

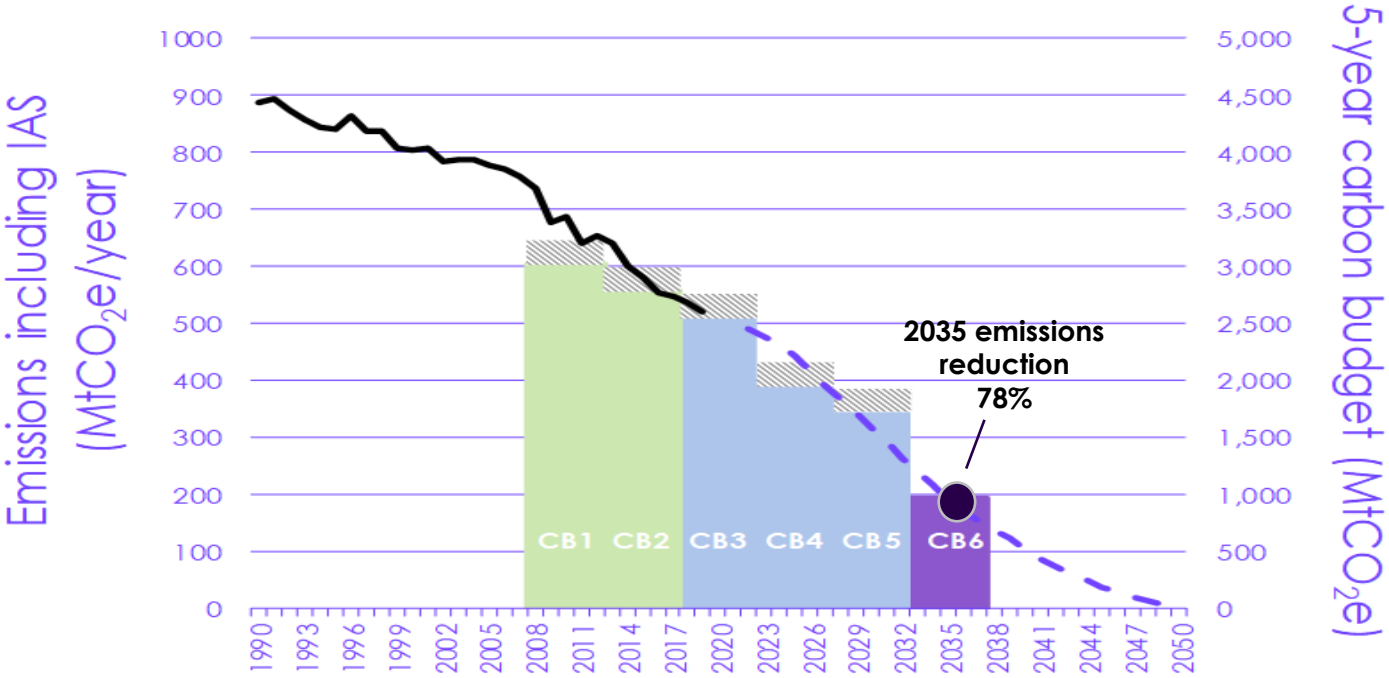
Farm Woodland Forum  
8th June 2021

# Role of agroforestry and hedges in UK climate targets

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Climate Change Committee

# Our recommended path for achieving Net Zero GHG emissions in the UK by 2050

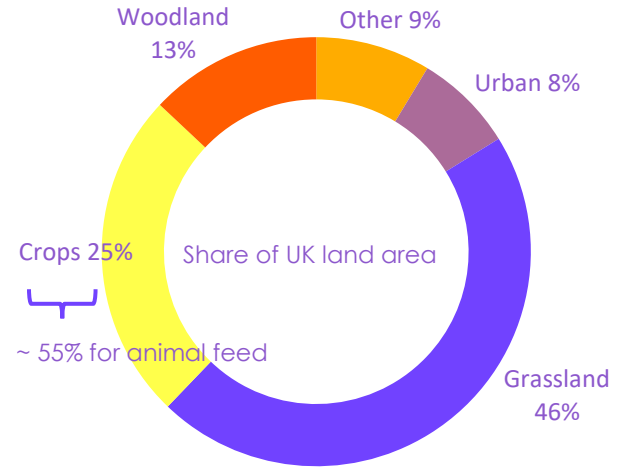
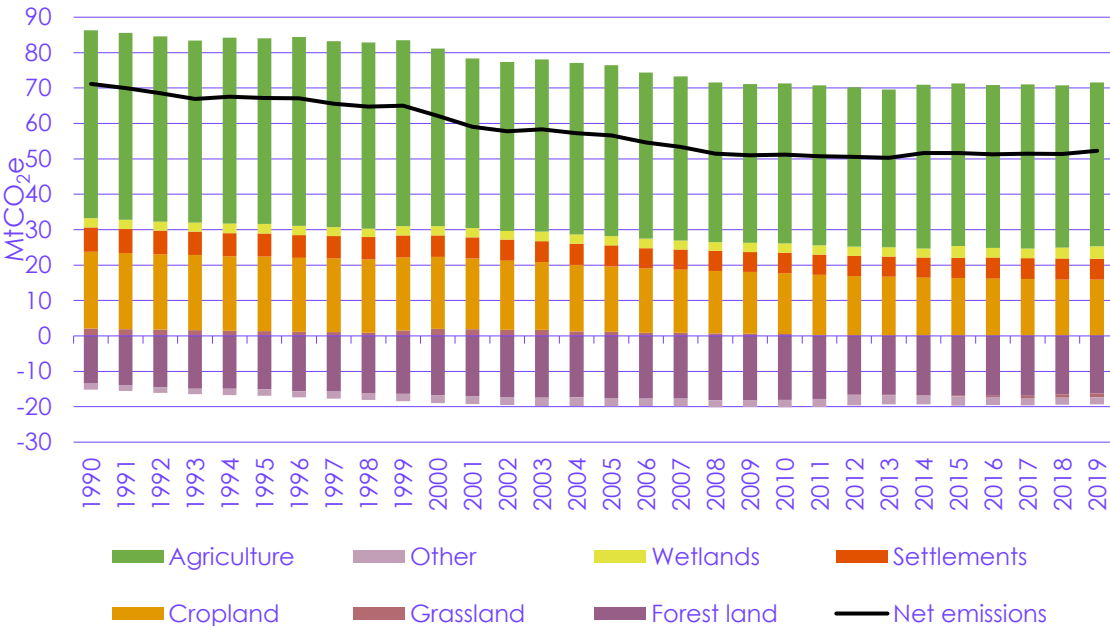
