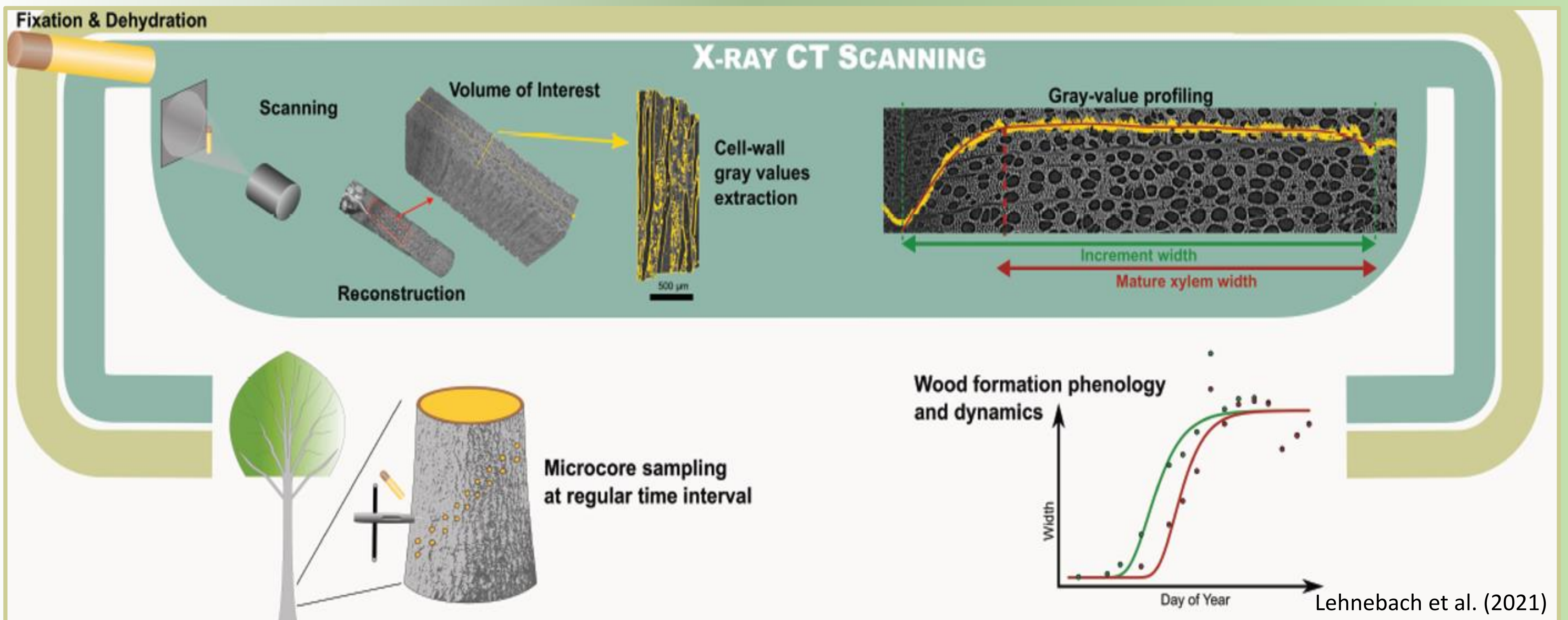
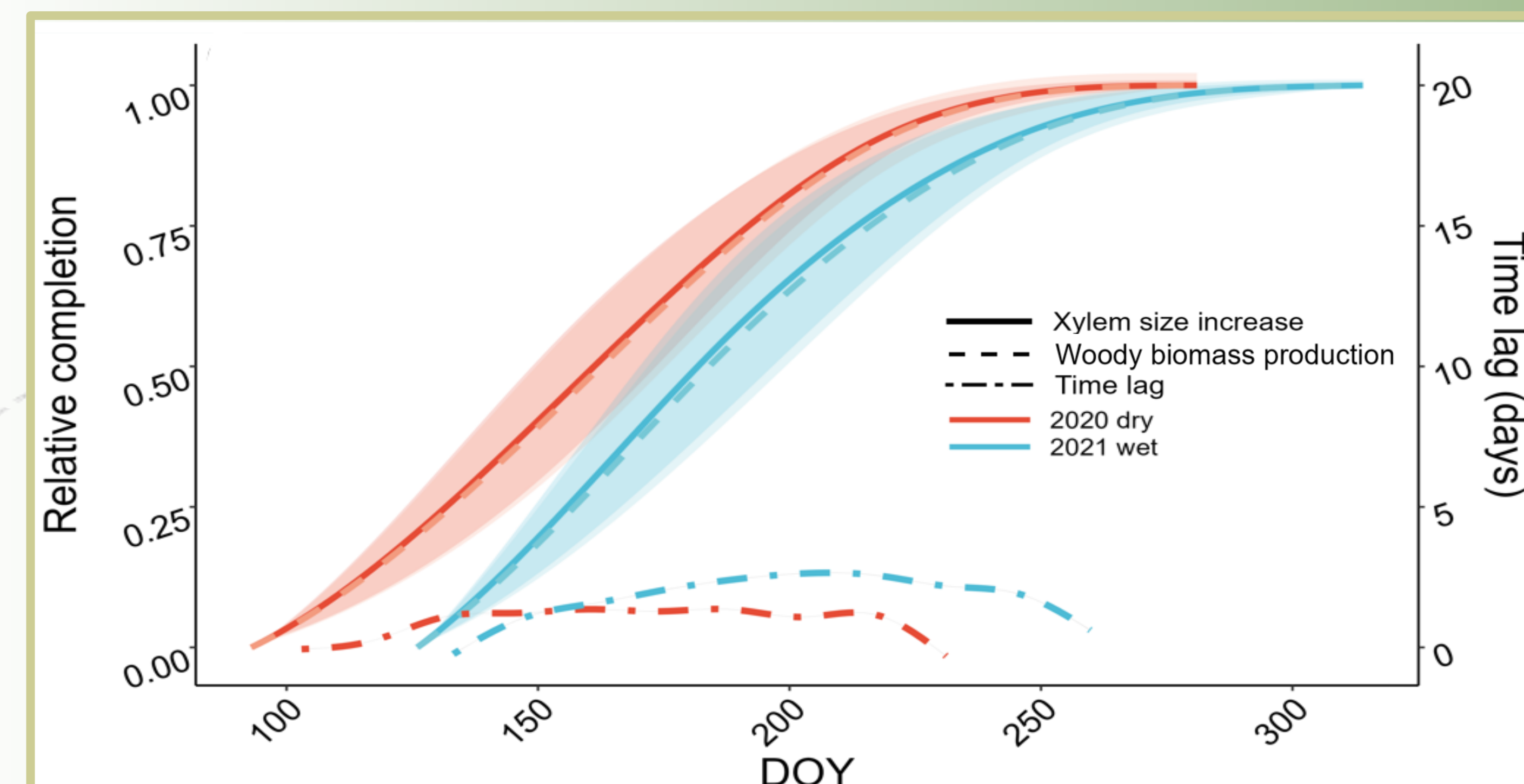
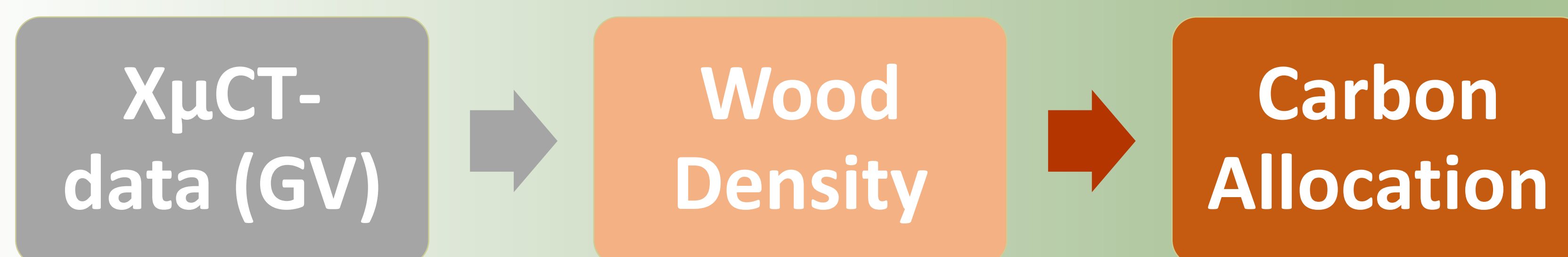


X-ray CT scanning for intra-seasonal tree biomass assessment: potential application for carbon allocation in forests



A new cutting edge technique (Lehnebach et al., 2021), High-resolution X-ray Computed Tomography ($X\mu$ CT), has proven to enhance accurate estimating of relevant tree xylogenesis parameters in a range of tree species, wood anatomies and wood structures. In addition it, also enhances the of quantification of intra-annual biomass production dynamics was proven by Lehnebach et al. (2021).



