GENERAL INFORMATION

author(s)	Samson R, Follens S, Lemeur R
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MATERIALS & METHODS

study area	5 n (scientific zone)
time period	May – October 1996 and 1997
goal	Calibration and validation of the water balance module of the WAVE model, which was developed for crop land, for a mixed oak-beech stand in the Aelmoeseneie forest.
set-up	measuring tower - beech leaves (7, 14, 21 m) - ash (21 m)
data collection	meteorology - short-wave radiation, temperature above the canopy (hourly measurements) gas exchange - leaf level, summer 1997 bole respiration - daily mean temperature at ground level
remarks	

RESULTS

The model gives a good description of the dynamics in photosynthesis at the leaf level. Net canopy photosynthesis (NCP) rates are higher on a sunny day than on a cloudy day; the drop in NCP at noon is largest for beech, which has a lower temperature optimum than oak. The photosynthesis is more efficient on the cloudy day, with regard to the radiation use efficiency (RUE). The RUE on the sunny day was 0.76 (beech), 1.11 (oak), 1.65 (ash) g C per MJ PAR; on the cloudy day, it was 1.71 (beech), 1.24 (oak), 1.83 (ash) g C per MJ PAR. C sequestration was larger during the growing season of 1997 than in 1996 due to the higher temperature and incoming radiation in 1997. On the leaf level and on the canopy level, net photosynthesis was a curvilinear function of the photosynthetic photon flux density.