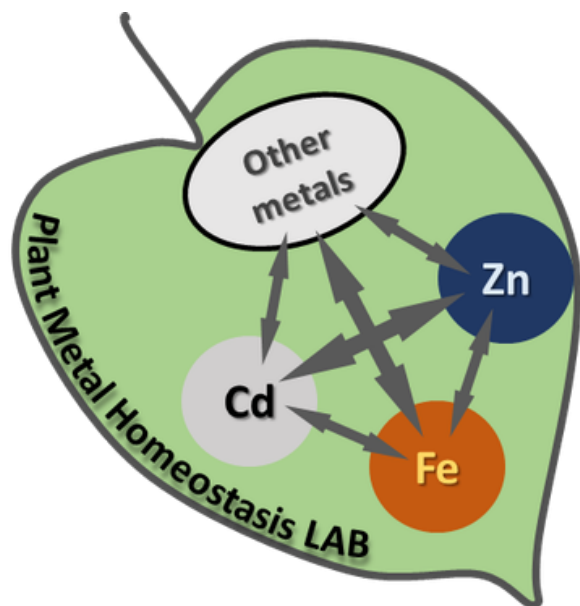


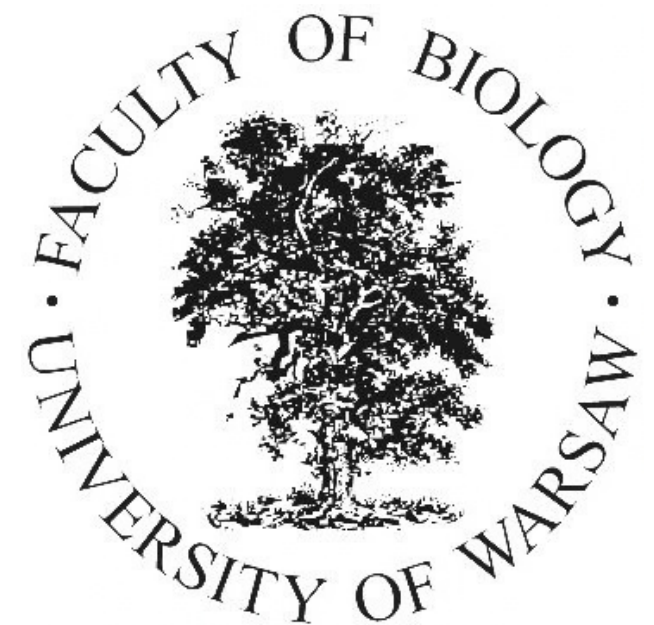
How do plants maintain zinc homeostasis under heterogeneous soil zinc availability?



Julia Maksymiuk

Oskar Siemianowski, PhD

Anna Barabasz, PhD hab.



What does a complex soil environment look like?