- The UK has a legislated target to reduce GHG emissions to Net Zero by 2050
- In December, we provided advice on the volume of emissions the UK can emit during the period 2033-2037 (Sixth Carbon Budget).



Source: CCC analysis.

# Agriculture and land use account for ~ 11% of UK GHG emissions in 2019

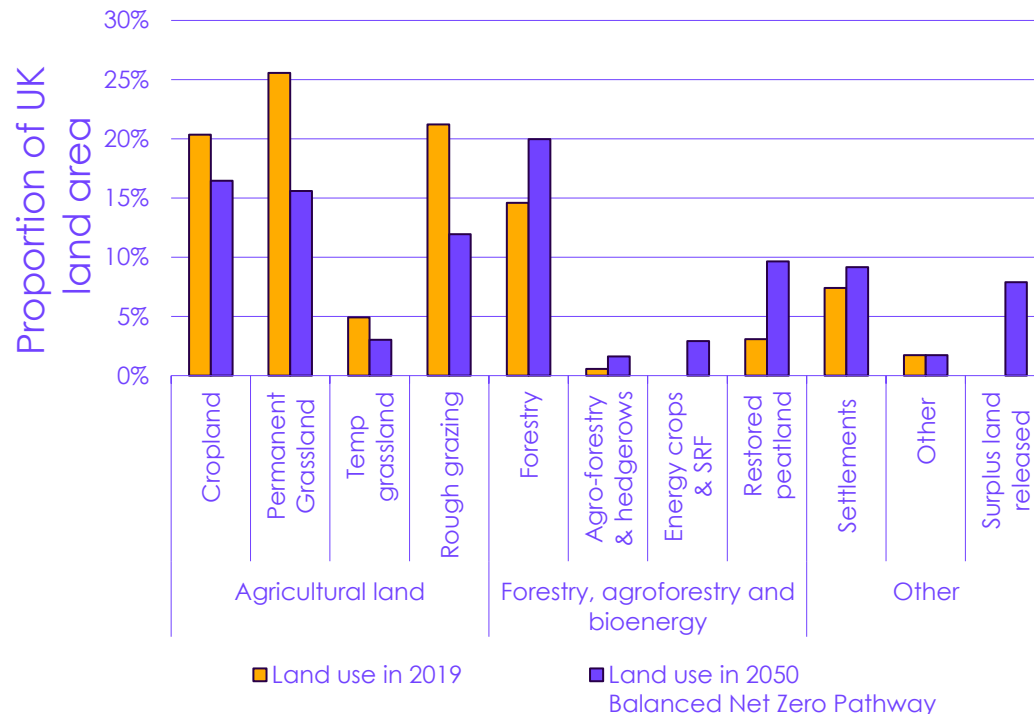
Over 70% of UK land area is used for farming



