

Agroforestry and the Afforestation Programme in The Republic of Ireland

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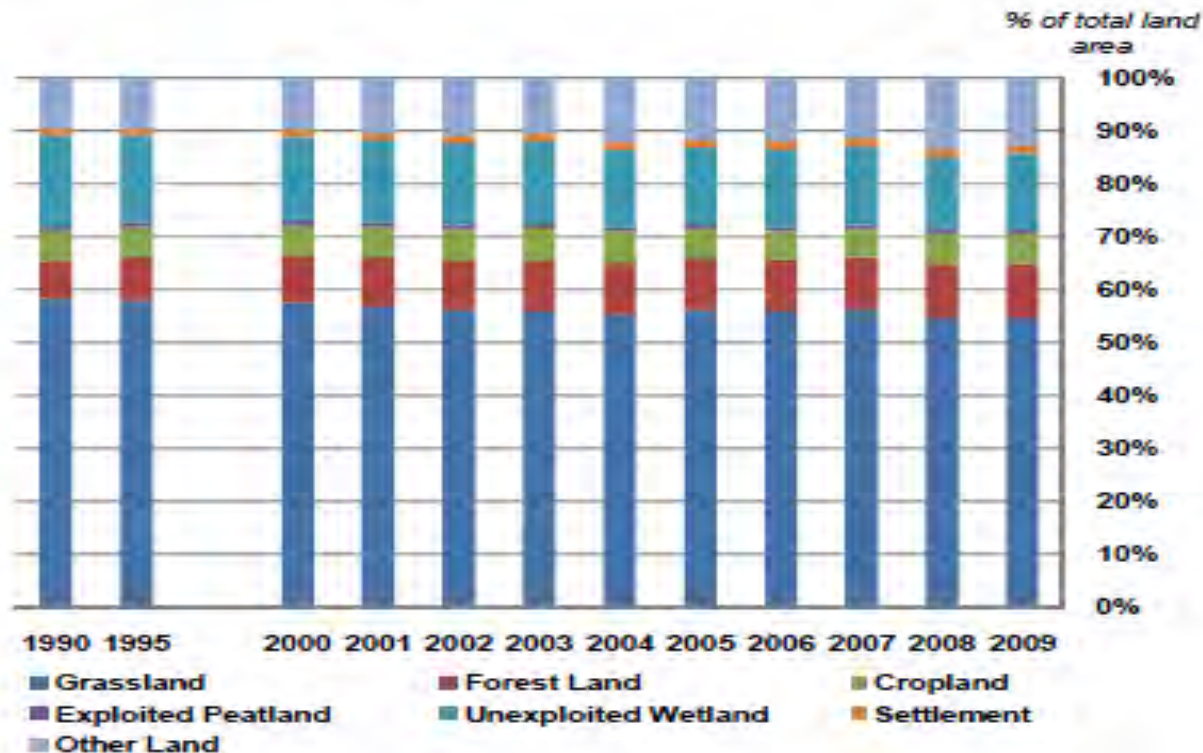
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The Forest Service

Land Use in the Republic of Ireland

Ireland: Land use categories 1990-2009

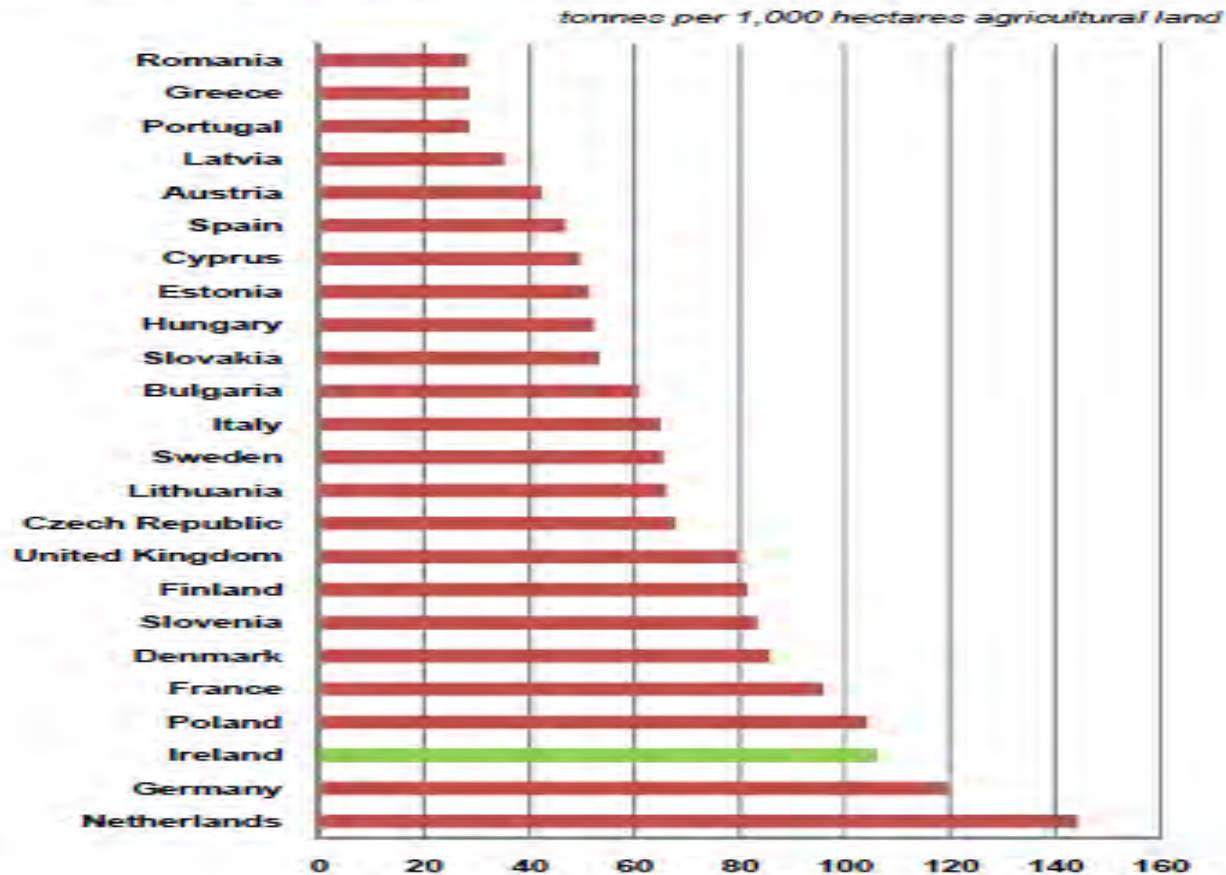


Ireland has greatest EU proportion of grassland at 48%



Fertilizer Use in the ROI

4.9 EU: Fertiliser sales 2009



Source: Eurostat (Fertiliser Europe)



