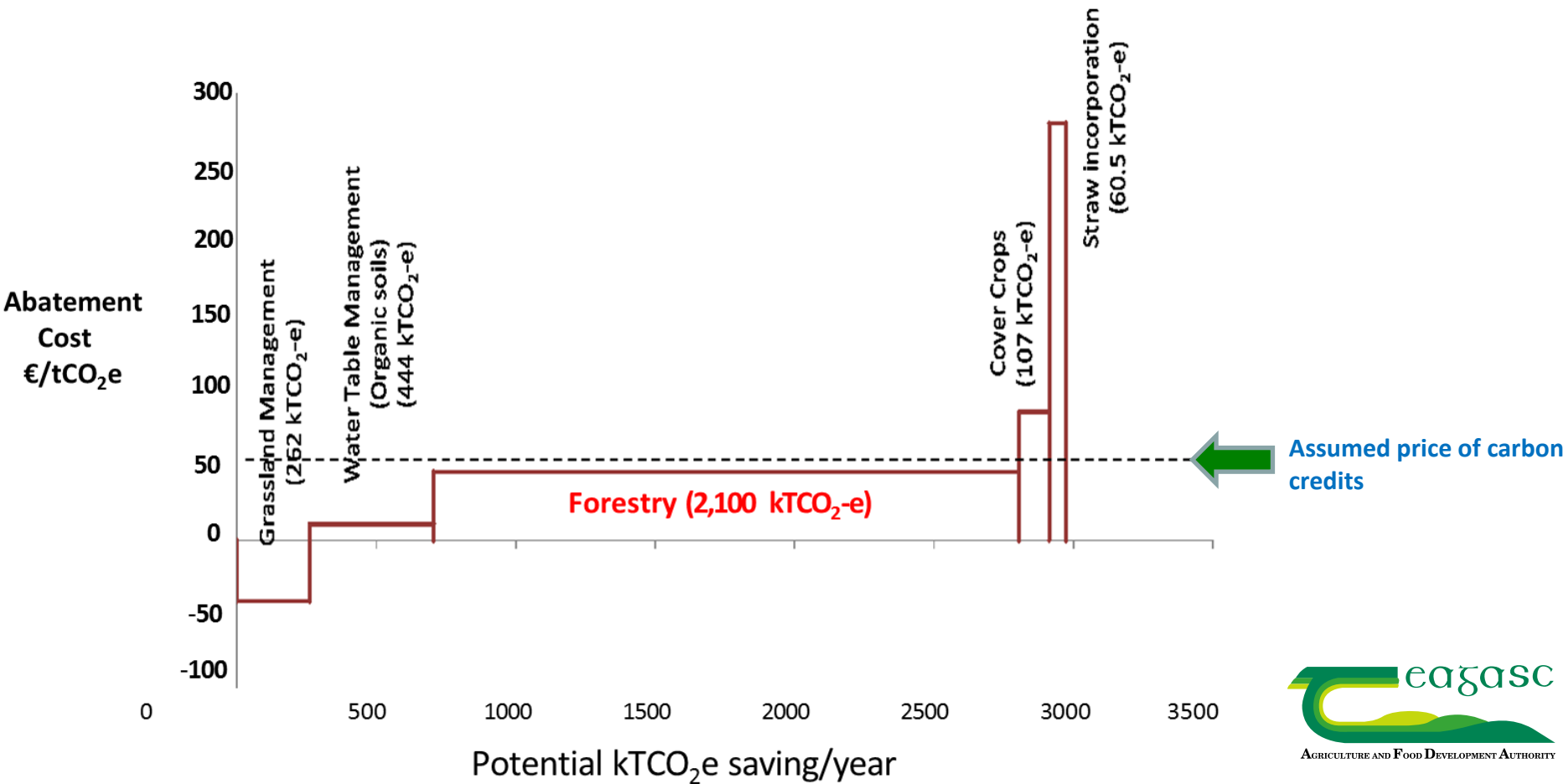
Marginal Abatement Cost Curve (MACC)

Way of assessing mitigation options:
for their efficacy and costs

Teagasc produced an updated MACC for
greenhouse gases in 2018

Gary J. Lanigan & Trevor Donnellan (eds.) *An Analysis of Abatement Potential of Greenhouse Gas Emissions in Irish Agriculture 2021-2030*. Teagasc, Oak Park, Carlow. June 2018

