

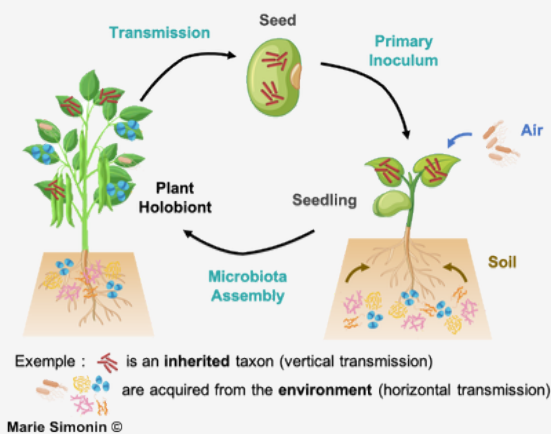


Moving from natural to synthetic communities to uncover seed microbiome transmission and impact on plant health

Dr. Marie Simonin

EmerSys Team, UMR Institute of Research in Horticulture and Seeds (IRHS), Beaucouzé

- **Date and Time:** Tuesday, December 3, 2025, 15:00 CEST
- **Webinar Link:** Scan the QR to join the mailing list. The webinar link will be sent by email.



Abstract: Seed microbiota serve as critical drivers of plant microbiome assembly and establishment, yet the relative contributions of different microbial taxa and the mechanisms underlying seed-to-plant transmission remain poorly understood. Using synthetic communities (*SynComs*) as experimental tools, we have dissected the transmission dynamics of seed-derived microorganisms and their functional impacts on early plant development and growth. Our work demonstrates that *SynCom* inoculation on seeds effectively manipulates and tracks microbial colonization across distinct plant compartments and developmental stages. During this talk, I will present different strategies to design, monitor and assess the effects of synthetic communities, providing examples from seeds but that are transferable to other ecosystems.



Speaker's Bio: Marie Simonin is an INRAE researcher (IRHS, Angers, France) whose work centers on seed microbiota and microbial community ecology, exploring how microbes interact with seeds and influence plant health from the earliest life stages. Her team uses synthetic communities inoculations to investigate the mechanisms of microbial inheritance across plant generations. By assembling defined microbial consortia and inoculating plants, she explores how specific microbial members are transmitted from parent plants to offspring, shaping the initial microbiota of the next generation. This work provides insights into the processes by which beneficial microbes can be maintained and propagated through plants, informing strategies for enhanced crop health and sustainable agriculture.

