

Evidence for revision of the UK productive forestry growth assumptions in Committee on Climate Change reports

Summary

Confor advises that the Committee on Climate Change use an assumption of at least Yield Class 16 on a 35 year rotation. This is a conservative figure.

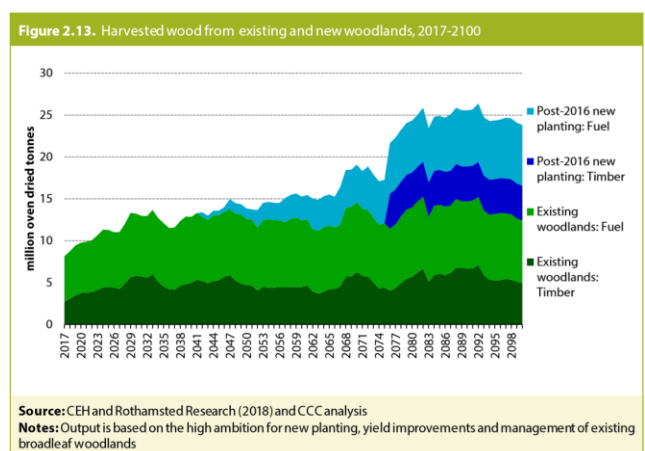
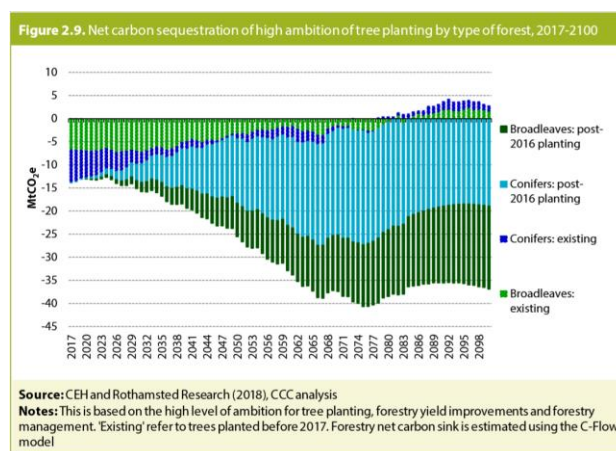
An assumption of Yield Class 24 is justified, based on the growth rates seen in improved Sitka Spruce on the land currently being planted. It would be valuable for the Committee on Climate Change to show a YC24 scenario, based on what could be achieved through new woodland creation on this and slightly better land, such as marginal arable.

The harvesting models should also show thinnings harvested after 20 years.

Introduction

The recent Committee on Climate Change [Report on Land Use](#) highlighted forestry as the most effective way to capture atmospheric carbon; and the companion [Biomass report](#) highlighted the possibility of keeping the carbon locked up for decades in timber products like buildings.

The CCC calculations are based on of a 60 year rotation at Yield Class 12 for productive conifers (Land Use Report p.41-42). These figures were provided by the Centre for Ecology and Hydrology based on the Forestry Commission Yield Tables, last updated in 2003. It is known within the industry that, following improvements in tree breeding and silviculture in the last 50 years, these figures are far too low.



Carbon store over time in standing forests (left) and harvested timber (right) predicted by CCC modelling.

The recent IPCC report stresses the need for substantive carbon reduction by 2030. Therefore, accurate data on the immediate carbon sequestration potential of forestry in the next decade is essential.

The case for higher assumptions

Confor asked Tilhill Forestry and John Clegg & Co, who are responsible for a large proportion of the commercially-grown conifer in the UK, what assumptions they would make about growth rates, based on their experience on the ground.

Their experience is that a Yield Class assumption of 16 would be accurate for existing yields, and conservative for new woodland creation. Rotation lengths are 30-45 years.

We also consulted James Morison of Forest Research, who agreed that the assumptions given are too low.

Tilhill Forestry, UK-wide forestry management and timber harvesting

Peter Chappell, Forestry Investment Advisor, Peter.chappell@tilhill.com

"It is not too strong a word to say that presenting YC 12 Sitka on a 60 year rotation as typical in these figures is nonsense. In Wales, typical Yield Class of existing forests is around 18, varying from 16-20. In Scotland it could be similar or about a YC band lower. Of Spruce being harvested at present in the UK, the lions share is Yield Class 14-22. A Yield Class of 12 would be an extremely poor result for a crop.

"For new afforestation schemes, using improved Sitka and avoiding poor ground, I would expect a Yield Class of 24 and would estimate recent Welsh plantings to be at YC 28.

"A typical rotation length is 40 years for existing forests, 35 years for new planting. Higher yielding crops we expect to harvest in 30 years. Even lower yields would be harvested by about 45 years, not 60, as longer rotations tend incur too much risk of windthrow: the rotation length suggested by the maximum mean annual increment is theoretical only, not followed in practice.

"Investors continually ask us about risks, of pests, climate events etc, and whether these are increasing. These are very hard to quantify, but much is done to mitigate these: by diversifying age classes, sometimes by diversifying species, and most importantly by choosing vigorous fast growing trees. It seems to me significant that the people who have their own money at risk, most of whom are sophisticated investors have focused in Spruce."



John Clegg & Co, UK wide forestry and investment specialists

Fenning Welstead, Partner at. fenning@johnclegg.co.uk

"A recent harvesting operation for a client yielded the following: The crop was Sitka planted in 1973 and therefore 45 years old at time of felling, located in the central Scottish borders on an upland site. From an area of 41.34 hectares the yield was 21,687 tonnes at an average of 524.6 tonnes/hectare. This crop had received one thinning at about age 20 that probably yielded 40 tonnes/hectare. We are brash raking at the moment with an estimated 75 tonnes/hectare, leaving the stumps, roots etc on site. My Yield Class estimate was 16.

"These figures are reasonably typical of borders spruce that is over 40 years old. There are some sites that have yielded considerably more: figures of over 800 tonnes/hectare have been achieved. The replanting will be with Sitka Spruce although there will be more open ground and mixed broadleaves; improved planting stock may result in faster growth but I do not have any figures for that."

Forestry Commission Forest Research

*James Morison, Climate Change Research Group Leader,
james.morison@forestry.gsi.gov.uk*

"I agree that there are considerable limitations in the modelled productivity – a 60 year rotation clearly does not match current practice, and YC12 is now regarded as low. I note that the scenarios assume 10 and 20% increase in yield, so getting more realistic. [A 20% increase would be YC14]

"It is worth noting that the methodologies used to model forest carbon do not include the impact of climate change on future growth, which is a considerable uncertainty in any of these projections. It is likely that the warmer temperatures and longer growing seasons already occurring will have increased productivity in some locations"

Conclusion

The assumptions used in the Committee on Climate Change calculations for growth rates of productive conifer are wrong. This results in a significant underestimate of the role forestry can play in helping to meet UK climate change targets.

Confor advises that the Committee on Climate Change use an assumption of at least Yield Class 16 on a 35 year rotation. This is a conservative figure.

An assumption of Yield Class 24 is justified, based on the growth rates seen in improved Sitka Spruce on the land currently being planted. It would be valuable

for the Committee on Climate Change to show a YC24 scenario, based on what could be achieved through new woodland creation on this and slightly better land, such as marginal arable.

The harvesting models should also show thinnings harvested after 20 years.

Confor would welcome more detailed research on this topic, and the revision of the official Yield Tables.

Eleanor Harris
Policy Researcher, Confor
7 December 2018