

Hillis, W.E., Humphreys, F.R., Bamber, R.K. and Carle, A., 1962. Factors Influencing the Formation of Phloem and Heartwood Polyphenols Part II. The Availability of Stored and Translocated Carbohydrate. Part I: *Holzforschung* 14, 105 (1960).

High carbohydrate availability = increased heartwood deposition

Mishra, G., Li, Y. and Altaner, C., 2017. Early Heartwood Screening by Wounding.

Can wound trees to test their ability to produce heartwood

Moreno Chan, J., Raymond, C.A. and Walker, J.C.F., 2013. Development of heartwood in response to water stress for radiata pine in Southern New South Wales, Australia. *Trees*, 27(3), pp.607-617.

Water stressed site = more heartwood

Cui, Z., Yang, Z., Xu, D. and Li, X., 2022. Drought could promote the heartwood formation in *Dalbergia odorifera* by enhancing the transformation of starch to soluble sugars. *Scandinavian Journal of Forest Research*, 37(1), pp.23-32.

Drought increased the amount of substances in heartwood. More sugars were converted to starch though total NSC availability was higher

Nakada, R. and Fukatsu, E., 2012. Seasonal variation of heartwood formation in *Larix kaempferi*. *Tree Physiology*, 32(12), pp.1497-1508.

Heartwood formation has its own phenology, maybe linked to leaf drop

Kramer, R.D., Sillett, S.C. and Carroll, A.L., 2014. Structural development of redwood branches and its effects on wood growth. *Tree physiology*, 34(3), pp.314-330.

Age related decline in branch volume growth correlated with heartwood deposition

Sillett, S.C., Antoine, M.E., Carroll, A.L., Graham, M.E., Chin, A.R. and Van Pelt, R., 2022. Rangewide climatic sensitivities and non-timber values of tall *Sequoia sempervirens* forests. *Forest Ecology and Management*, 526, p.120573.

Low growth efficiency=high heartwood deposition. Linked to nocturnal fog.

Sooooo many Sillett Lab papers....

Zweifel, R., Sterck, F., Braun, S., Buchmann, N., Eugster, W., Gessler, A., Häni, M., Peters, R.L., Walthert, L., Wilhelm, M. and Ziemińska, K., 2021. Why trees grow at night. *New Phytologist*, 231(6), pp.2174-2185.

Nighttime VPD linked to the turgor needed to drive growth

Karlowsky, S., Augusti, A., Ingrisch, J., Akanda, M.K.U., Bahn, M. and Gleixner, G., 2018. Drought-induced accumulation of root exudates supports post-drought recovery of microbes in mountain grassland. *Frontiers in Plant Science*, 9, p.1593.

Williams, A. and de Vries, F.T., 2020. Plant root exudation under drought: implications for ecosystem functioning. *New Phytologist*, 225(5), pp.1899-1905.

Less total root exudation but more relative exudation during drought especially in typically fast growing plants. Exudation aids recovery

Tooulakou, G., Giannopoulos, A., Nikolopoulos, D., Bresta, P., Dotsika, E., Orkoulou, M.G., Kontoyannis, C.G., Fasseas, C., Liakopoulos, G., Klapa, M.I. and Karabourniotis, G., 2016. Alarm photosynthesis: calcium oxalate crystals as an internal CO<sub>2</sub> source in plants. *Plant Physiology*, 171(4), pp.2577-2585.

Gabersčik, A., Grašič, M., Vogel-Mikuš, K., Germ, M. and Golob, A., 2020. Water shortage strongly alters formation of calcium oxalate druse crystals and leaf traits in *Fagopyrum esculentum*. *Plants*, 9(7), p.917.

Gouveia, C.S., Ganança, J.F., Lebot, V. and Pinheiro de Carvalho, M.A., 2020. Changes in oxalate composition and other nutritive traits in root tubers and shoots of sweet potato (*Ipomoea batatas* L.[Lam.]) under water stress. *Journal of the Science of Food and Agriculture*, 100(4), pp.1702-1710.

Water stress = more calcium oxalate

Rissanen, K., Hölttä, T., Bäck, J., Rigling, A., Wermelinger, B. and Gessler, A., 2021. Drought effects on carbon allocation to resin defences and on resin dynamics in old-grown Scots pine. *Environmental and Experimental Botany*, 185, p.104410.

Water stress = resin production