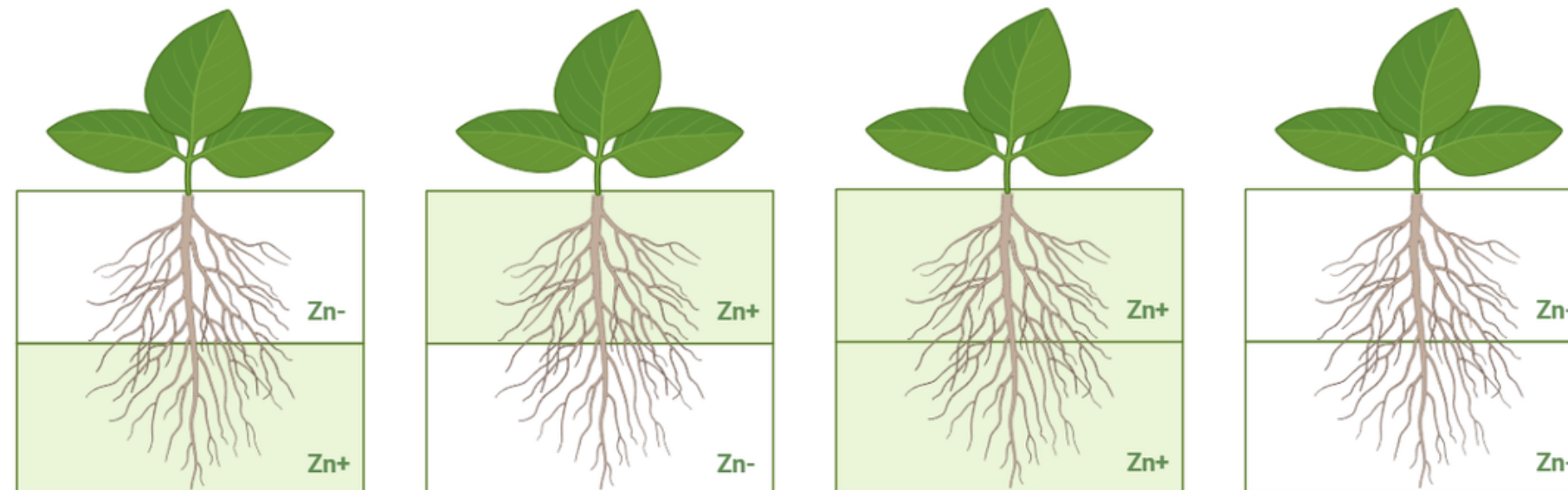
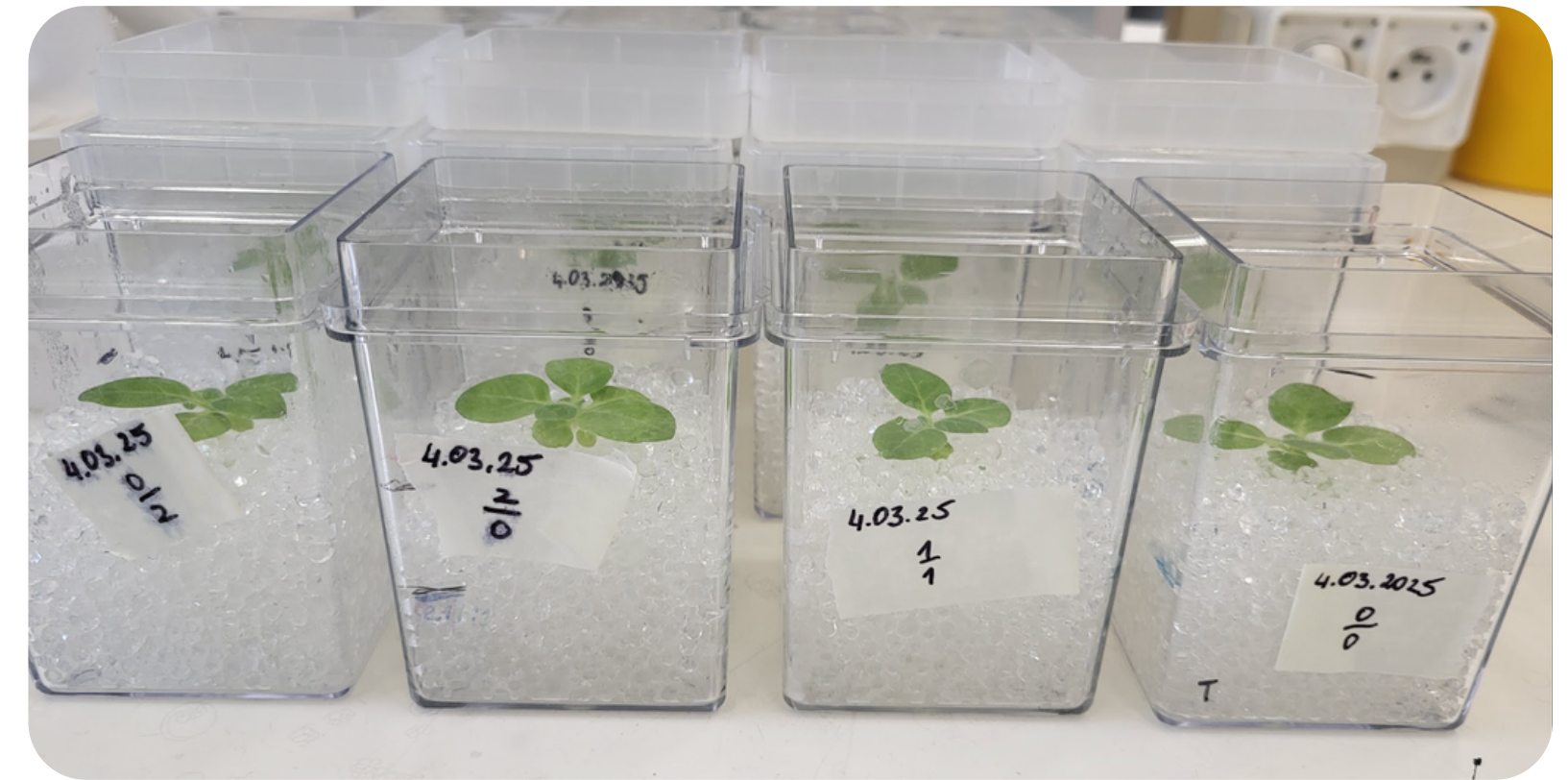