Mitigation Pathway 2: Land use, Land use change & Forestry



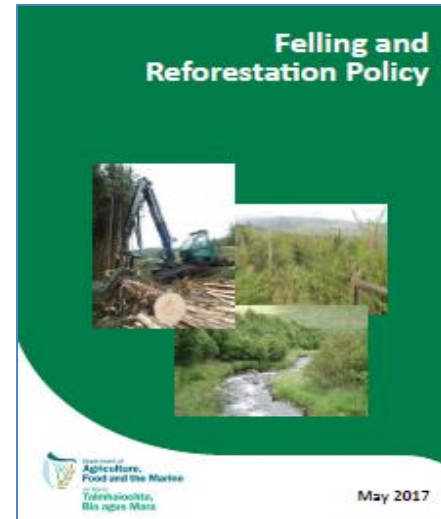
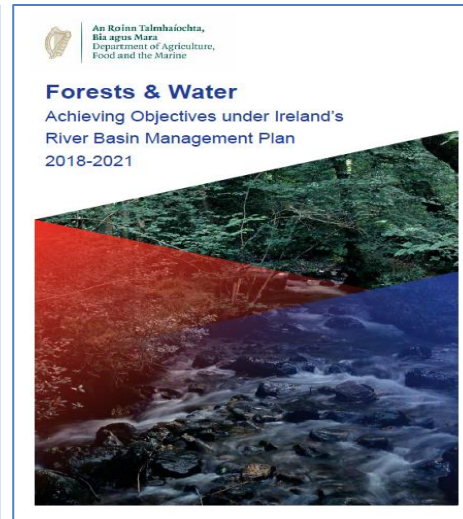
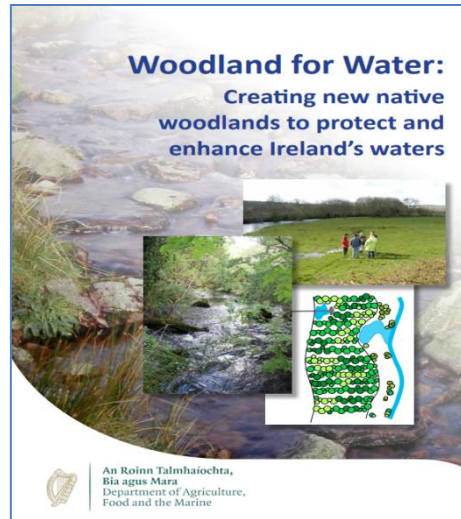
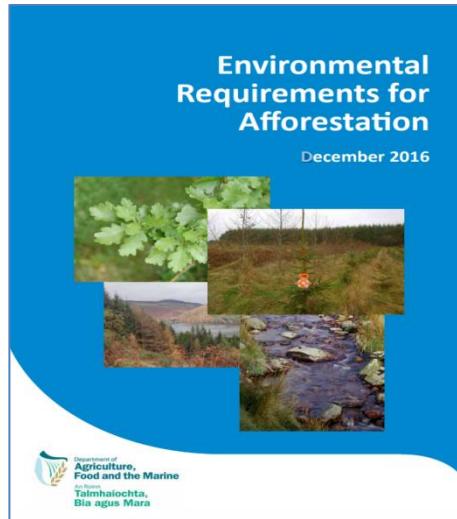
Forestry measured using a 20 year window

- Current levels of planting will have significant impact in the post 2030 commitment period
- Significant increase in planting rates are essential in order to maintain mitigation capacity

Water Quality

Protection of water:

- Key component of DAFM assessment for licencing of forest operations
- Strongly features in Sustainable Forest Management