Livestock numbers (Cattle & Pigs)

4.11 EU: Share of total livestock numbers December 2010

Country	% of total	
	Cattle	Pigs
Malta	0.0%	0.0%
Cyprus	0.1%	0.3%
Luxembourg	0.2%	0.1%
Estonia	0.3%	0.2%
Latvia	0.4%	0.3%
Slovakia	0.5%	0.5%
Slovenia	0.5%	0.3%
Bulgaria	0.6%	0.4%
Greece	0.8%	0.7%
Hungary	0.8%	2.1%
Lithuania	0.9%	0.6%
Finland	1.0%	0.9%
Czech Republic	1.5%	1.2%
Portugal	1.6%	1.4%
Sweden	1.7%	1.0%
Denmark	1.9%	8.1%
Romania	2.3%	3.6%
Austria	2.3%	2.1%
Belgium	2.9%	4.1%
Netherlands	4.6%	8.1%
Poland	6.4%	9.8%
Italy	6.7%	6.2%
Ireland	6.8%	1.0%
Spain	7.0%	17.0%
United Kingdom	11.4%	2.9%
Germany	14.7%	17.8%
France	21.9%	9.3%
Total	100.0%	100.0%
Total livestock (000)	86,629	151,054

Source: Eurostat



Sheep

Number of Livestock in EU Member States, December 2010

'000

Country	Total Cattle	Total Sheep	Total Pigs
European Union 27	¹ 86,757	*	¹ 150,826
Austria	2,013	358	3,134
Belgium	2,510	*	6,176
Bulgaria	531	1,368	664
Cyprus	55	329	464
Czech Republic	1,319	*	1,846
Denmark	1,630	*	12,293
Estonia	236	*	372
Finland	909	*	1,340
France	18,992	6,904	14,063
Germany	12,706	1,800	26,901
Greece	¹ 679	¹ 8,980	1,087
Hungary	681	1,181	3,168
Ireland	5,918	3,122	1,500
Italy	5,833	7,900	9,321
Latvia	380	*	390
Lithuania	748	59	929
Luxembourg	194	8	89
Malta	15	12	69
Netherlands	3,960	1,211	12,206
Poland	5,562	214	14,776
Portugal	1,503	2,226	1,917
Romania	2,001	8,417	5,428
Slovakia	467	394	687
Slovenia	¹ 470	*	396
Spain	6,075	18,552	25,704
Sweden	1,475	274	1,520
United Kingdom	9,896	21,295	4,385

¹ Provisional

* Data not available

Source: Eurostat website <http://epp.eurostat.ec.europa.eu>

7th

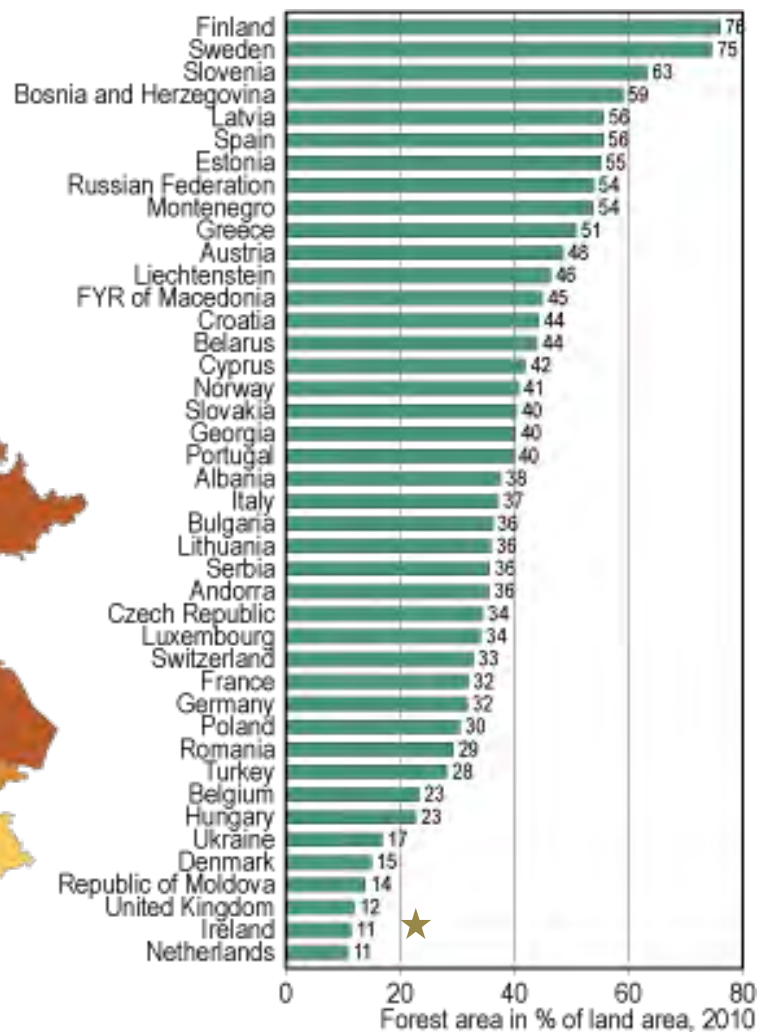
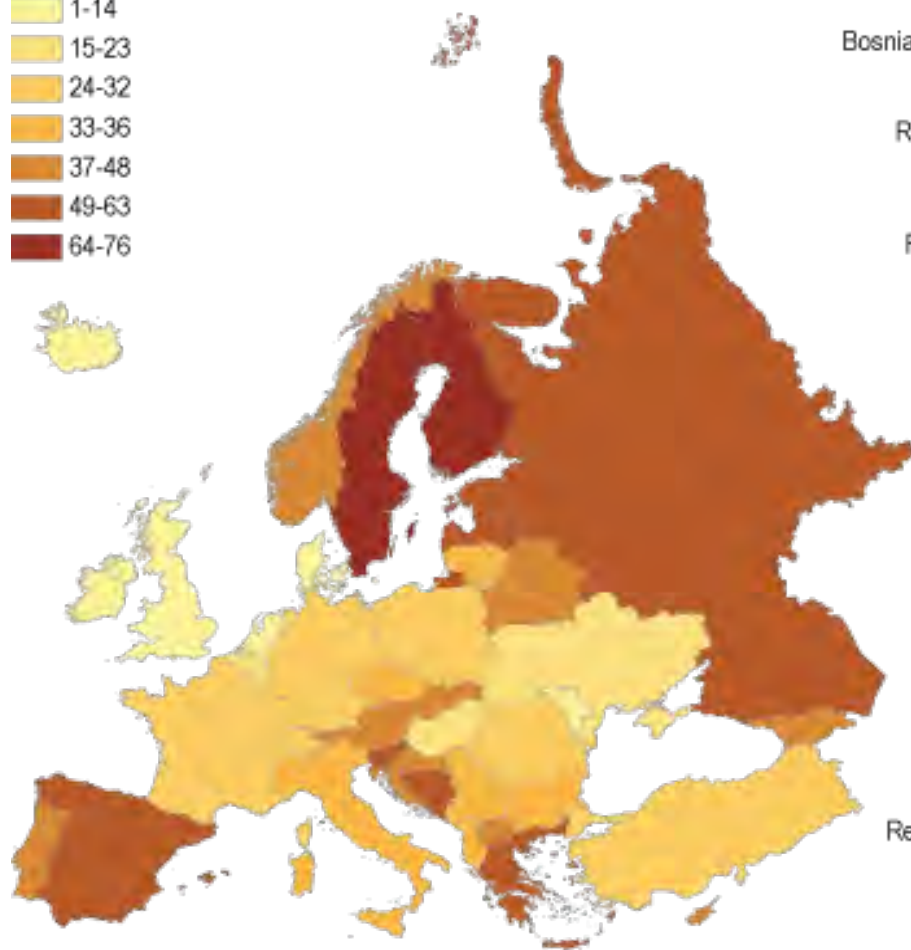
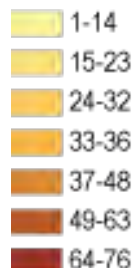