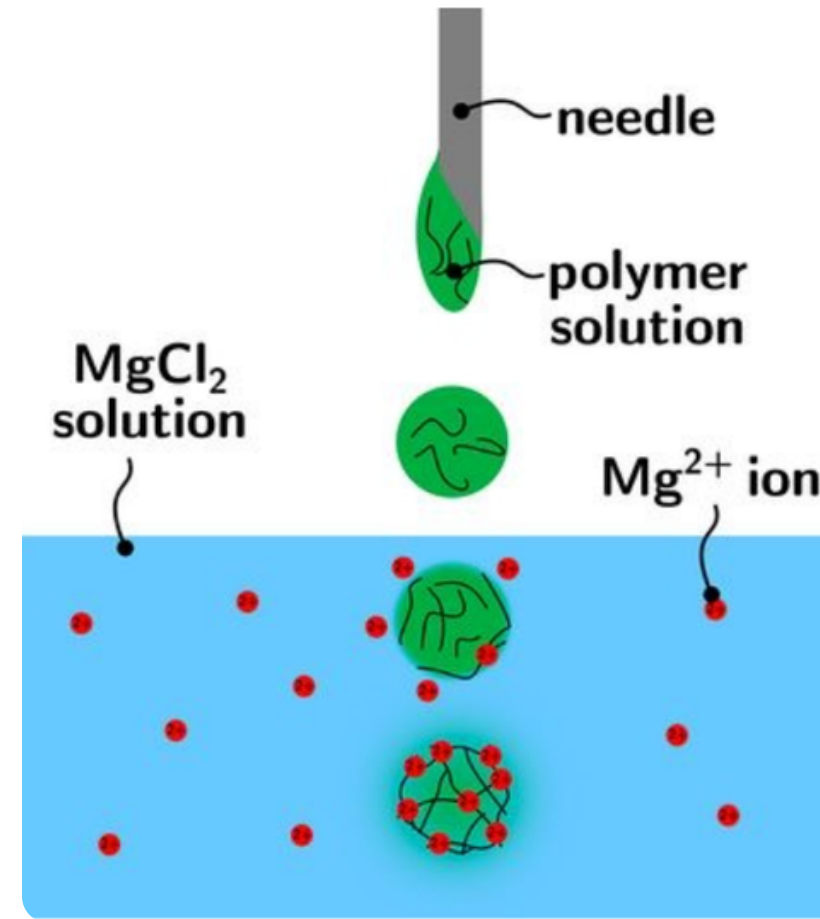


