GENERAL INFORMATION

author(s)	Verstraeten WW, Minnaert M, Pieters M, Goessens S, Hubrechts L, De Schrijver A, Samson R, Feyen J, Deckers J, Muys B, Lust N, Lemeur R, Van Slycken J, Devos B
year	2001
English title	Quantitative analysis of the transpiration of forests, meadows and agricultural fields
original title	Kwantitatieve analyse van de verdamping van bossen in vergelijking met weide en akkerland
reference	Eindrapport VLINA99/06, Universiteit Gent, K.U.Leuven, IBW
pages	225
type	report (r)
ecosystem service	regulating – water cycle
keywords	sap flow, Penman-Monteith, soil evaporation
taxa	
project	VLINA 99/06
supervisor	Feyen J, Deckers J, Muys B, Lust N, Lemeur R, Van Slycken J, Devos B
institution	Laboratory of Forestry
location	hardcopy, pdf
data	

MATERIALS & METHODS

study area	5n (scientific zone)
time period	January 2000– August 2001
goal	Calibration and validation of the WAVE model for different forest stands. Comparison of the simulated transpiration values of the WAVE model and the Penman-Monteith approach Comparison of the transpiration of forests, grasslands and agricultural fields. Simulation of the impact of changes in vegetation and soil water on the transpiration.
set-up	17 study plots through Flanders (forests of different tree species, maize/wheat/barley fields, grassland)
data collection	soil sampling: texture, soil density, organic C content, water retention, hydraulic conductivity LAI (hemispherical photographs above the throughfall collectors, at different times for each season) weekly recording: soil water content (TDR probes), soil temperature, sap flow, stem flow + throughfall + open field precipitation
remarks	Table 3 p 35, T4 p 37, T5 p 39, T6 p 42, T11 p 62

RESULTS

Gontrode: p 108–113

The transpiration values calculated based on the sap flow measurements are in concordance with literature data. They are much lower than the WAVE values. The values calculated with Penman-Monteith were the highest. The output of the WAVE model was sometimes unrealistic, probably due to the simulation of soil respiration. The water retention capacity of the soil is a crucial parameter.

Too few fields and grasslands were sampled to make sound comparisons with forests.