## Changes in land use

### Transformation in land use now to 2050

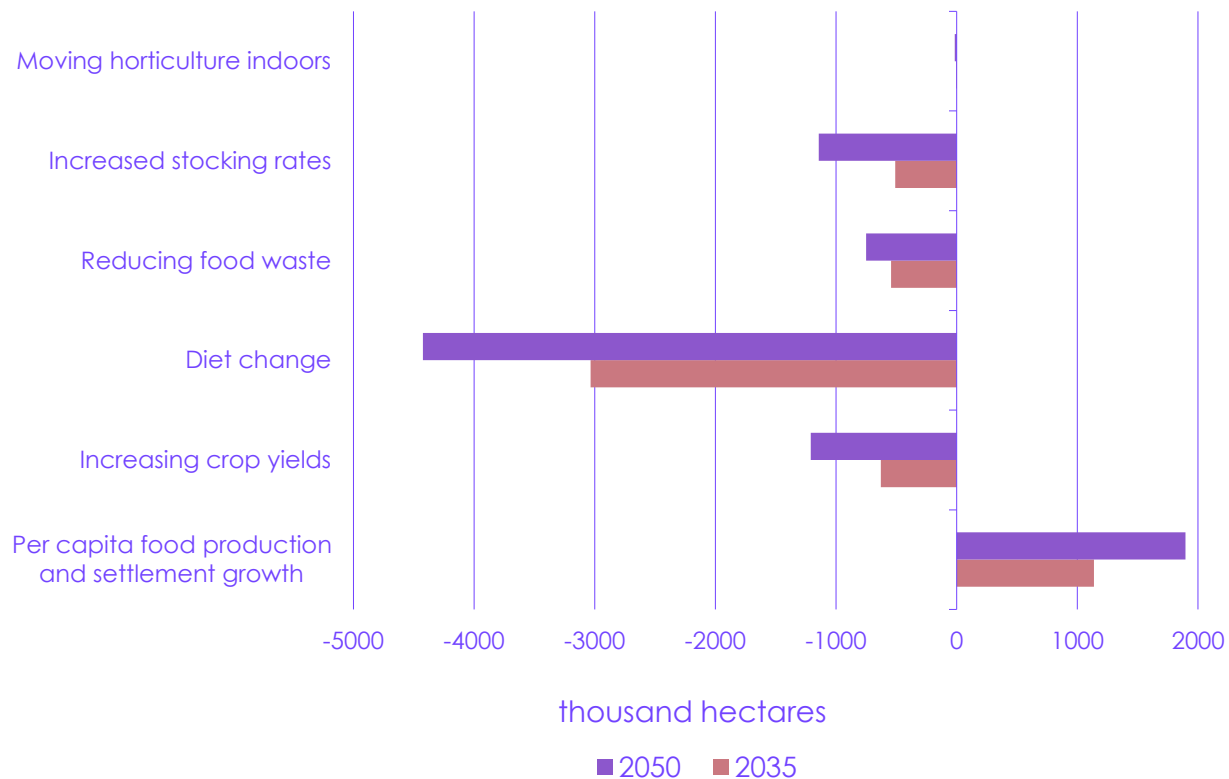
- Around one-third of agricultural land is freed up through changes in output and more efficient farming practices.
- We need 21% of this land for actions to sequester and reduce CO<sub>2</sub>.
- In total, 25% of the UK land area is forested or used for agro-forestry and energy crop production by 2050 - compared to around 15% today.
- Harmful peat extraction is ended, and nearly 80% of the UK's peatlands are restored.



Source: CCC Analysis

## Agricultural land released in the Balanced Pathway

3.8 million hectares (21%) by 2035 and 6 million hectares (35%) by 2050.