(María Fernández-Bravo) Dina in 't Zandt; 2023

How is the environment simplified to study plants?

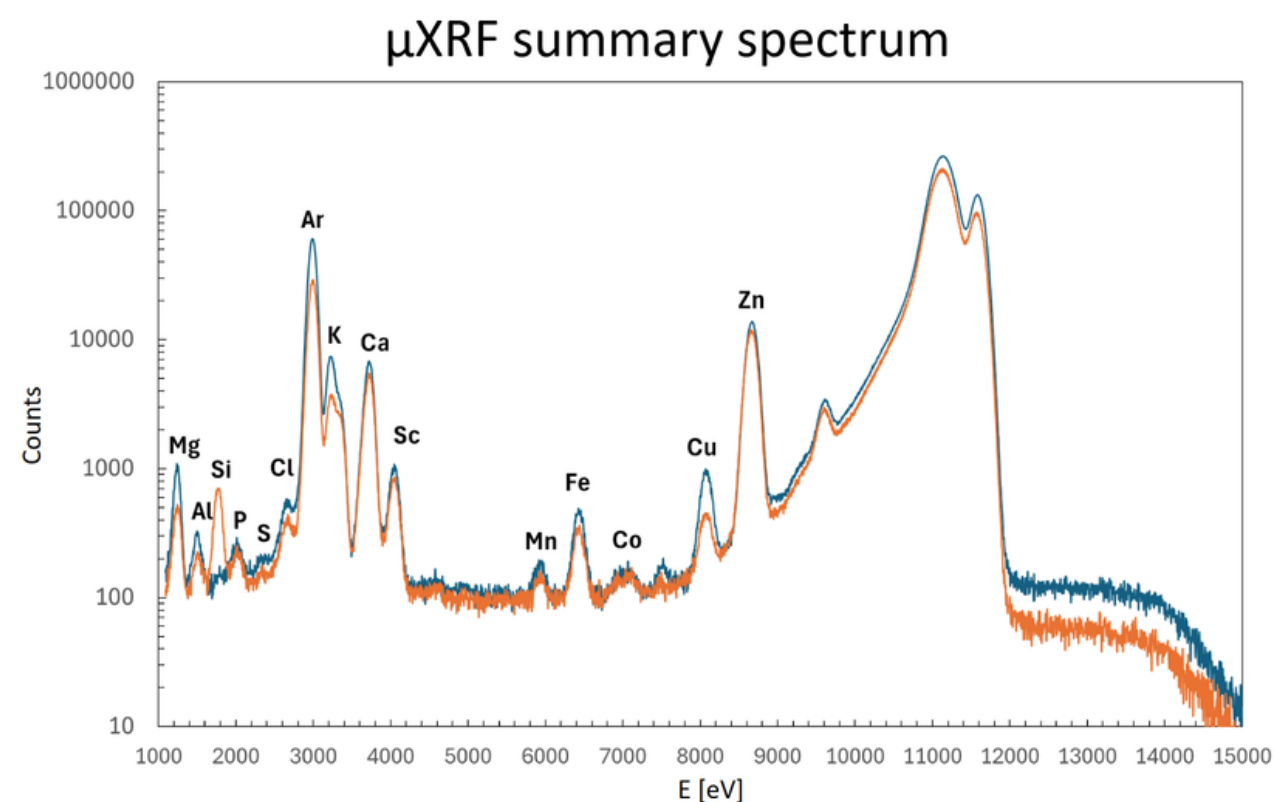


How did we model the heterogeneous distribution of Zn in soil in our experimental setup?