- 1990 there was 8.5 million sheep

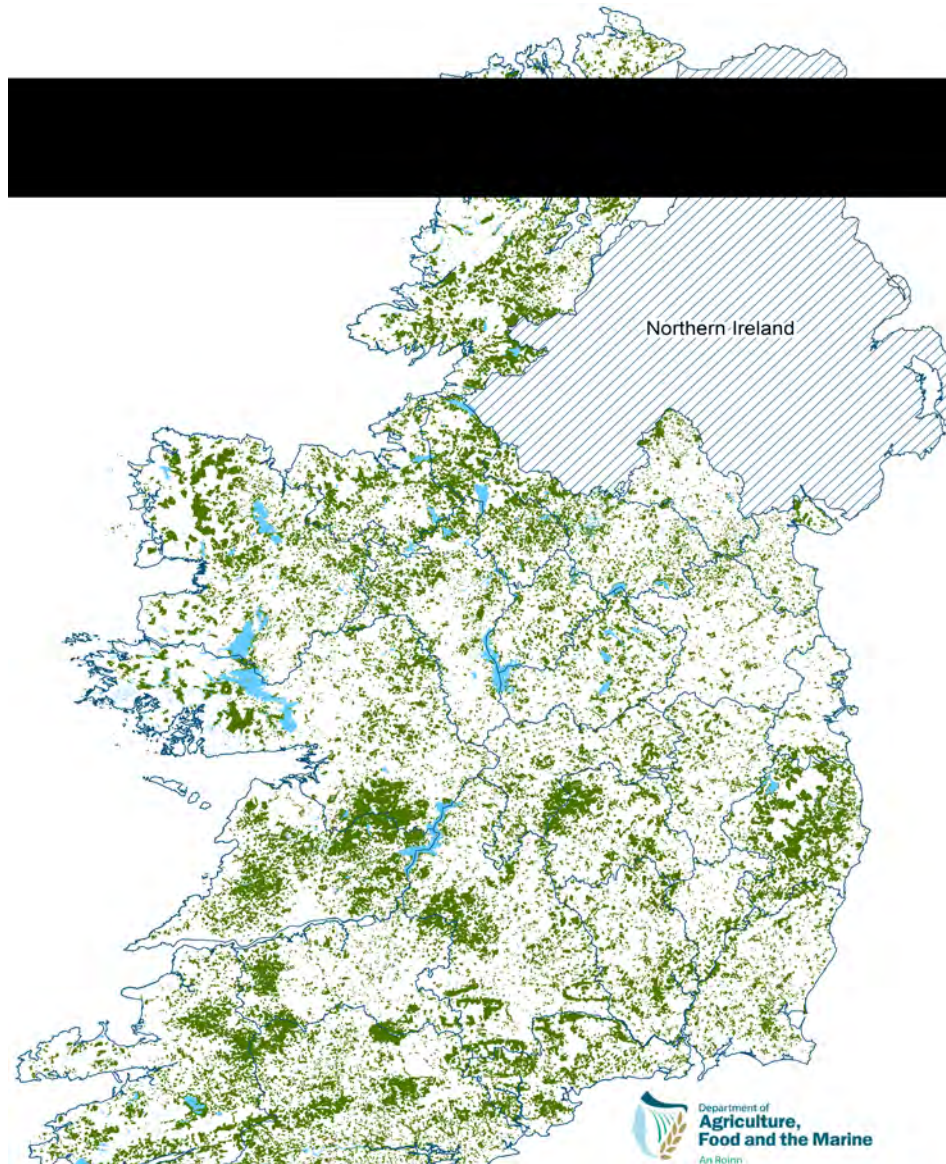


European Forest Cover

Forest area in % of land area, 2010



