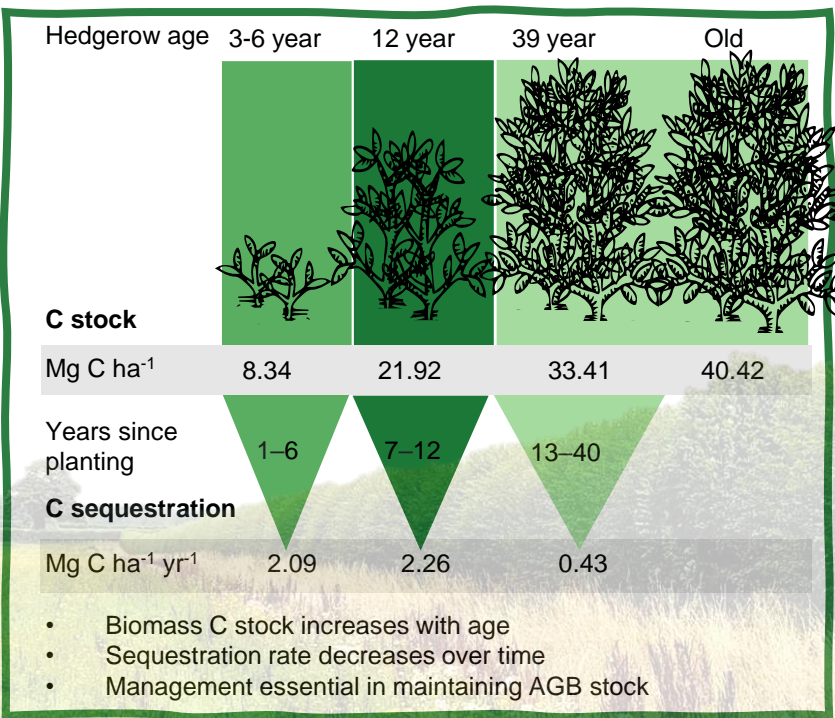


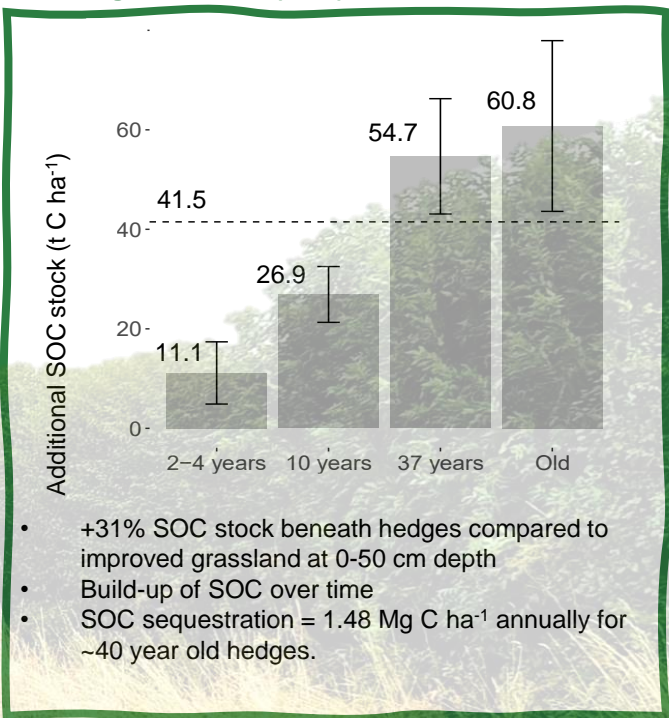
# What is the annual carbon sequestration of planting hedgerows?

Carbon (C) sequestration by vegetation and soil is an essential part of addressing climate change and achieving net-zero commitments. Hedgerows can contribute towards climate change mitigation, as they store C in their biomass and in the soil, while providing food and habitat for farmland biodiversity, offering shelter for livestock, and increasing overall climate change resilience on farms. We sampled biomass and soil of hawthorn and blackthorn hedgerows of different ages to estimate their C sequestration rate from planting to maturity.