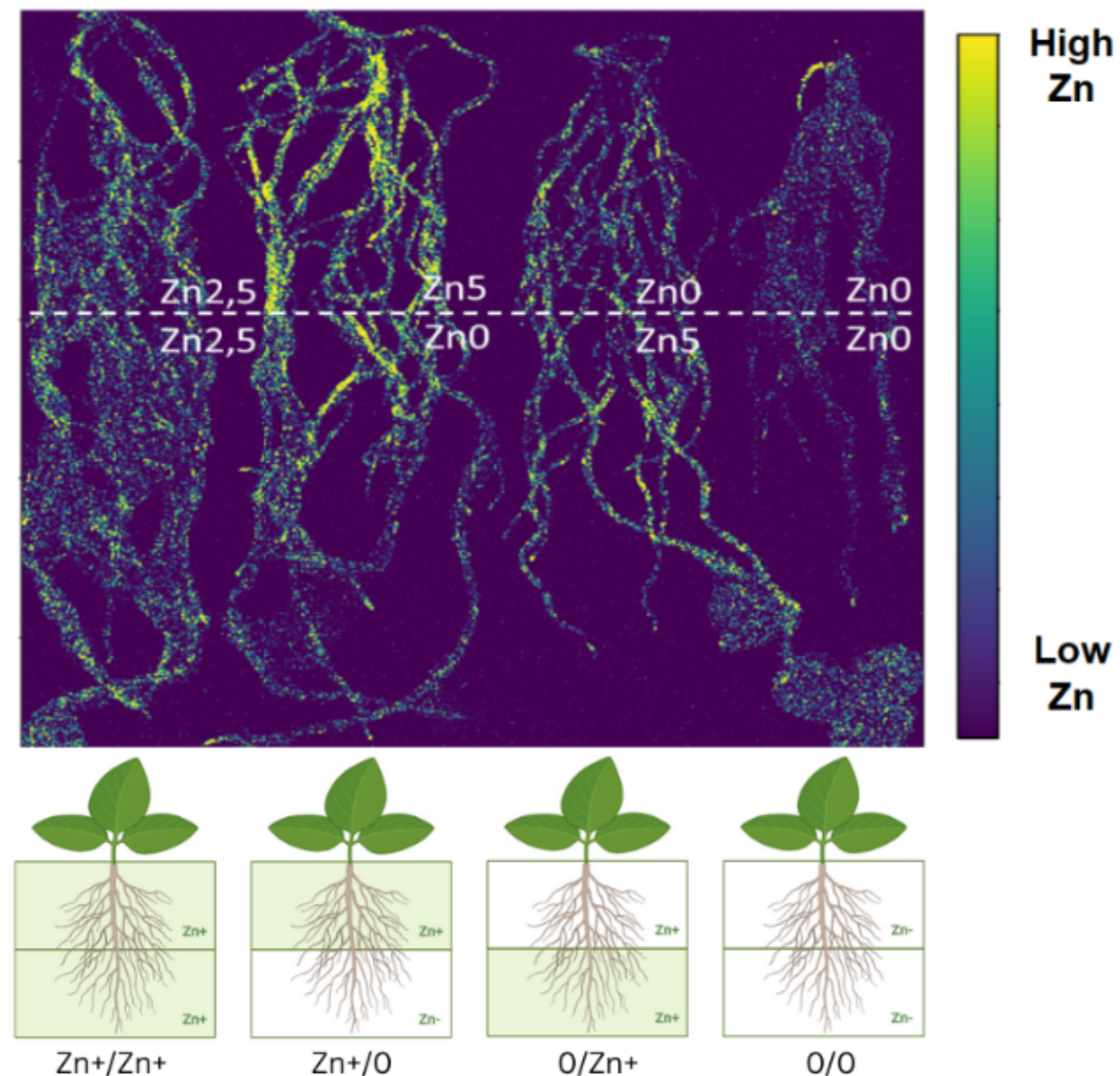


What did we observe?