Data for Beech (*Fagus sylvatica*) for 2020 (dry) and 2021 (wet). Results show a difference in growth period and growth period length. But no time lag between size increase and biomass accumulation is observed, contrasting the findings of Cuney et al. (2015) and Lehnebach et al. (2021): circumferential data directly correlated to biomass accumulation during growing season

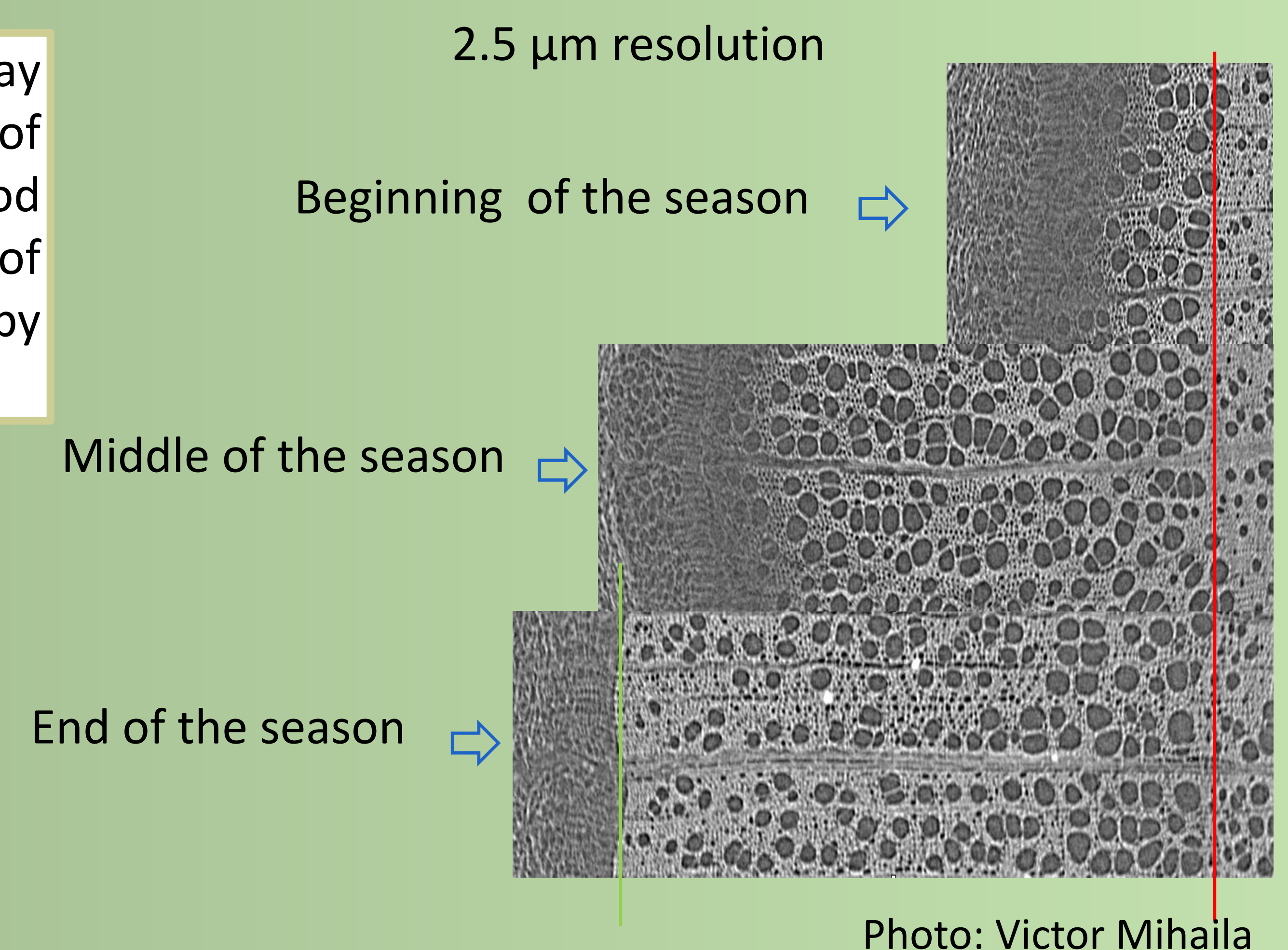
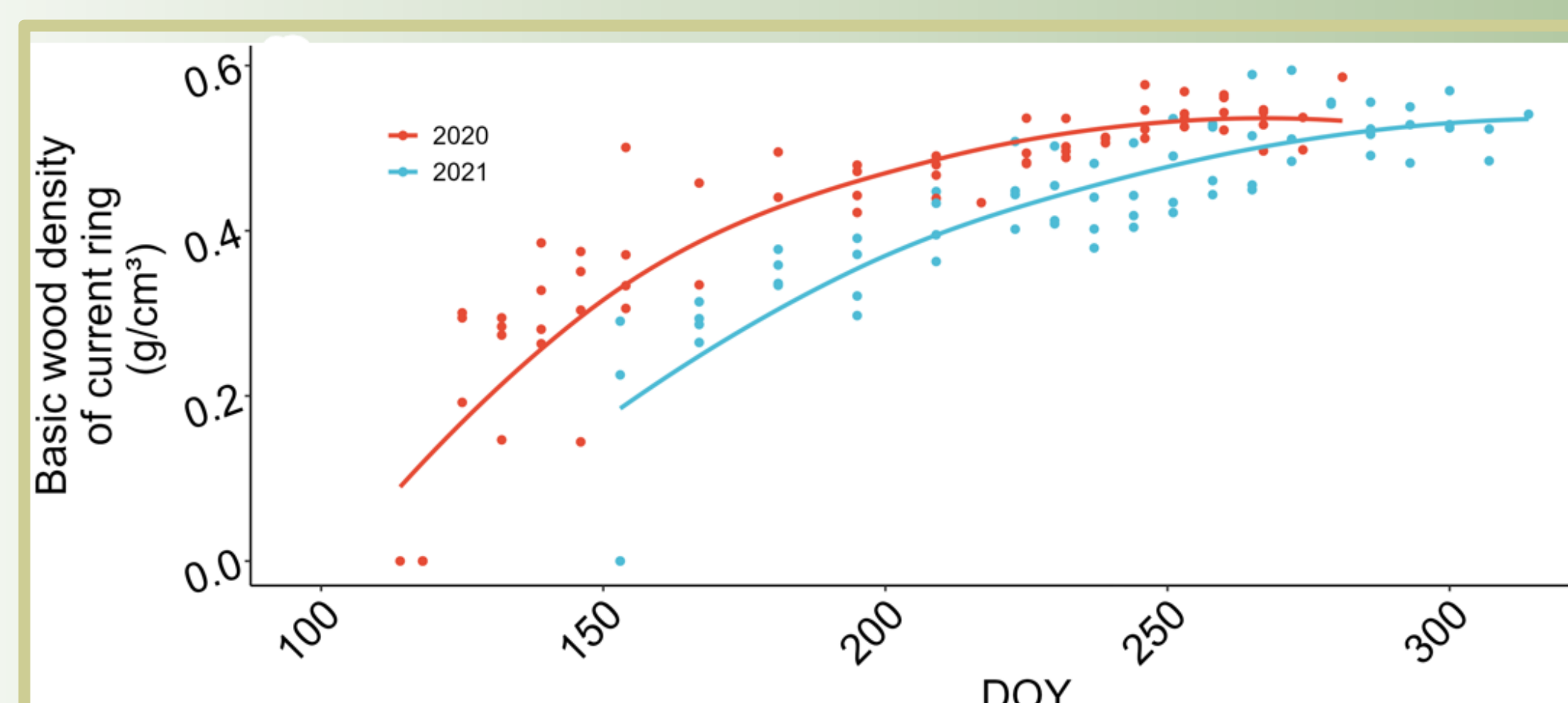
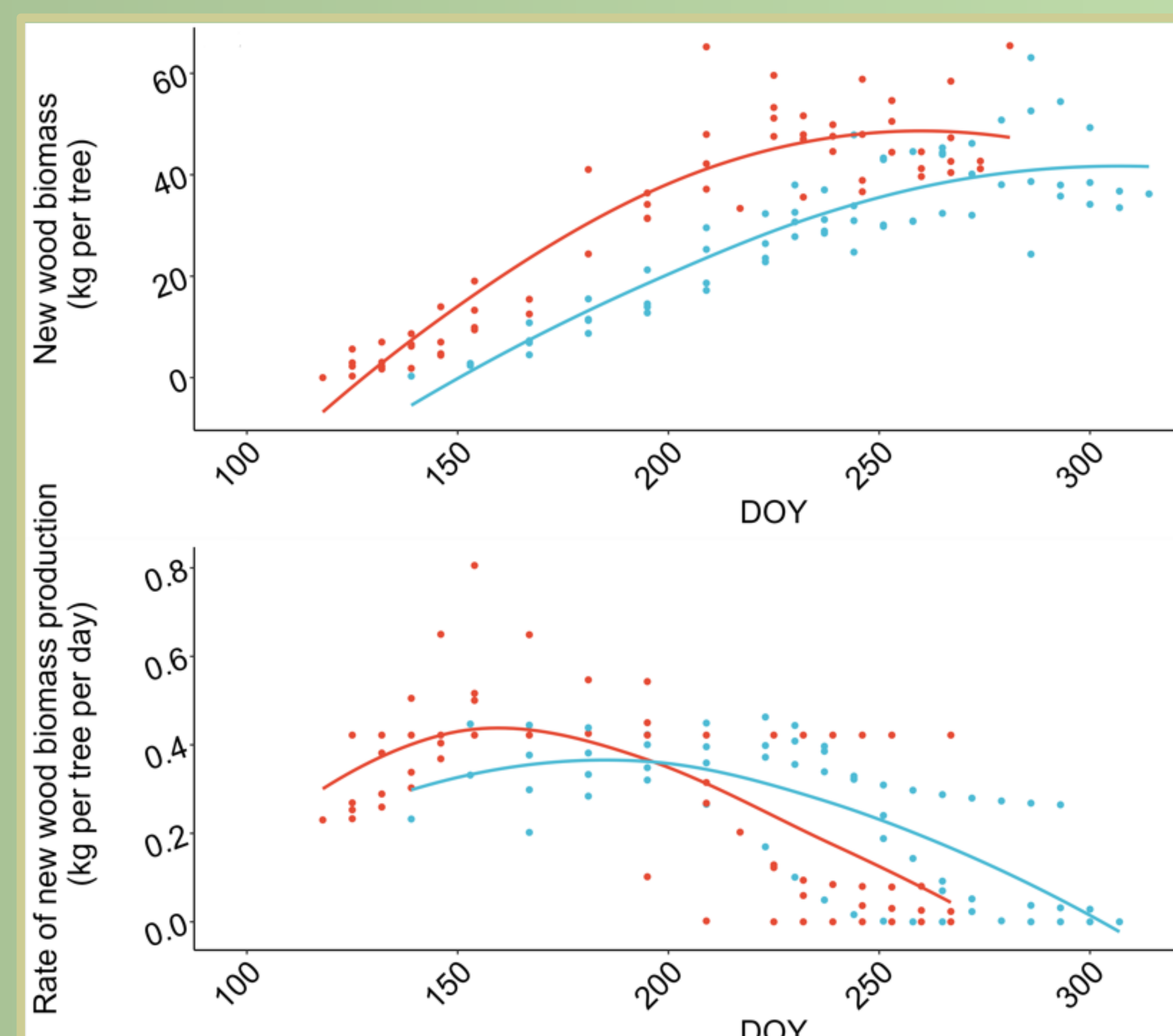


Photo: Victor Mihaila

Seasonality of carbon uptake and biomass growth are correlated since carbon makes up a large part (50 %) of biomass building blocks. Hence the potential of using $X\mu$ CT to perform detailed studies on carbon allocation in trees and forest ecosystems. There is a direct link between $X\mu$ CT-date and the density of scanned material. Seasonal stem circumference data and seasonal carbon fluxes can be assessed in parallel to seasonal stem biomass production based on $X\mu$ CT-data.



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