Imaging and spatio-temporal modelling of plant-pathogen lesions

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Due to the complexity of mechanisms driving epidemic progression, few models exist that accurately reproduce lesion growth in vivo. Mathematical models that incorporate morphological imaging data offer a promising multidisciplinary approach. After reviewing some preliminary models, we will explore how daily imaging data combined with machine learning and reaction-diffusion models can describe lesion dynamics. This is a joint effort with Melen Leclerc, Stéphane Jumel, Frédéric Hamelin, and Nicolas Parisey from INRAe UMR Igepp, 35650 Le Rheu, France.

We will conclude by discussing recent collaborative work with O. Goubet et al. at the forest scale.