



## Climate mitigation using wood in the Netherlands: a modelling approach from family home to national scale

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### Abstract

Forests mitigate climate change by storing CO<sub>2</sub> as wood and providing wood for products with a long economic residence time. This study examined the extent to which common Dutch homogeneous forests can contribute to climate mitigation if the harvested wood is processed into products. A model was set up which calculates the CO<sub>2</sub> stock in the atmosphere for varying residence times of harvested wood in the economy and also determines the influence of this residence time on the optimal harvest age. Existing yield tables of Dutch homogenous forest were used as input data. This study showed that homogeneous forests in the Netherlands can extract a maximum of between 7 and 17 Mg of CO<sub>2</sub> per hectare annually, depending on the tree species. For all tree species, the CO<sub>2</sub> extracted from the atmosphere approaches this maximum as the residence time in the economy increases. The optimum felling age is not fixed, but varies depending on the economic residence time. The construction of 660,000 wooded single-family homes until 2050 with a lifetime of 150 years will remove an average of 1,5 Tg from the atmosphere annually. If the total forest area in the Netherlands is used to store wood in the economy for 150 years, an average of almost 6 Tg will be extracted annually. This is relatively low compared to the annual Dutch CO<sub>2</sub> emissions of 150 Tg, but it is an option that fits well into the mix of other options that can contribute to climate change mitigation.