



Investigations on the relationship between pollen production and Leaf Area Index of common hazel (*Corylus avellana*)

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Leaf Area Index (LAI) can be used as an indicator of photosynthetic efficiency or resource allocation by plants. Therefore, it could be indicative of masting behaviour that is expressed as the year-to-year variability of pollen production. One common masting theory suggests that an inter-annual variation of leaf area influences the supply of assimilates. Thus, a year with rich foliage is related to fewer flowers and followed by a year with reverse characteristics.

The aim of this study is to investigate the relationship of pollen production and LAI of nine individuals of common hazel (*Corylus avellana*) near Eichstätt, Germany. Pollen production was assessed in 2018 by determining the amount of pollen grains per catkin and extrapolating it to the whole plant. LAI was estimated in the previous and present vegetation period using digital hemispherical photography.

Pollen production of hazel varied between 6.5×10^9 and 5.8×10^{10} pollen grains per individual with a mean of 3.0×10^{10} ($\pm 1.8 \times 10^{10}$); LAI values ranged between 0.73 and 1.52. Our data showed that there is no clear tendency towards lower pollen production related to higher LAI values in the previous and present vegetation period or vice versa.

However, the characteristics of other plants have to be evaluated in order to investigate whether it is sufficient to measure only one variable to conclude on the magnitude of the other variable. This would facilitate many applications ranging from forecasting pollen production, LAI and eventually yield for single individuals and probably also for denser stands.