Bachelor or Master thesis BIOVIT 2022/23

Topic (Norwegian):
Genetiske analyser av resistens mot rustsykdommer i vårhvete

Topic (English):
The genetics of rust resistances in spring wheat

Summary
Yellow rust (stripe rust), brown rust (leaf rust) and black rust (stem rust) are the three rust diseases which cause severe yield damage on wheat globally. In recent years, epidemics of these rust diseases have re-appeared in Norway and some of the important wheat cultivars are susceptible. We have a Nordic spring wheat association mapping (AM) panel "MASBASIS", which is genotyped by the wheat 25K SNP chip and consists of current and historically important cultivars grown in Norway. In this project, the master student will use the disease data to conduct a Genome wide association study (GWAS) and make some greenhouse testing to validate the candidate QTL which are found by the GWAS analysis.

The objectives of this project are to (1) evaluate resistance of the association panel to different rust diseases; (2) compare the resistance loci detected in this GWAS study with previously published rust resistance genes in order to find novel or unique resistance loci in the Norwegian wheat germplasm.

Subject area (keywords): genetics, plant pathology, disease resistance, genomics

Language thesis: English

Bachelor or Master thesis: Master thesis

Credits: 60 ECTS

Project/company: HVETERUST (NFR 301835): Sustainable management of rust diseases in wheat

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