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Whole root system water conductance responds to both axial and radial traits and network topology over natural range of trait variation

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Highlights

- We extend the Landsberg and Fowkes (1978) model of water uptake to root networks.
- Dichotomous branching pattern is more efficient in water uptake than herringbone.
- Network topology affects uptake over reported ranges of hydraulic parameters.
- Total water uptake responded more to radial flow in lupin but axial flow in wheat.
- Axial flow limitation may affect monocot root habit evolution.

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