



Want to learn modern plant breeding tools and work with unique genetic resources in oats?

PhD scholarship in oat genomics

About the position

The Department of Plant Sciences, Faculty of Biosciences at the Norwegian University of Life Sciences (NMBU) has a vacant 3-year PhD position in genomics research on oats, focusing on broadening the genetic base of future oat breeding. This is a unique opportunity for candidates wanting to pursue a research career in plant breeding and getting practical experience in the rapidly evolving fields of genomics and phenomics, including genome sequencing, SNP genotyping, bioinformatics, statistical modelling, and analysis of high-throughput phenotyping data as well as classical genetic analyses and field-based plant breeding.

The research will be based at NMBU and conducted in close collaboration with plant breeders at Graminor. A research stay abroad with one of our collaborating partners can be expected. Collaboration with Graminor will also give opportunities to get practical plant breeding experience.

The applicant is made aware that an application for a PhD position at NMBU is at the same time an application for admission to a PhD programme at the institution. The documentation that is necessary to ensure that the admission requirements are met must be uploaded as an attachment.

Main tasks

The overall aim of this PhD project is to broaden the genetic base for future oat breeding by phenotypic and genetic characterization of novel genetic diversity in a diverse and agronomically improved recurrent selection population based on crosses with *Avena sterilis*.

Main research tasks may include:

- Genetic characterization of the recurrent selection population using SNP marker data.
- Possibly whole genome sequencing of the parents and genotyping-by-sequencing (GBS) profiling of progenies (depends on external funding).
- Identification of signatures of selection and beneficial *Avena sterilis*-derived chromosome segment that have been retained through recurrent selection.
- Phenotypic evaluation of the recurrent selection population in field trials for agronomic and seed composition traits for use in genetic studies.
- UAV-based multispectral imaging of field trials to assess canopy vegetation status.
- Identification of main genetic loci and associated SNP markers for important agronomic and seed composition traits.
- Identification of suitable crossing parents and validation of markers for use in marker-based trait introgression.

The successful candidate is expected to submit a research and education plan for a PhD degree during the first months of the appointment, with the aim to complete a doctorate within the PhD scholarship period.

A more detailed description of the planned research activities can be obtained from Prof. Morten Lillemo: morten.lillemo@nmbu.no

Competence

The successful applicant must meet the conditions defined for admission to a PhD programme at NMBU. The applicant must have an academically relevant education corresponding to a five-year master's degree or a cand.med.vet. degree, with a learning outcome corresponding to the descriptions in the Norwegian Qualification Framework, second cycle. The applicant must have a documented strong academic background from previous studies and be able to document proficiency in both written and oral English. For more detailed information on the admission criteria please see the [PhD Regulations](#) and the relevant [PhD programme description](#).

The applicant must document expertise and interest in the research subject.

Required Academic qualifications:

- MSc degree in plant breeding, plant genetics, molecular biology, bioinformatics or related fields that are relevant for the research project.
- Good scientific writing skills in English.
- The candidate which finishes their education within the spring/summer of 2023 can also apply but must provide documentation of their degree before employment.

The following experiences and skills will be emphasized:

- Competence in genetics and statistical data analysis
- Computer programming skills
- Some basic knowledge of plant science and plant breeding
- Experience in molecular genetics lab work or field trial research

Required personal skills:

- Dedicated and achievement-oriented
- The ability to focus and work independently as well as being a reliable team member
- Good verbal communication skills

Desired personal skills:

- Flexible, social and open-minded
- Positive attitude towards challenges

Remuneration and further information

The position is placed in government pay scale position code 1017 PhD. Fellow. PhD. Fellows are normally placed in pay grade 54 (NOK 532.200,-) on the Norwegian Government salary scale upon employment and follow ordinary meriting regulations.

Employment is conducted according to national guidelines for University and Technical College PhD scholars.

For further information, please contact Prof. Morten Lillemo

E-mail: morten.lillemo@nmbu.no; phone +47 98039348.

[Information for PhD applicants](#) and general [information to applicants](#)

Application

To apply online for this vacancy, please click on the 'Apply for this job' button above. This will route you to the University's Web Recruitment System, where you will need to register an account (if you have not already) and log in before completing the online application form.

Application deadline: 23.05.2023

In the application, the candidate must confirm that information and documentation (in the form of attachments) submitted via the job application can also be used by NMBU in a possible admission process.

Applicants invited for an interview are expected to present original diplomas and certificates.

The following documents must be attached to the application:

- Motivation letter (maximum 1 page)
- Complete CV
- Certified copies of academic diplomas and certificates. (i.e. Di-ploma, transcript. Diploma supplement for both bachelor and master). Diplomas, transcripts and diploma supplements that are not in Norwegian or English must be uploaded in the original language. An English translation of these documents must also be attached.
- Applicants from universities outside Norway are kindly requested to send a diploma supplement, or a similar document, which describes in detail the study program and grading system.
- Documentation of proficiency in written and oral English in accordance with [NMBU PhD regulation section 5-2 \(3\)](#).
- Names and contact details for two references
- Additional relevant documentation of professional knowledge (for example, list of scientific works). If it is difficult to judge the applicant's contribution for publications with multiple authors, a short description of the applicant's contribution must be included.

About The Faculty of Biosciences

The Faculty of Biosciences (BIOVIT) aims to help shape the future food- and bio-production through teaching and research within biology and sustainable production and use of plants, livestock and fish. The faculty has an annual turnover of approx. 250 million kroner. The faculty is organized into nine research sections: Genome Biology, Breeding and

Quantitative Genetics, Ruminant Nutrition and Physiology, Ethology and Animal Environment, Animal Nutrition and Physiology, Agroecology, Genetics and Plant Breeding, Plant Protection and Food Crops, Plant Biology and Biotechnology. The faculty has seven large and small research centers and laboratories, including a Center for Outstanding Innovation - Foods of Norway. The faculty is responsible for bachelor's and master's degrees in Aquaculture, Biology, Animal Science and Plant science as well as English-language master's degrees in Agroecology, Plant Sciences, Feed Manufacturing Technology and Genome Sciences.

The faculty is responsible for PhD degrees in animal science and plant science. The faculty currently has about 690 bachelor and master students and 90 PhD students. The faculty has about 240 employees and its own faculty administration.

The Norwegian University of Life Sciences (NMBU)

NMBU's focus is a joint effort for a sustainable future. Our university will contribute to securing the future of life, through outstanding research, education, communication and innovation.

NMBU has 1,900 employees of which about 500 phd scholarships and 6,700 students. The university is divided into seven faculties.

NMBU believes that a good working environment is characterised by diversity.

We encourage qualified candidates to apply regardless of gender, functional ability, cultural background or whether you have been outside the labour market for a period. If necessary, workplace adaptations will be made for persons with disabilities. More information about NMBU is

available at www.nmbu.no.

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