## Aboveground biomass (AGB)



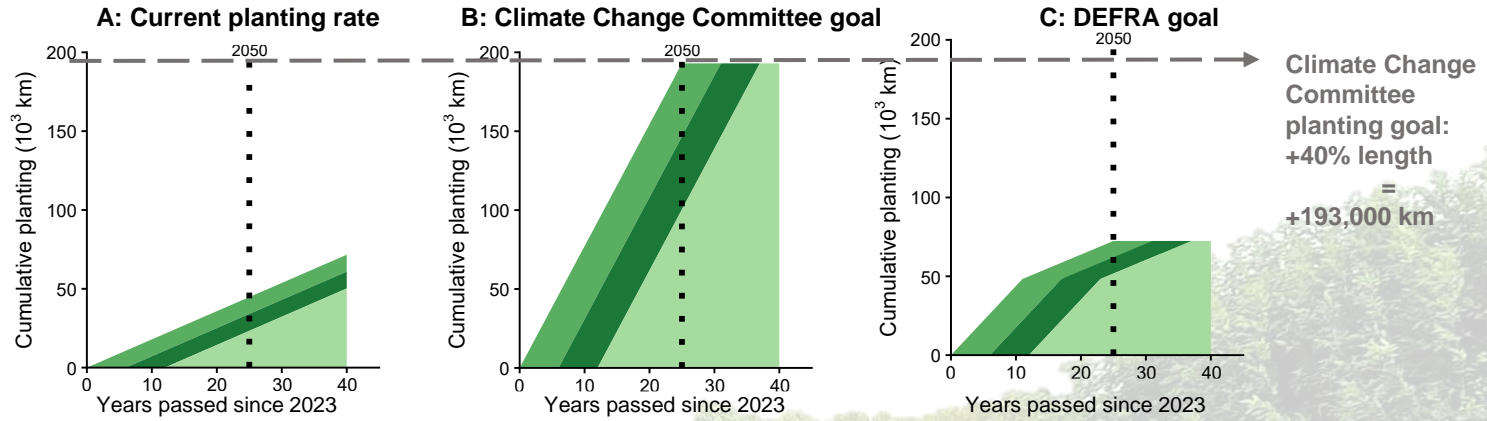
## Soil organic carbon (SOC)



# What is the CO<sub>2</sub> sequestration potential of planting hedgerows across the country?



Planting hedgerows will contribute towards reaching net-zero targets, but the degree of this contribution will depend on how many hedges will be planted. We calculated how much CO<sub>2</sub> will be stored in aboveground biomass (AGB) by 2050, and how much CO<sub>2</sub> will be stored in total biomass and in the soil by 2063 (40 years on) under three different hedgerow planting scenarios, as well as their annual offset of England's agricultural CO<sub>2</sub> emissions, which are estimated to be 5.6 Tg CO<sub>2</sub> each year.



Scenario	Hedges planted by 2050	Component	Sequestration by 2050		Sequestration by 2063		Annual offset %
			Tg C	Tg CO <sub>2</sub>	Tg C	Tg CO <sub>2</sub>	
A: Current planting rate	46,250 km	AGB	0.16	0.60	0.28	1.03	0.5
		<b>Total</b>			<b>0.78</b>	<b>2.87</b>	<b>1.3</b>
B: Climate Change Committee goal	193,000 km	AGB	0.67	2.47	0.93	3.41	1.5
		<b>Total</b>			<b>2.76</b>	<b>10.13</b>	<b>4.5</b>
C: DEFRA goal	72,500 km	AGB	0.29	1.06	0.36	1.32	0.6
		<b>Total</b>			<b>1.15</b>	<b>4.22</b>	<b>1.9</b>

Do you want to know more about these numbers? 1) Biffi, S., et al. 307 (2022) *Journal of Environmental Management*, 114484. 2) Biffi, S., et al. 892 (2023) *Science of The Total Environment*, 164482.