GENERAL INFORMATION

author(s)	Aelbrecht K
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project	
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data	

MATERIALS & METHODS

study area	5n (scientific zone)
time period	7 August – 5 November 2001
goal	Investigate the inverted sap flow that has been observed in branches of hazel (Steppe_2000_th). Investigate whether inverted sap flow can be induced in hazel branches. Investigate the relationship between sap flow in hazel branches and roots.
set-up	1 hazel in the Aelmoeseneie forest (h = 5 m), 1 hazel in a climate room (h = 1.2 m) heat balance sensors creating inverted sap flow - increase transpiration: additional lighting and/or ventilation of a branch - stop transpiration: wrapping up of another branch in plastic
data collection	<u>Aelmoeseneie forest</u> sap flow (3 branches, 3 roots), number of leaves per branch above the sensor mean leaf area - 50 leaves of branches that were not sampled (10 August) - 20 leaves per sampled branch (5 November) stomatal resistance - 6 leaves: mean leaf area (4), smaller (1), larger (1) - 27–30 August additional lighting (6 h, 45 h or 68 h) or ventilation (6 h), additional lighting & ventilation (5 h), wrapping up of another branch in plastic (4 days) <u>climate room</u> sap flow (5 branches): 5–10 November additional lighting (11–15 h), additional lighting+plastic wrapping (6–7 h)
remarks	not all the branches and roots in the Aelmoeseneie forest were sampled during the entire sampling period

RESULTS

The changes in the meteorological variables measured during the sample period are shown. Different methods were used to calculate the Ksh value: calculating a daily minimum Ksh seemed the best method. The Ksh value was less variable for roots than for branches.

Root 1 showed an inverse sap flow during September, which was wet after a dry August. The inverse sap flow was as large as the upward sap flow. The other 2 sampled roots did not show inverse sap flow. For some sample days, no relationship could be found between the sap flow in the branches and the roots.

No inverse sap flow was observed in the sampled branches, and no inverse sap flow could be induced either. Lighting and ventilation increased the sap flow in the treated branch, probably because of the increase in PAR or temperature and the decrease in boundary layer resistance. Wrapping a branch in transparent plastic did lower the sap flow, but did not induce inverse sap flow.

The lights in the climate room caused an increase in sap flow; extra lighting did result in a large increase in sap flow; wrapping branches resulted in a decrease in sap flow. No inverse sap flow could be created.