Forest Cover in the ROI



Ireland Forest Cover change

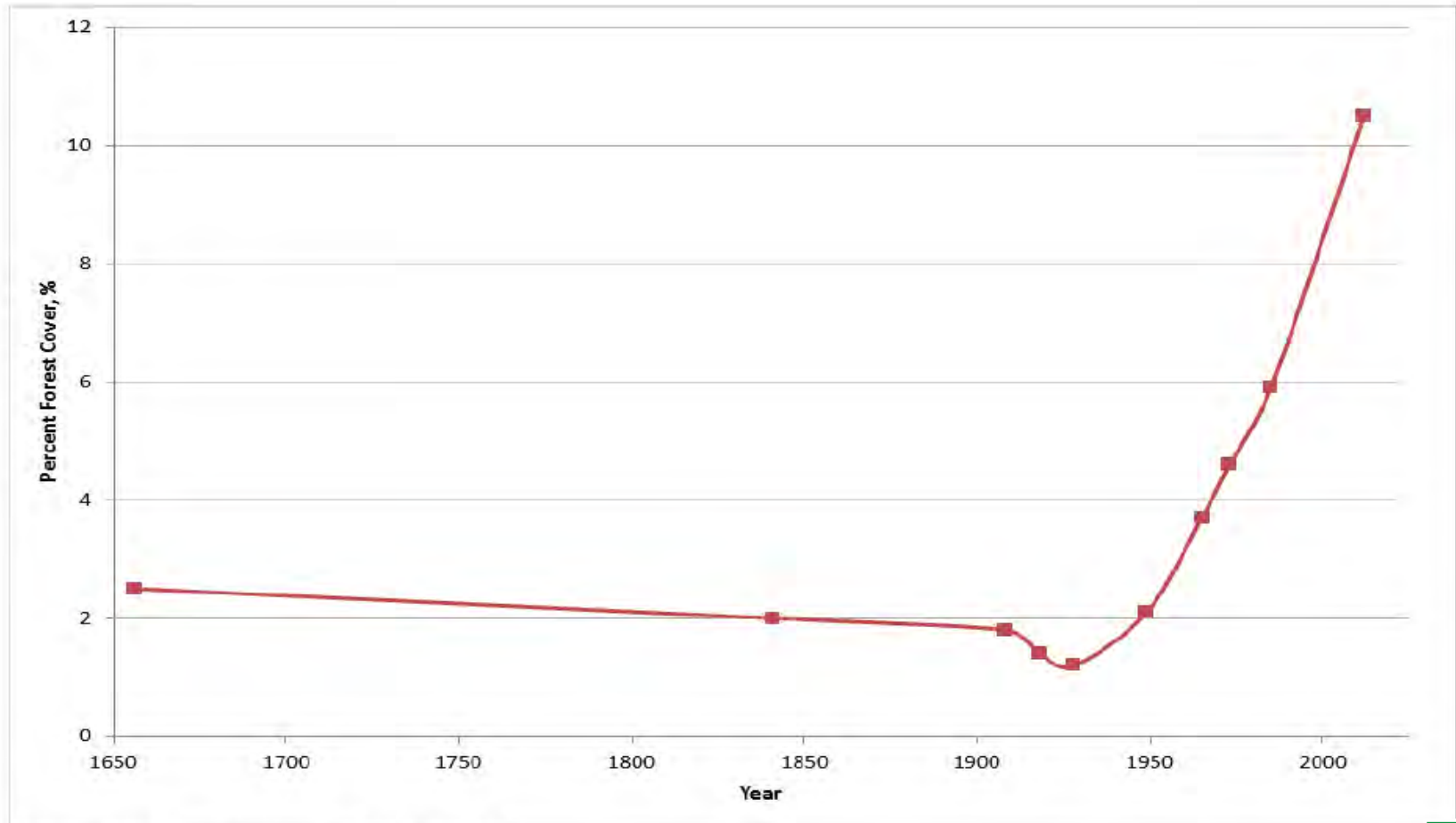
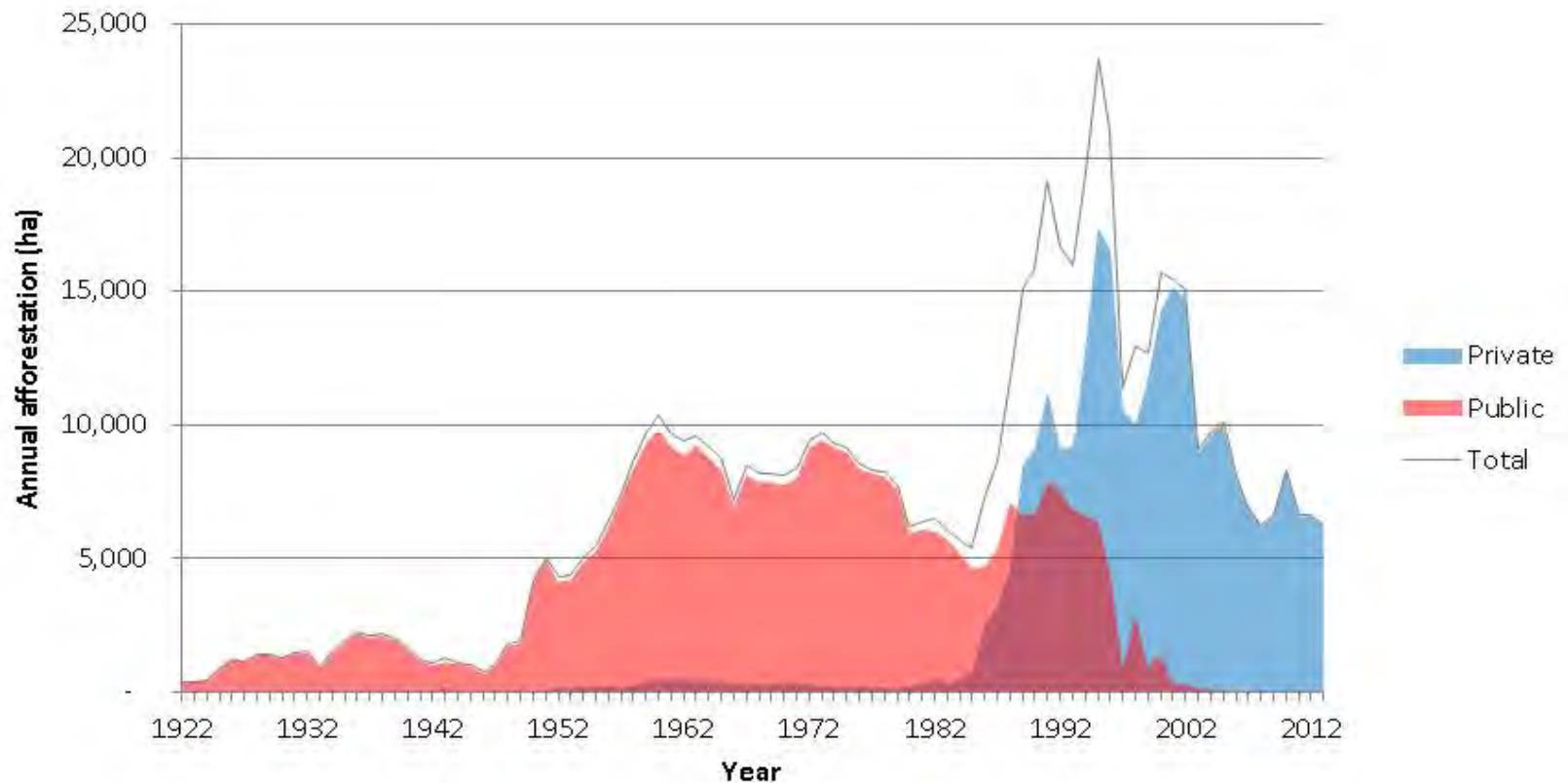