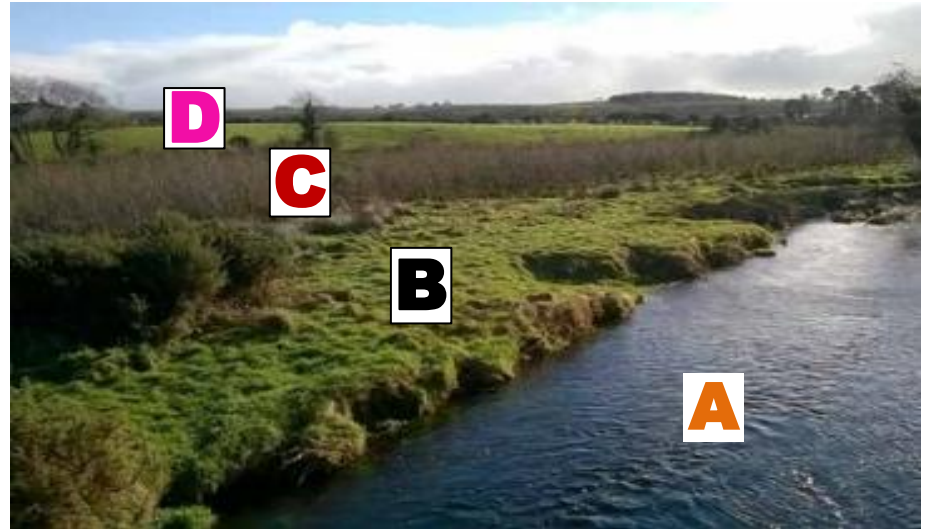
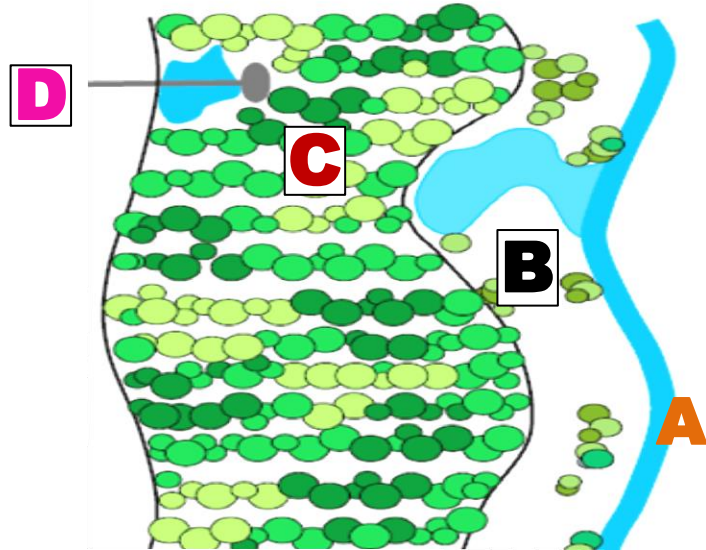
Woodland for Water

Combining undisturbed water setbacks and new native woodland

Adjoining land use:

- agriculture
- forestry
- built environment

Woodland for water
measure



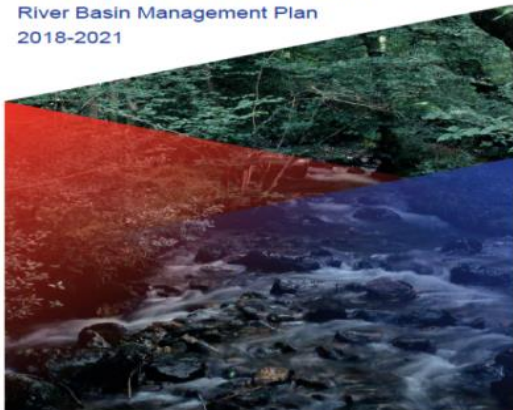
Environmental Enhancement of Forests



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Forests & Water

Achieving Objectives under Ireland's
River Basin Management Plan
2018-2021



Forest Biodiversity Enhancement

- Well sited, well planned, well maintained designed forests
 - Inclusion of broadleaves (15% mandatory)
 - Inclusion of Areas for Biodiversity Enhancement (ABEs)
 - hedgerows
 - retained habitat
 - setbacks
 - Open areas
- Implement sustainable forest management
 - Forest edge management
 - Create/maintain wildlife corridors
 - Thin for vigour
- Environmental Enhancement of Forests

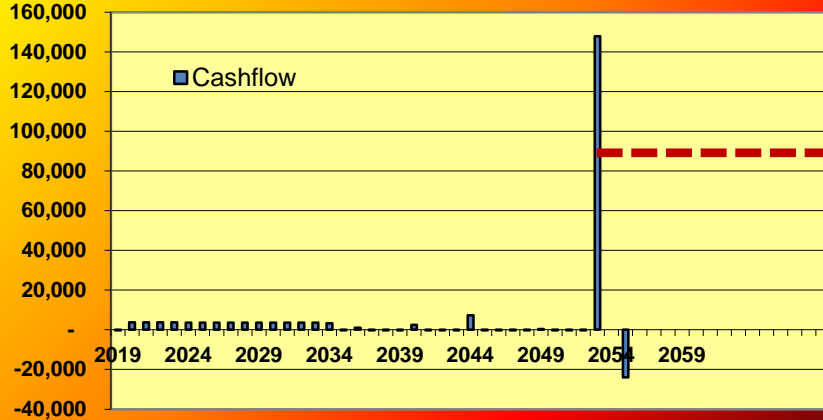
Financial Sustainability

- Forestry - complementary farm crop
- Optimum use of marginal land
- Diversification of enterprises
- BPS eligible
- Tax efficient
- High return on labour
- Capacity to significantly enhance farm viability

