Characterisation of new sources of resistance to crown rust in Italian ryegrass

Starting date: flexible
Duration: 6 to 12 months
Working Place: Agroscope Reckenholz
Language: German or English
Contact: Jenny Kiesbauer
Email: jenny.kiesbauer@agroscope.admin.ch

Background

Crown rust caused by the biotrophic fungus *Puccinia coronata* f. sp. *lolii*, leads to biomass yield losses and reduction of quality in Italian ryegrass (*Lolium multiflorum* Lam.). Therefore, crown rust resistance is an important selection criterion in ryegrass breeding. To find new sources of resistance, a previously established nested association mapping population (NAM) will be screened for crown rust resistance. The NAM population consists of 708 plants for which genotyping data is already available. For screening of the population, a commonly used leaf segment test will be applied as a greenhouse experiment. Phenotypic and genotypic data will then be used for GWAS analysis and the identification of candidate resistance loci.

Objectives and research approach

The main objective is the identification of loci/marker/genes controlling resistance against crown rust. Therefore, phenotyping of the NAM population for crown rust resistance following by conducting a GWAS using the available genotyping data together with the newly obtained phenotypic data is needed.
At the end of the project, you are able to design experiments, systematically screen for resistance sources, conduct GWAS as well as analyse the resulting data.

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