

GENERAL INFORMATION

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supervisor	Ceulemans R, Lust N, Lemeur R
institution	Universiteit Antwerpen (Department Biology), Ghent University (Laboratory of Forestry, Laboratory of Plant Ecology)
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ABSTRACT

In this study we investigated the carbon (C) budget of three Flemish forest ecosystems, i.e. a Scots pine (*Pinus sylvestris*) plantation, an ash (*Fraxinus excelsior*) stand, and a mixed stand with pedunculate oak (*Quercus robur*) and beech (*Fagus sylvatica*). The total amount of carbon stored in the forest ecosystems was highest in the oak-beech stand and lowest in the pine stand. The fraction of the total C that was stored in the organic matter was between 50 and 60 % in all stands. Both deciduous forests contained more soil organic matter than the pine stand, which was probably related to the higher clay content in the soil. The amount of C stored in the phytomass was largest in the oak-beech stand and lowest in the pine stand. In 1997, the oak-beech stand had the highest biomass production, which was in accordance with the high photosynthetic uptake. Eddy covariance measurements above the pine stand showed a small net loss of C from the forest in 1997, indicating that the pine forest was a small source of C to the atmosphere. C-sequestration in forests might play an important role in tomorrow's greenhouse gas inventories. Therefore, also an array of forest management options maximising C-accumulation in forests is presented. The authors intended to use the IPCC-protocol to establish a greenhouse gas inventory for the Flemish region, but found that there were too many data lacking to complete such an inventory for the Flemish region.

MATERIALS & METHODS

Cf. Janssens et al. 1998

RESULTS

Cf. Janssens et al. 1998

Pictures showing the carbon budget for the three forest systems in 1997.

CONCLUSIONS

- Preserve old forests, which contain a lot of C.
- Afforest former agricultural land. Preferably with deciduous trees with fast-decomposing litter.
- Exploitation should leave as much organic matter in the stand as possible.