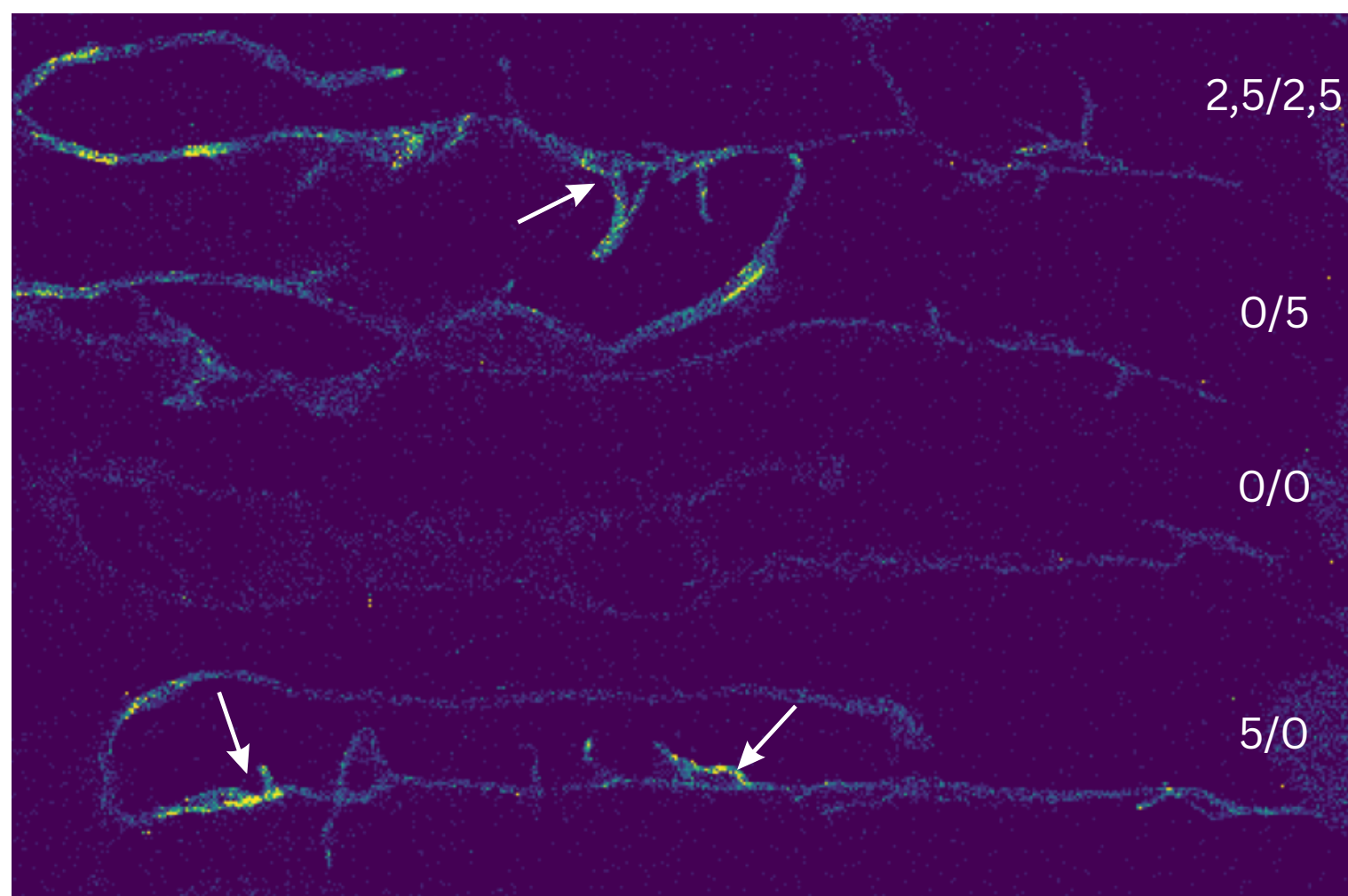
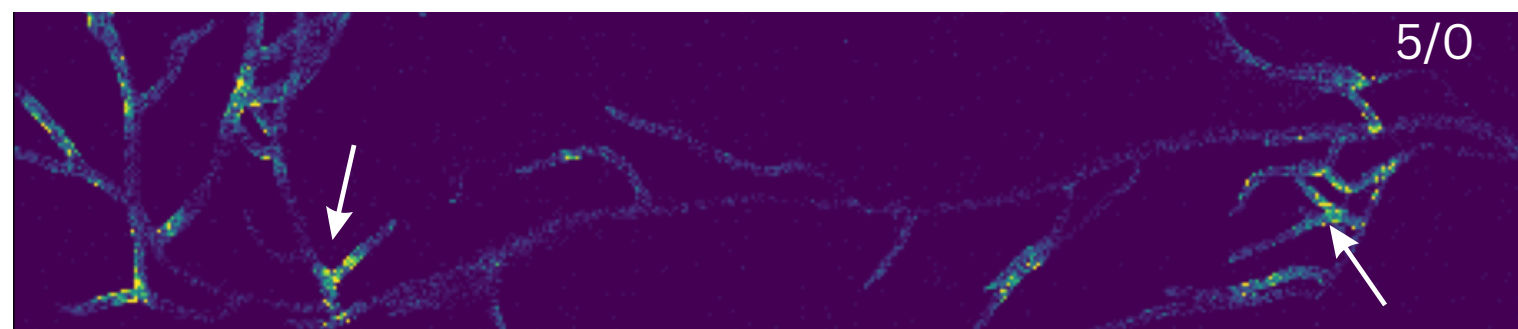
Micro x-ray fluorescence (μ XRF)



