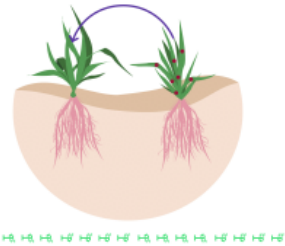
A plant in the field is never Lonely



Genetic identity of neighbours matters

Who is in the neighbourhood?

Around a crop plant in the field are

pollinators
microbes
worms
pathogens
neighbouring crop plants

Plants resist pathogens, obviously

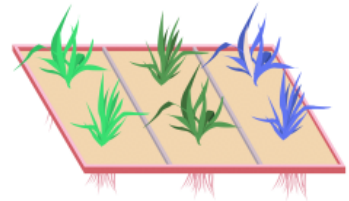
Plants switch up their basal immunity on infection to fight the pathogen.

Plants eavesdrop

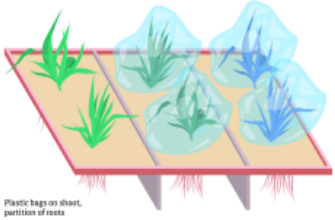
The infected plant alerts the neigbours via compounds

in the air
by pollinators
by fungal network
via root contacts

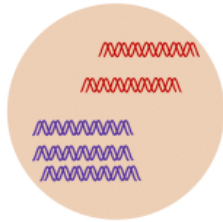
In a crop mixture, resistance to a pathogen changes before and after infection.



Through soil, not air



Disrupting exchanges via soil affects pathogen resistance in a crop mixture.



Gene regulation and beyond

Gene are regulated by neighbouring plants, before and after an infection, but this does not explain resistance fully.

neighbour modulated susceptibility

Healthy plants in the neighbourhood talk to each other, bringing all plants to a state of **primed defense**.

Based on

Plant neighbour-modulated susceptibility to pathogens in intraspecific mixtures

Pélissier et al. JEB, 2021
Artist: Dr. Ipsa Jain

There is more to learn about how plants trade off between competition and shared defense mechanisms.

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