Improving disease resistance of pea through selection at the plant-soil interface

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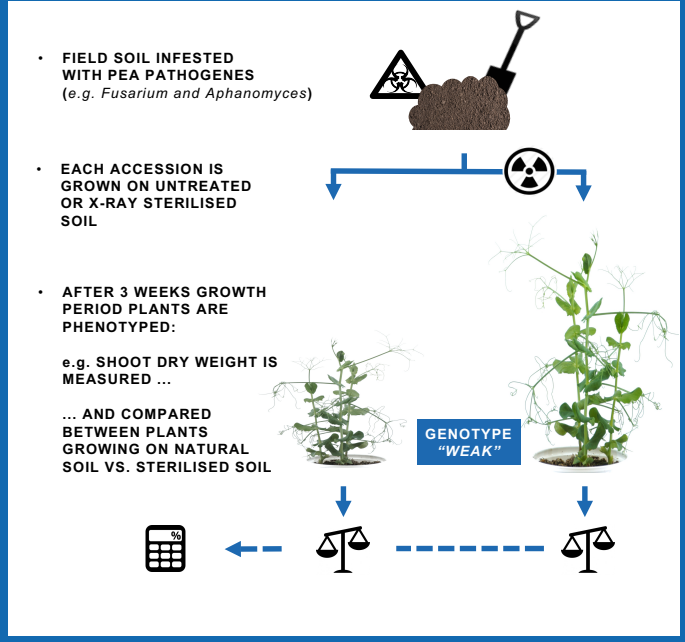
1 Background

Pea (*Pisum sativum* L.) is the third most important pulse crop after common bean and chickpea. They are a **valuable protein source for food and feed**. They form a intimate mutualistic symbiosis with nitrogen fixing rhizobacteria, and therbey, are able to significantly improve soil fertility. Despite their ecological and economic importance, legume cultivation remains below expectations due to **low and unstable yields**, mainly because of **biotic and abiotic stresses**. Peas are **highly prone to soil-borne pathogens**. Rotation breaks of up to ten years are recommended to avoid building up of high pathogen load. This stands in conflict with efforts to increase acreage of legumes in general and peas in particular to strengthen low input farming systems and meet the increasing protein demand of a growing world population.

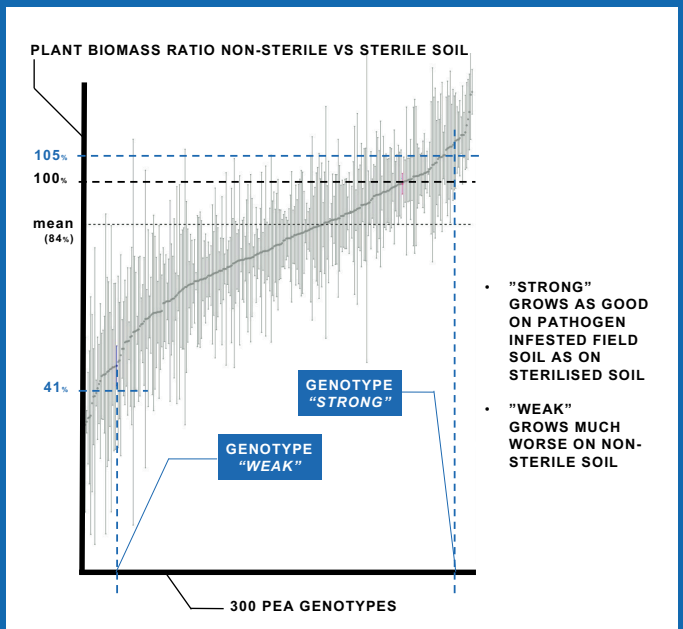
2 This project aims to

- IMPROVE RESISTANCE OF PEA AGAINST SOIL-BORNE DISEASES
- ELUCIDATE THE GENETIC BASIS OF POLYGENIC RESISTANCE OF PEA AGAINST FUNGAL PATHOGENS
- ENHANCE THE UNDERSTANDING OF SOIL MICROBE-PLANT INTERACTIONS
- PROVIDE THE KNOWLEDGE BASE TO BREED FOR SUPERIOR CULTIVARS FOR SUSTAINABLE AGRICULTURAL SYSTEMS

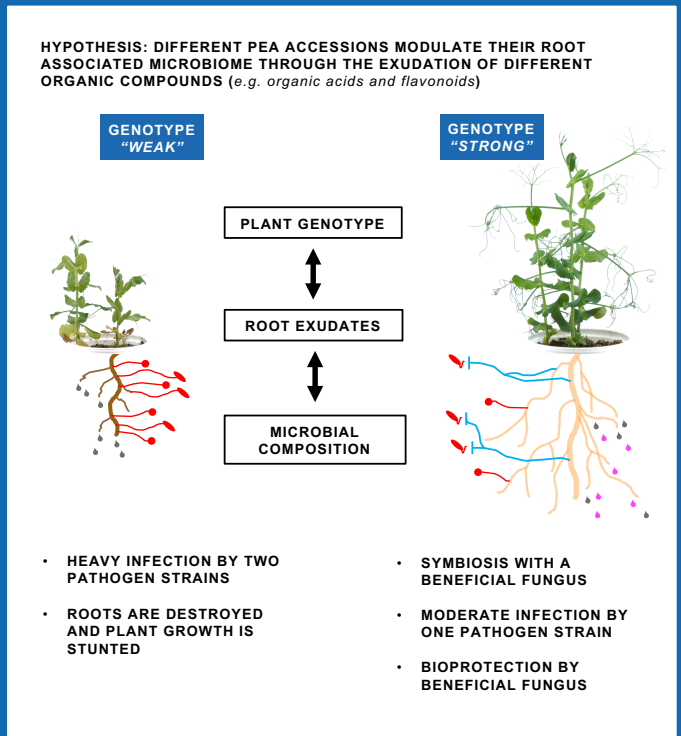
3 Screening of 300 pea accessions for resistance



4 First Results



5 Next: Key pathogens and beneficial microbes



6 References

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- Desgroux *et al.* BMC Genomics 2016 17: 124.

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