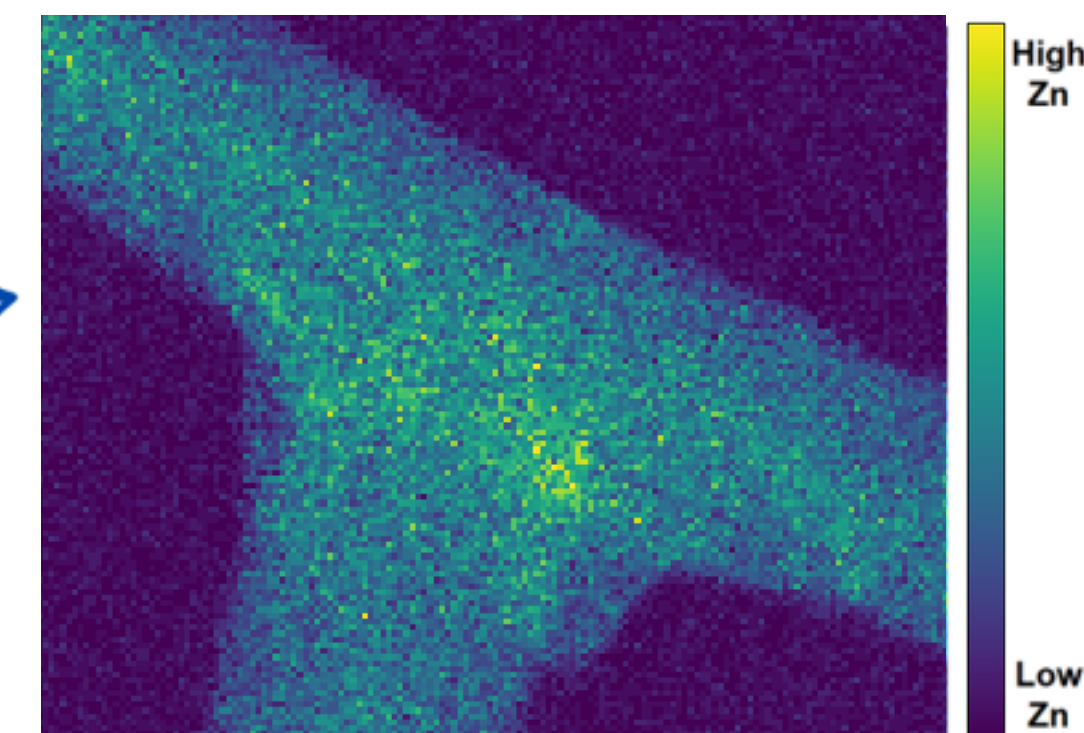
Zinc distribution in roots



What did we observe?

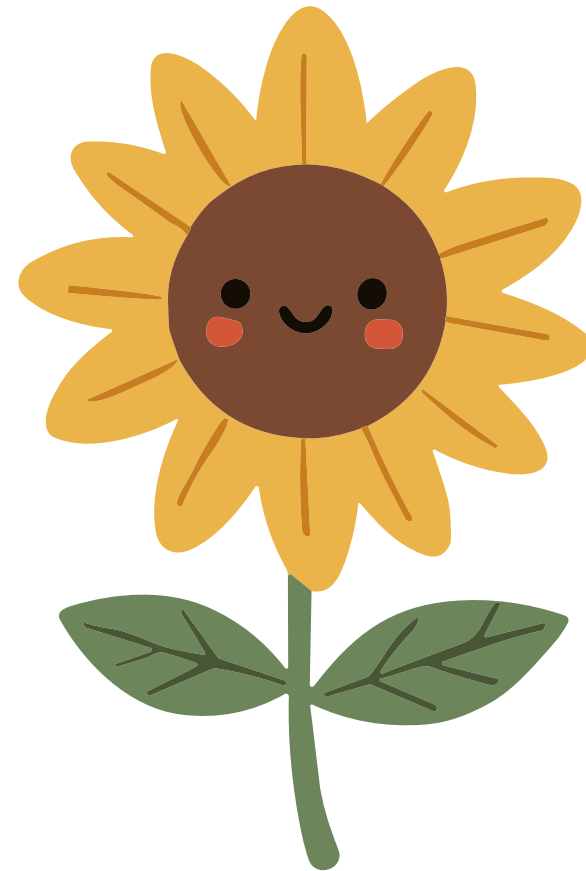


Transport nodes



Hypothesis: In a heterogeneous substrate system, Zn is transported from roots located in Zn-rich zones to roots in Zn-deficient zones, most likely via transfer between the xylem and phloem, which may be particularly intense at root branching points.

Thank you!



Next plans: X-ray Absorption Spectroscopy (XAS)

References

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