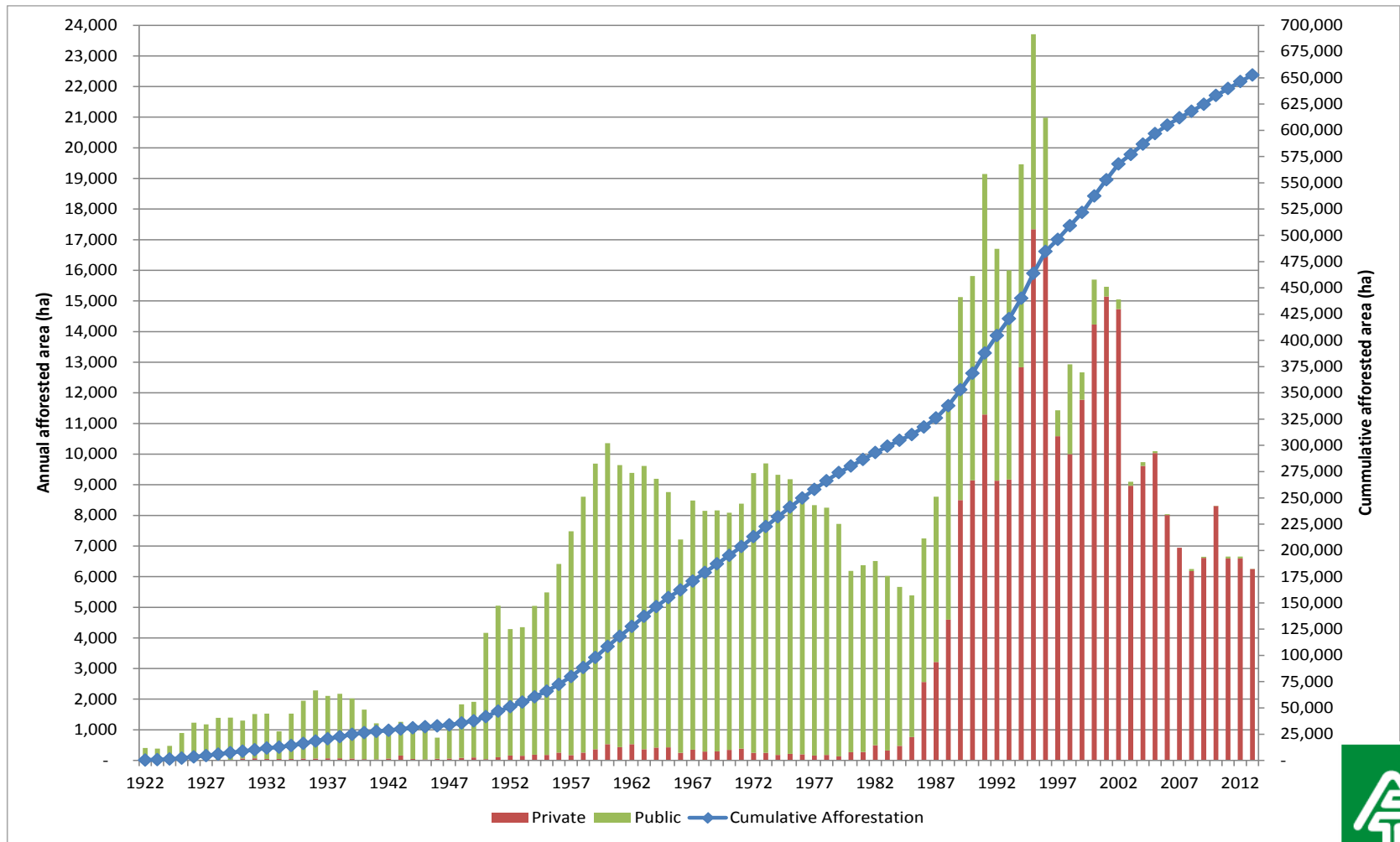
Figure 2. Forest cover, 1656-2014.



Annual afforestation



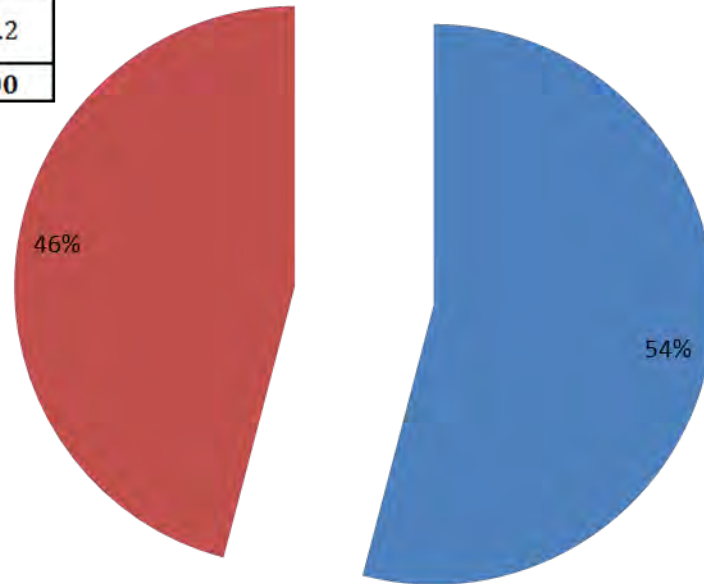
Afforestation in the ROI : Public (green) Private (Red)



