

Bachelor or Master thesis BIOVIT 2021/22



Topic (Norwegian):

**Genetiske analyser av rase-spesifikk og rase uspesifikk resistens mot gulrust i vårhvete**

Topic (English):

**The genetics of race specific and race non-specific yellow rust resistance in spring wheat**



### **Summary**

Yellow rust, also known as stripe rust, is one of the most yield-reducing wheat diseases globally. In recent years, yellow rust epidemics have re-appeared in Norway and some of the important wheat cultivars are susceptible to the new yellow rust races. 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 different yellow rust races for greenhouse inoculation and use the disease data to conduct a Genome wide association study (GWAS).

The objectives of this project are to (1) evaluate the seedling resistance of the association panel to different yellow rust races; (2) identify both race-specific and non-race specific resistance loci by GWAS; and (3) compare the resistance loci detected in this GWAS study with previous 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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