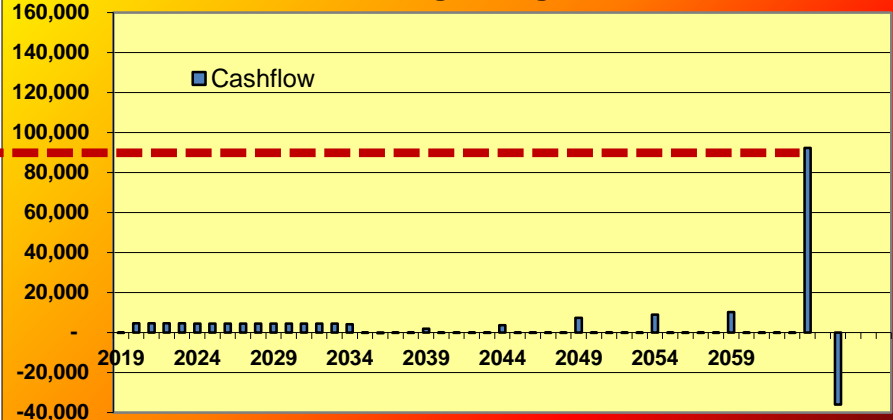


Indicative Returns

Productive diverse spruce forest



Productive fast growing broadleaf forest



Productive diverse Sitka spruce forest

- Total area 8 hectares
- 15% diverse , 15% open areas/retained habitat
- Normal thinning
- Rotation 34 years

Net present value/ha: €8,500

Annual equivalent value /ha: €525

Productive fast growing broadleaf species

- Total area 8 hectares
- 15% open area/retained habitat
- Normal thinning
- Rotation 50 years

Net present value/ha: €6,475

Annual equivalent value /ha: €355

Case Study 1



See Micheal tell his story:

<https://www.teagasc.ie/crops/forestry/advice/establishment/michael-owens/>

Case Study 2



“ My forest is a growing pension pot, forest premiums enable me to lease in better land for farming ”

Andrew O'Carroll
RDS Award Winner

Scan the code to watch Andrew's story of how forestry benefits his farm



See Andrew tell his Story:

<https://www.teagasc.ie/crops/forestry/news/2018/rds-forestry-awards-launch.php>

Woodland Environment Fund

- Access point for businesses to
 - Link in with farmers
 - join in effort to expand Ireland's native woodland resource
 - Provide additional financial incentive to encourage planting of native woodland
- Corporate Social Responsibility Project
- Contributing to delivery of a tangible environmental asset
- Enhances business reputation
- Building social cohesion



Social Sustainability

Our farm forests are a key resource

- 12,000 employed
 - Spread evenly in every region
 - Forest output set to double in 10-15 years
 - Expansion largely by private forestry
 - Additional 10,000 jobs
 - Additional €2 billion in economic activity
- (Source: Ibec, 2016)*



Development Opportunities

Castlecomer Discovery Park



CROCANOIR
Holiday Homes and Music Avenue

★★★★



House Concerts & Events

Welcome to Crocanoir

"One of the Ten Best Holiday and Christmas Hideaways in Ireland"

Irish Independent

Source: www.discoverypark.ie



Zipline & Octagon



Source: Coillte.ie



Summary

Farm Forestry is a very significant ally in the quest for agricultural sustainability

- Farm viability, climate mitigation, water quality and biodiversity, local development

Key drivers:

- Whole farm planning
- Well sited and planned farm forests
- Using appropriate species & planting categories to promote sustainable growth
- Ongoing sustainably management of existing forests
- Opportunities for multiple use and added value

How to keep up to date...

Direct contact

- **Your local Teagasc forestry advisor**

Teagasc Website

- **www.teagasc.ie/forestry**



- Teagasc Forestry e-Newsletter