Forest Ownership ROI

Ownership	Area(ha)	%
Public	395,760	54.1
Private (grant aided)	246,550	33.7
Private (Other)	89,350	12.2
Total	731,650	100

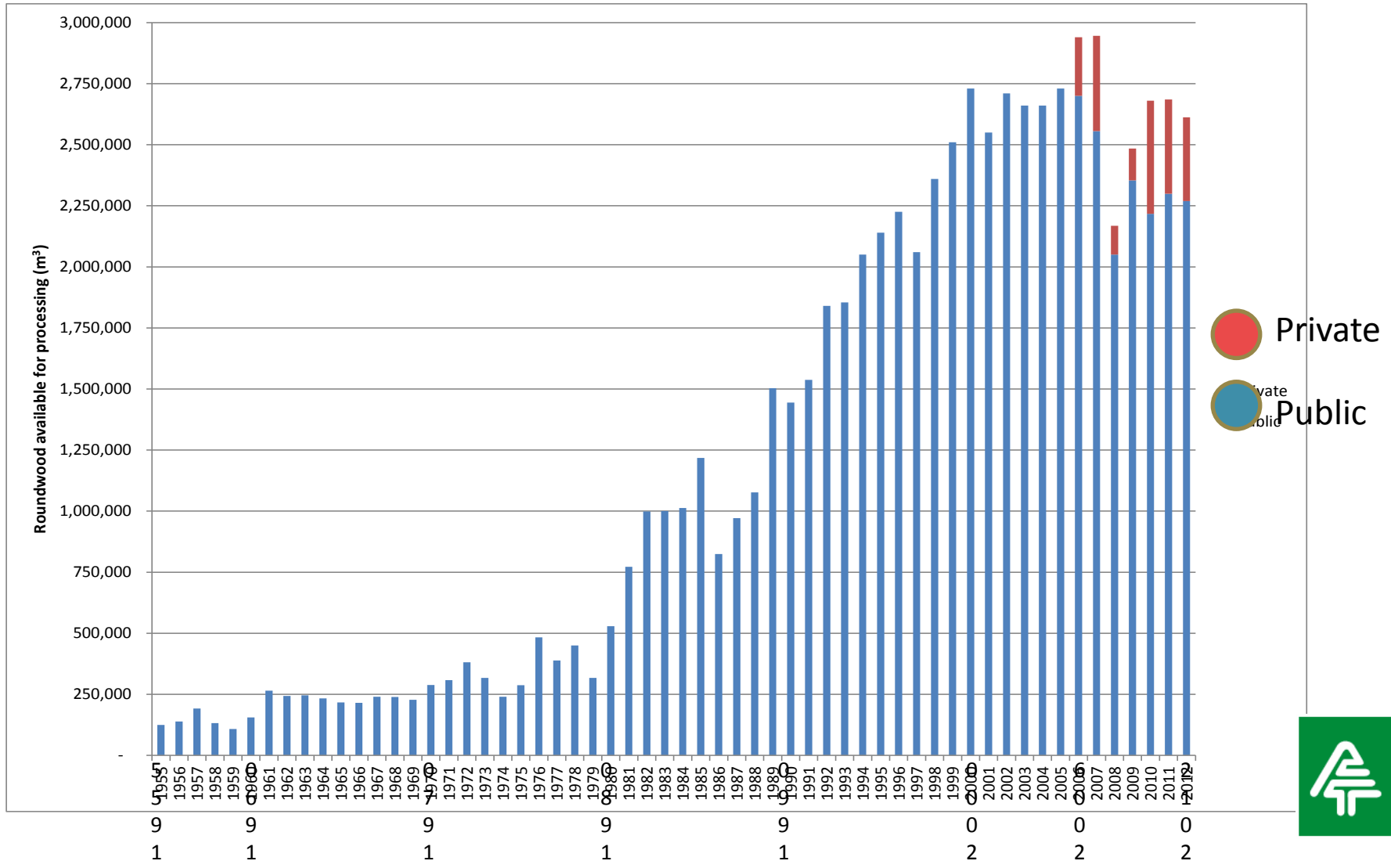
Forest Ownership



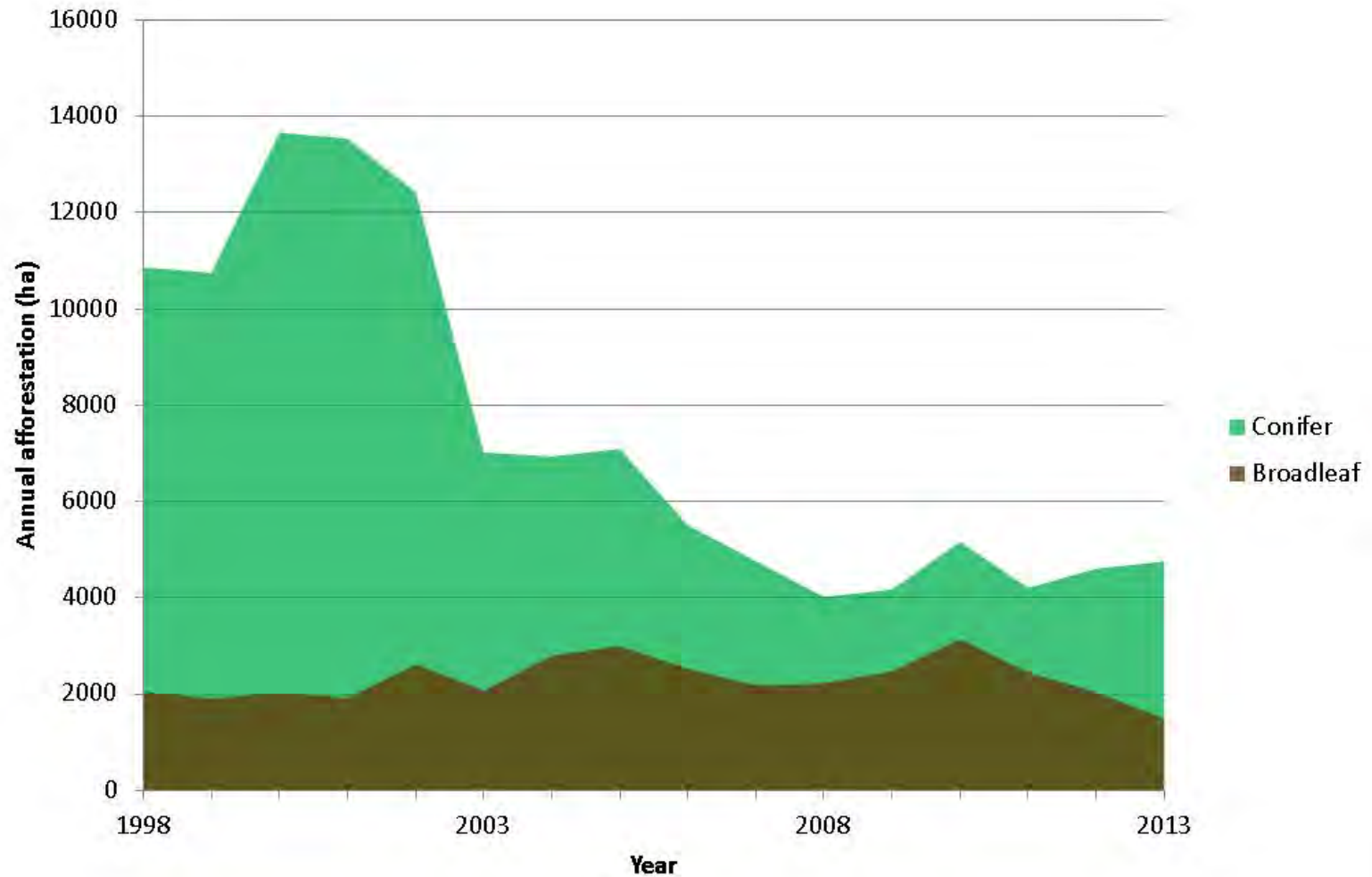
■ Public
■ Private



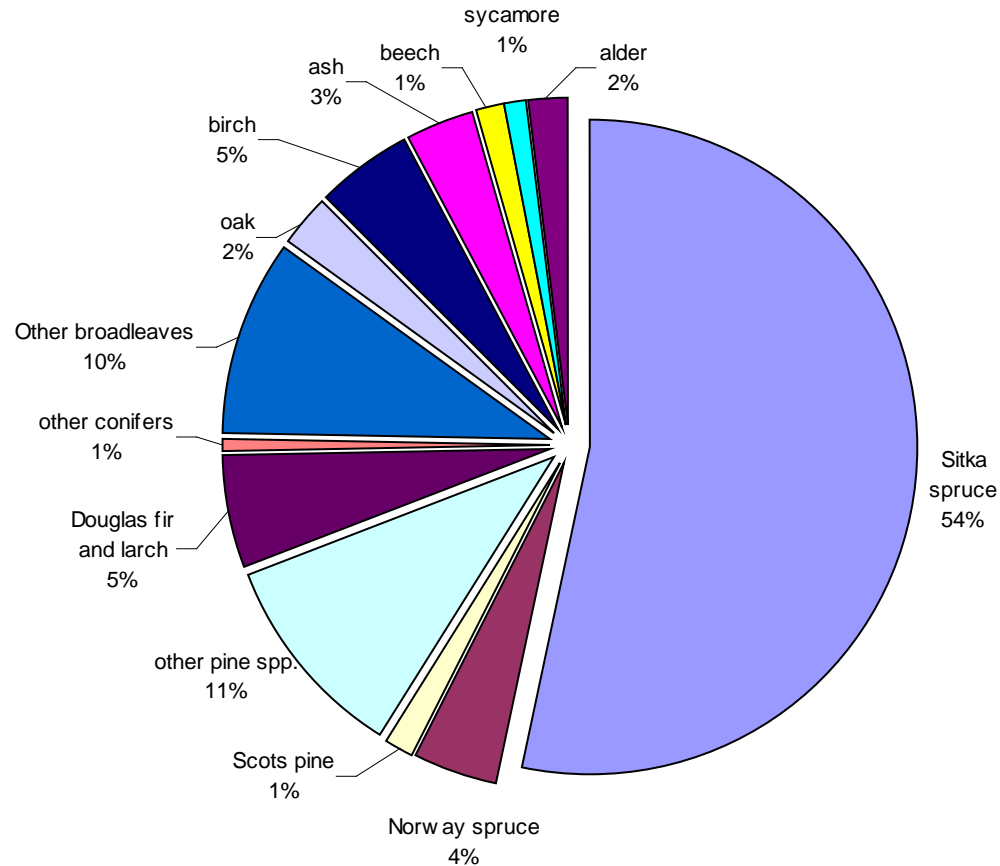
National Roundwood Harvest 1955-2012



Annual afforestation ROI



Species Composition ROI Forest Estate



Grass + Animals + Trees ?



Rural Development Programme (2014-2020)

- **REGULATION (EU) No 1305/2013**
- *Article 23*
- **Establishment of agroforestry systems**
- **1.** Support under point (b) of Article 21(1) shall be granted to private land-holders, municipalities and their associations and shall cover the costs of establishment and an annual premium per hectare to cover the costs of maintenance for a maximum period of **five years**.
- **2.** The minimum and maximum number of trees per hectare shall be **determined by the Member States** taking account of local pedo-climatic and environmental conditions, forestry species and the need to ensure sustainable agricultural use of the land.



Agriculture v Forestry

Forestry

Agriculture



Germany/France/Spain Large Scale Projects



Silvopastoral agroforestry



- Considered most suitable as a starting point.
- Land is Grazed and/or cut for hay or silage.
- Trees used for Timber/Fuel.
- Trees grown singly or in rows.
- Protection key issue if grazed.



Loughgall (Armagh)



- Agri-Food and Biosciences institute (AFBI). Dr Jim McAdam.
- Agroforestry silvopastoral trials with ash/sycamore and sheep (25 years old).
- Tree shelters removed and replaced with plastic mesh.
- 10 ewes/hectare
- 5 cattle /hectare





It appears to work



Template for the Republic of Ireland

- Cherry, Oak, Red Oak, Sycamore, Norway Maple, Research into walnut, pear, Conifers, paulownia.
- Ash suspended (possibly a good way for reintroduction).
- Plant sizes 90-120 cms. Mostly Imported in short term.
- Single 5 x 5 m (400/ha). Rows 6m x 1.5m (1111/ha)
- Free draining mineral soil.
- Minimum plantation Plot size 0.5 hectares and 20 meters wide.
- Fertilizer <100 kgs of Nitrogen for grass growth. P & K for trees will depend on site conditions.



