

Bachelor or Master thesis BIOVIT 2021/22

Topic (Norwegian):

Drone-basert kartlegging av avlingsvariasjon i bondens hveteåker

Topic (English):

UAV-based mapping of yield variability in farmers' wheat fields



Summary

Canopy reflectance captured by multispectral imaging offer the possibility to predict healthy biomass and grain yield at early growth stages in the field. We have through previous projects achieved reasonable prediction models for grain yield in field trials using multispectral UAV imaging. In this project we will test this technology in farmers' fields as part of the ongoing PhenoCrop project.

The student will be involved in analysing multispectral UAV images captured from collaborating farms in south-eastern Norway. These images will be taken at different growth stages throughout the field season. It is also possible for the student to be involved in some of this data capturing. You will get training in developing multispectral vegetation maps based on the UAV images, and use of machine learning algorithms to predict grain yield variability based on these maps. At the end of the season, these yield predictions will be compared with the actual yield variability in the field, captured by the farmers grain combines. By developing reliable grain yield predictions, farmers can use these early in the growing season to adjust site-specific nitrogen fertilization. There is a possibility for summer job in connection to this master thesis.

Subject area (keywords): phenotyping, multispectral imaging, yield prediction, precision agriculture

Language thesis: English

Bachelor or Master thesis: Master thesis

Credits: 60 ECTS

Project/company:

PhenoCrop (NFR 320090) - Phenotyping for healthier and more productive wheat crops

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