Transformation of land use is needed - requires the release of a fifth of agricultural land by 2050 for these other measures

### Planting trees...



**50,000ha/year by 2035**

### ...and on-farm (agroforestry) & more hedges



**Trees on 10% of farm land, extend hedges by 56kha by 2050**

### Energy crops



**30,000/year by 2035**

### Restoring peat



**80% restored by 2050**

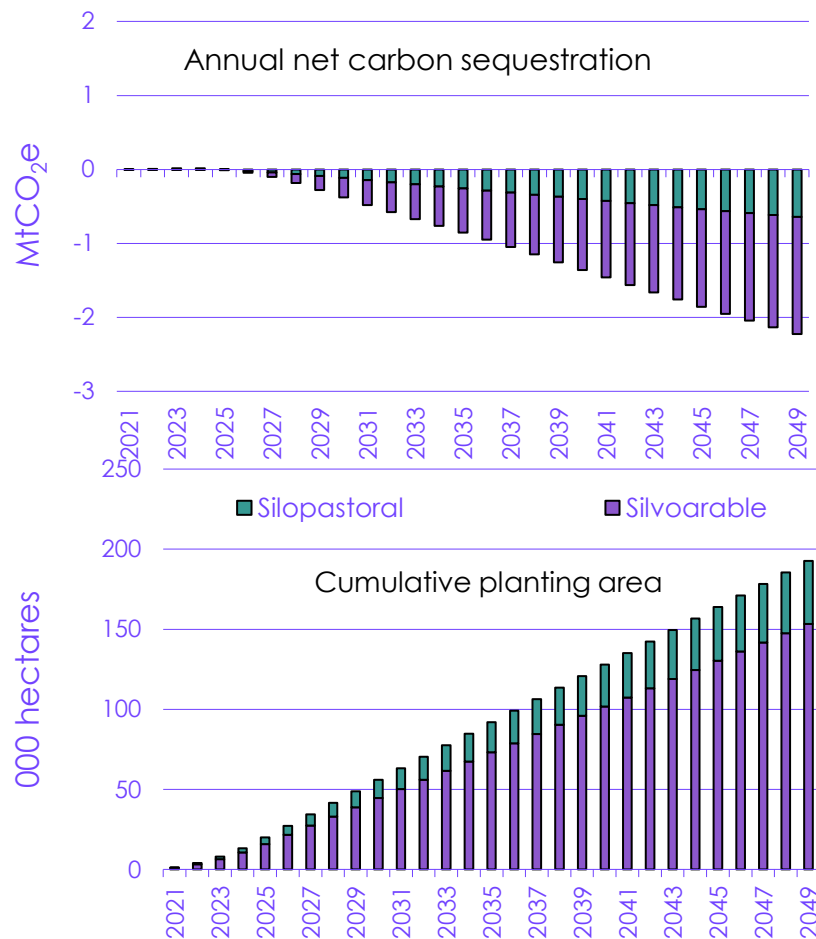
# Agroforestry on 10% of farmland by 2050

## Sixth Carbon Budget assumptions

- The low planting densities of agroforestry systems results in 14% of the grassland area and 7% of cropland area dedicated to these systems.
- **Silvoarable** systems plant poplar YC12 in two-metre-wide rows, a spacing of 30 metres between each row and seven metres between each tree. The spacing takes account of the need to minimise shading which can adversely impact crop yields.
- **Silvopastoral** systems are planted with broadleaf species (e.g. sycamore, ash and birch) with a YC6, and at a higher planting density of 400 trees per hectare.

### Results:

- **Annual carbon sequestration rates of 1 MtCO<sub>2</sub>e in 2035, rising to 2.3 MtCO<sub>2</sub>e in 2050.**



- Current hedgerow length is 120,000 hectares (over half is managed)
- Create an additional 28,000 hectares by 2035 and 56,000 hectares by 2050.\*
- 30% of the new length is managed for biomass fuel.
- All hedge creation is on grassland.

**Results: Annual carbon sequestration rates of 0.3 MtCO<sub>2</sub>e in 2035**(assumes no change in soil carbon)

Note: \*Hedges are assumed to be 1.5 m wide and with biomass stock densities derived from the BEIS Biomass Extension project (2014).

### Wider environmental benefits

- Biodiversity: providing food and shelter for a range of birds, insects and mammals.
- Facilitate movement through the landscape – connectivity.
- Regulating services:
  - Air quality
  - Water quality
  - Reduce flood risk
  - Reduce soil erosion
  - Natural pest control and pollinators



# The Balanced Pathway in Land use

Net emissions reduce by 93% to around 1 MtCO<sub>2</sub>e by 2035 and is a net sink (19 MtCO<sub>2</sub>e) by 2050

Agroforestry and hedges account for around 10% of annual abatement