Template for the Republic of Ireland (continued)

- Herbicide spot application prior to planting is needed to prevent growth within the tube. Animals will control vegetation after that.
- Mats and Mulches can be considered.
- Support with square stakes (10 cm) + Tree shelter (1.5m).
- Hole dug with Auger with a 20 cm head /Pit plant.
- Fence to keep livestock in ! And others out.
- Approx. First 7-8 years 15 ewes/ha.
- Post 8th year . Shelters replaced with mesh and 5 cattle/hectare. Calves could be introduced earlier.



Pilot Agroforestry Plot



- Suitable land.
- Suitable owner (Liam Beechinor).



Sheep grazed early spring and late autumn



Costs

Establishment

- Stakes.
- Large plants.
- Shelters / Fencing.
- Auger / Pit planting.
- Replacing dead trees.

Maintenance

- Animal management.
- Removing shelters and replacing with mesh.
- Shaping post emergence from shelters.



Benefits to Farmer

- Continued access to land.
- Gradual introduction to forestry.
- Short term returns from good land.
- 5 years of Premiums.
- Silage, hay, grazing etc.
- Improved drainage and shelter.
- Firewood/ fuel supply.
- Quality/high value timber production.



Benefits to Foresters

- Less pressure to thin (no nurse species).
- Shaping done by shelters for first 6-8 years.
- Fewer trees to maintain.
- Diseases easily indentified.
- Broadleaves protected in deer infested areas.
- Planting targets helped.
- Farmer doesn't 'close the gate'.
- Less pressure at year 15 – 20 with slow growing species i.e. oak.



Environmental Benefits

- Improved soil drainage.
- Enhanced invertebrates.
- Improved Carbon sequestration – worms take leaves into soil.
- Improved bird life (> diversity than conventional plantations).
- Reduced fertilizer and chemical inputs.
- Water conservation and protection.
- Landscape diversity and enhancement.
- Can reduce soil erosion and nutrient loss.



Afforestation Grant Rates

GPC [*]	1 st Grant €/ha	2 nd Grant	Total €/ha	Additional Fencing Allocation €/ha IS436	Alternative Fencing Allocation €/ha Non IS436	Total Available Funding €
1 – Unenclosed	1575	525	2100	500	350	2600
2 - Sitka spruce / lodgepole pine[*]	2310	735	3045	500	350	3545
3 – 10% Diverse Conifer	2360	790	3150	500	350	3650
4 – Diverse Conifer	2625	840	3465	500	350	3965
5 – Broadleaf	3780	1155	4935	500	450	5435
6 – Oak / Beech	3990	1260	5250	500	450	5750
7 – Beech	3990	1260	5250	500	450	5750
8 – Alder	2520	840	3360	500	450	3860
9- Native woodland establishment Scen. 1-3	3990	1260	5250	500	450	5750
10- Native woodland establishment Scenario 4	3780	1155	4935	500	450	5435
11 - Agro-forestry	2960	990	3950	500	450	4450
12 – Forestry for Fibre	1460	490	1950	500	450	2450
13 – Forestry for Fibre (Aspen)	1245	420	1665	500	450	2165

Premium Rates / hectare

	New Scheme	Years
1 - Unenclosed	€185	15
2 - Sitka spruce/lodgepole pine	€440	15
3 – Sitka spruce with 10% other species	€510	15
4 – Diverse conifer	€560	15
5 – Broadleaf	€575	15
6 – Oak	€615	15
7 – Beech	€615	15
8 – Alder	€575	15
9 - Native woodland Establishment (Scenario 1-3)	€635	15
10 - Native woodland Establishment (Scenario 4)	€635	15
11 - Agro forestry	€260	5
12- Forestry for fibre	€180	10
13- Forestry for fibre (Aspen)	€180	10

Farm Produce

- 
- 25 large bales of silage per hectare. €750
 - 20 small bales of Hay per hectare. €100
 - Saving land rental for grazing. €100
 - Premiums (x5) €250
 - Total €1,200
 - Oak / Beech premium €615



Objectives

- To establish agroforestry as a realistic *land use* option for future programmes.
- Increase the economic output per land unit.
- Increase biodiversity.
- Produce high quality hardwood timber.
- Protect water quality by reducing surface water runoff and protect erosion of river banks
- Encourage continuous cover forestry and close to nature silvicultural techniques
- Enhance the quality and diversity of landscapes.



Demonstration Plot 2 . Silvopastoral (6 meters x 1.5 meters)



Demonstration Plot 2. Silvoarable (8 meters x 1.5 meters)



Paulownia (non grant aided)



Target

200 hectares of newly-created agroforestry by 2020



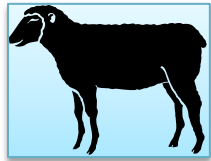
Potential Take Up ?

- Most suited to young active farmers.
- Focus on Geographical spread/ good land/ suitable land owners.
- Scheme adjusted to meet demand.
- Already some interest.
- Promotion of the scheme will be essential.
- Most likely small part of bigger application.



Example

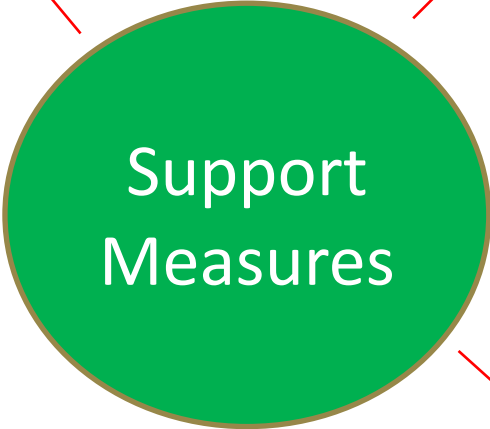




Research –trees and livestock



Company Training



Legislation



Farmer Training



Single farm payments



Message to Farming and Forestry Sectors



- Grant aid
- Farm produce
- Forestry produce
- Employment



Thank You



The Forest Service